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Experience sampling of the psychosocial work
environment: From hedonometrics to hedonopragmatics

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Til Far

Declaration

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Abstract

Current research that uses the experience sampling method (ESM) in an organisational context has focused on individuals in order to advance the theories and metrics regarding employees' work experiences. What is notable is the lack of focus on the pragmatic potential of the method to mobilise change in organisations. Participatory interventions based on survey feedback are shown to be effective, but rely on questionnaire data with well-known limitations for capturing the dynamic nature of employee experiences. The ESM addresses and overcomes some of these limitations but has yet to be applied to feedback interventions.

This research investigates how an ESM approach to survey feedback in an organisational context mobilises change efforts with a focus on the psychosocial work environment. The study serves two purposes. First, it investigates the semantic equivalence between the questionnaire metrics and new ESM measures of the psychosocial work environment, where questions are sampled from a pool of items at each time sampling occasion (hedonometrics). Second, it assesses whether the ESM exceeds traditional survey feedback when mobilising collective change efforts (hedonopragmatics).

A longitudinal experimental study design is applied within a Danish higher education institution. Ten naturally established work groups are assigned to either an ESM or a questionnaire survey condition. Each unit participates in an intervention with extensive data feedback and a follow-up procedure 8–16 months later. Data include survey responses, action plans and observations of feedback conferences. The results provide partial support for the semantic equivalence of the ESM sampling and the questionnaire approach. All three data sources indicate greater change mobilisation for the ESM compared to the questionnaire condition.

It is concluded that the added value of the ESM extends beyond its use as a better metric at the individual level. It also has pragmatic and emancipatory potential for sensemaking at the group level in organisations.

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Synopsis

This thesis is an exploration of a participatory approach to investigate the psychosocial work environment (PWE) at an institution of higher education. It examines how self-reported survey data, collected using an intensive longitudinal method with extensive data feedback, can mobilise resources for change through a process of sensemaking at the work group level. The objective of this project was to consider if self-report questionnaire methods change in nature when scaffolded with information technology. This reconceptualisation of data collection and the practice of returning it to research participants runs counter to several of the limitations often associated with traditional self-report methods. It thus revives central propositions of the original survey feedback approach within organisation development.

The first chapter provides an overview of the literature concerning the psychosocial work environment and job satisfaction. Although not mutually exclusive, the two research strands often represent different approaches to measuring employees' attitudes, perceptions and evaluations of the job. This chapter further explores approaches to change within the organisation development literature, which stress a participatory element.

The second chapter reviews the evidence for the use of quantitative data as a catalyst for change, particularly in human systems in organisations, by facilitating sensemaking in groups and eliciting introspection at the individual level. It contains a review of survey feedback, an organisation development technique, where the change effort involves returning quantitative data about a social system in an organisation back into the system. This approach, first used in the late 1950s, proved an effective way to change a social system. It allowed the system to map itself by involving its members in the process of data collection, in addition to subsequent analysis, and finally, the design of change initiatives. However, only scattered anecdotal evidence appears in the organisation development literature regarding the use of the survey feedback approach as an effective method for organisational change.

Adopting a systematic methodology, a review of the survey feedback literature in reveals evidence in favour of the method to generate insight and improve PWE and job satisfaction. It concludes with the premise that the method is associated with successful change initiatives. I, therefore, further speculate why this line of research died out in the early 1980s by highlighting several methodological shortcomings.

In shifting the focus to the application of quantitative data at the individual level, I examine the application of data feedback in other domains. I then review the literature on intensive longitudinal methods, which have been used to obtain nuanced data on how people's experiences change across time and space. Then I discuss how and to what extent recorded data has been made accessible to participants.

Narrowing in on the experience sampling method (ESM), I find that it has primarily been used to generate data for the use of researchers. Only rarely has data been fed back to participants. However, in other domains, data access and feedback are explicitly used to provide participants with insight into ongoing psychological or physiological processes. This approach has had positive outcomes within cognitive behavioural therapy, for example. In this context, diary methods are used to examine patients' experiences retrospectively. One facet is the amenability of the method in enabling patients to revisit various psychological responses concerning specific situational or contextual cues.

Another use for quantitative data feedback is within the *quantified-self* (QS) movement. In this domain, data is collected automatically by electronic devices carried by the participant. These continuously record their everyday activities, such as exercise or sleep. In the QS approach, data feedback is seen as the mobiliser for change through the participant's interaction with the quantitative data. The underlying theory is that data provides participants with insight into activity patterns about which they have previously been unaware and as a result, enables goal-directed change initiatives.

Self-reported data, and in particular self-reported data coupled with data feedback, rely on the value of introspection: people are asked to pay attention and ascribe meaning to their emotions and cognitions. Since introspection is a central theoretical component of the methods applied in the thesis, I review the debate regarding its relevance within the field of psychology. This helps to identify the boundaries of the method's application and to examine if and when introspection can be adopted as a credible method to obtain more in-depth knowledge of one's own feelings, states, attitudes and evaluations.

Finally, I investigate the evidence that quantitative data or external cues can be said to aid this process. Two research questions guide the investigation:

- Is it possible to design an experience sampling measure of the psychosocial work environment using an item sampling approach?
- Does applying an ESM approach to a survey feedback intervention concerning the PWE mobilise change efforts over and above a traditional questionnaire

approach?

The third chapter discusses the rationale behind choosing an experimental field study as a research design and the use of ESM as a method. In this process, I find that the experience sampling method lends itself well to relatively narrow constructs such as job satisfaction, or subsets of the PWE. Nonetheless, the method's intensive nature renders it ill-suited for indicator tools concerning broad constructs such as the PWE. Consequently, I design a method that samples questions from an existing questionnaire at each measurement occasion (MOCC). This approach allows me to map a comprehensive conceptual construct like the PWE without including every single question in the construct at each MOCC. In addition to the focal variables in the PWE questionnaire, I include a proxy measure of job satisfaction in the research design. This addition has the advantage of being a less comprehensive construct than the PWE, thus allowing for more frequent sampling of items.

Beyond introducing an item sampling approach to the ESM, the method developed returns the questionnaire data to participants in the form of interactive web reports. This data feedback process is designed to enable data feedback at two levels: to show the individual participant their data over the sampling period, and to deliver to the work group aggregated data of all its members. The data available to participants comprise scales regarding the PWE for participants in both the ESM and questionnaire conditions. Additionally, the participants in the ESM condition have access to their data regarding mood level, activity, location and companionship at the time of each MOCC.

I deploy this research design to ten work groups at a higher educational institution adopting a survey feedback approach, where each work group analyses the data in facilitated feedback conferences and creates action plans. I examine the hypothesis that an ESM and a traditional questionnaire approach differ in their ability to mobilise change. To do this, I adopt an experimental field design, where I assign six out of ten work groups to the ESM setup (ESM condition) and the remaining four groups to a condition where they complete a traditional questionnaire (QUEST condition). In both conditions, the participants respond to the same questions concerning the PWE, and both have access to feedback data at the individual and work group level. This research design specifies the data collection method as the only methodological difference between the two experimental conditions. The work groups form part of the longitudinal intervention research design, where they complete the survey and the corresponding feedback process twice within a 8–16-month interval.

I address the first research question about the viability of the item sampling approach in measuring the PWE by comparing the ESM and the questionnaire method for measurement equivalence. Then I address the second research question concerning the mobilising potential of the ESM in two ways. First, I assess the changes in the self-reported PWE and job satisfaction measures between the first completion of the process (T1) and the second (T2), approximately one year later. Second, I examine the observational data from the feedback conferences to explore how the ESM and questionnaire conditions respectively facilitate sensemaking at the work group level. This is assessed directly through a thematic analysis of the qualitative data from the feedback conferences. Finally, I analyse the work groups' action plans, recording the number of actions stated, as well as the evidence that the actions planned at T1 are completed at T2.

In the fourth chapter, I present the results of the empirical study. First, I illustrate the characteristics of the experience sampling data by highlighting both the distinctions in the focal variables across activity, location and companionship as well as their association with hedonic tone. I then report on the analysis of measurement equivalence between the PWE measure and job satisfaction between the two conditions. For the proxy measure of job satisfaction, I find evidence of form invariance and partial measurement invariance, which suggests measurement equivalence between the two conditions.

For the PWE measures, the results are less clear. Missing data due to a low MOCC completion rate and the comprehensive nature of the PWE construct prevent the development of a unified solution. Nevertheless, with few exceptions, tests for internal reliability indicate that most of the constructs that comprise the PWE lend themselves well to an item sampling ESM design. I also discuss how the problem of missing data presents a significant barrier to the item sampling approach.

In the third section, I outline the results of the quantitative analysis of the survey responses. Analysis of variance is used to test the method (ESM condition vs QUEST condition) by time interaction (T1 vs T2) with four PWE factors as dependent variables. The results indicate an interaction effect for two of the four PWE factors related to the immediate manager and intrinsic job factors, suggesting a higher mobilising effect of the ESM condition compared to the QUEST condition. Primary effects are found for time and method on one and three of the four PWE factors, respectively. Similar analyses of variance applied to the proxy measure of job satisfaction and hedonic tone, measured as the percentage of MOCCs with a dominant negative emotion, does not reveal significant effects. The hypothesis that the ESM condition will show significant

improvements in responses on PWE scales, job satisfaction and mood levels compared to the QUEST condition is thus partially supported.

The fourth section contains a detailed analysis of changes within the work groups. I use three sources of data for this: observational data from the feedback conferences at T1 and T2, data from action plans devised by the work group and survey responses at T1 and T2. The first two are analysed using thematic analyses, and the survey responses statistically. I employ a framework to assess the mobilising effect of the survey feedback intervention according to a particular theme. The framework contains four parameters: 1) whether sensemaking took place in relation to the discussion of the theme at T1; 2) whether a concrete action was included in the action plan following the feedback conference at T1; 3) whether the observational data from the feedback conference at T2 suggested that a change concerning the theme had taken place; and 4) whether there was a positive change from T1 to T2 in survey responses related to the theme.

By applying the framework to the data, I find that the groups in the ESM condition show substantially more positive changes in terms of the PWE dimensions than the questionnaire condition. This finding supports the notion that the ESM adds a mobilising effect to the survey feedback method. Further, and in support of the third hypothesis, I find that the work groups in the ESM condition engaged in more instances of sensemaking during the feedback conferences and generated more activities for the action plans.

The final chapter considers the empirical findings in the light of the theoretical assumptions regarding the mobilising potential of the ESM and the viability of the item sampling approach. Based on the detailed analysis of the feedback conferences for all the work groups, I present my analysis of the mobilising potential of the survey method. Situated within the field, I show that where previous research has looked at the outcome (the mobilising *effect*) of change efforts, the authors have failed to evaluate measures of the mobilising *potential*. However, it is possible to obtain measures of the mobilising potential by shifting the focus from outcome measures to assessments of the processes associated with the intervention.

To conclude, I argue that my research shows that sensemaking activities are critical micro-mediating processes that underly the mobilising effect associated with survey feedback interventions. I also discuss the possible limitations of this research and considerations for further research.

Preface

At the building site of a major European airport, I was tasked, as part of a team of consultants, with implementing a process to document the factors affecting employee 'engagement'. This assignment gave me privileged access to an aspect of the data collection process usually obscured in survey-based research: a window into participants' completion of a questionnaire and their reflections as they submitted their answers. At the building site, I walked around with a clipboard in hand, asking employees to complete a questionnaire concerning their view of the organisation, their engagement and the organisation of the work environment. Yet, the limited reading and writing skills among the participants meant many completed the questionnaire verbally, responding to a question read out to them. As I articulated the engagement questionnaire to hundreds of participants at the building site and noted their answers to the questionnaires, I noticed that the most critical information was not the answers per se, but rather the commentary and the reflections that accompanied the responses.

In most cases, these were not just additions to the Likert scale options of the questionnaire. Instead, workers provided commentary with detailed subjective reflections on various aspects of their work. The level of detail and multiple levels of reflection on various aspects of the job and organisational issues were striking. Just as salient were the respondents' eagerness to hear what other workers had answered and to know 'what the results said'.

This appetite for data paired with an implicit form of hypothesis generation and testing: 'did people who deliver the cement answer this questionnaire? because they are the ones who suffer from the lack of managerial oversight in this area and the delay they experience because of poor planning affects us when we have to mould the foundation'. Another typical commentary took the form of 'now that you are asking me about the collaboration with other team members. I think that this is something stated as a priority by the management, but in reality, I don't think that it is borne out in the way that we work in my team. I think that you'll find that most members of the team have the same opinion'. I left the project site curious about what happened to the employees with different responsibilities: Did the workers delivering the cement ever talk to the team manager responsible for the planning? Moreover, did the final reporting of the results ever make it back to the workers, and was the lack of collaboration ever discussed?

Although I was involved in the final meeting with the management of the

organisation, it was never clear to me if the knowledge from that survey process was ever fully harnessed. The focus on aggregate data, and the creation of a statistical model for prediction, precluded the client from discovering any local patterns, which were only ascertainable through an understanding of the specific context of the responses. Albeit, the main issue was that the method, and possibly by extension the organisation, did not harness the data stream that was generated by the process.

I considered the 'surplus data' in the form of comments and reflections to be as informative as the questionnaire items themselves. The data generated by the employees who spoke about the survey data, and the resultant inferences they made, were far more relevant to understanding the vital issues for employee wellbeing and productivity than the survey data. Moreover, the nature of the comments often contained an inherent propensity for action, outlining future scenarios and action where issues would be addressed or assigning possible steps to take going forward.

Furthermore, the a priori hypothesis of engagement as a precondition for productivity blinded the consultants and management to vital local factors based upon the site workers' experiences. The importance of the physical environment, and especially the construction workers' access to resources that allowed them to fulfil their responsibilities, were repeated ad nauseam throughout the project. Most striking was the ability of employees to generate far more actionable ideas to improve engagement and productivity by answering questions about their situation. This seemed to surpass those developed by a team of consultants and the organisation through an analysis of the resultant data set.

As the project drew to a close, it became clear that the engagement the client wanted to map through the survey was an emergent property of a plethora of work and environmental factors. Having experienced the process on the ground, as well as in the meetings with the management of the airport construction company, I experienced a process which, despite the multitude of consultants and statistical analyses, missed an opportunity to address essential issues for improvement. Importantly, it seemed that the qualification of the quantitative data was not only central to understanding the issues affecting employees, but that the very process of qualifying the data contained an unexplored action potential. Like a memory trace that fades with time, the richness of the data and the action potential waned as the data collection-analysis-presentation process progressed.

It was difficult to listen to the site workers' comments without detecting an underlying frustration of not being able to explain in more detail how they felt about

an issue and contribute their ideas to address these challenges. Moreover, it seemed that asking questions reduced the richness of the reporting of current and past experiences. While the representation was reductionist, it had some validity in representing the situation of the site workers. Yet, the results presented in reports and models of employee engagement appeared to prevent any true representation of the data I had helped to collect.

As I saw it, social and relational, and often specific concerns related to a particular task and the physical environment within a work crew, became general and abstract individual psychological constructs. More discouraging still, the final report made it harder to understand what the real issues were, not to mention how to act on them.

Years later, I came across an organisational intervention and research method that explicitly focused on how the participation of employees in the interpretation of survey data can enable change processes in organisations. After exploring the subject further through the relevant literature, it seemed that the approach might provide an effective way to mobilise change processes in organisations. This led me to wonder why this methodology had fallen out of favour.

During my search, I adopted the approach which Weick (1990) proposed that organisational researchers and practitioners embrace—that of the ‘reconnaissance man’. This entails a shift in focus towards revisiting and integrating early ideas in the field instead of incessantly seeking ‘new’ concepts and theories in perpetual pursuit of novelty. As surveys in organisations have become commonplace, it is easy to overlook that most of the early surveys targeting organisational climate used survey data to elicit knowledge from employees and actively involve them in the process of its collection and analysis.

Despite its rarity in the present, Rensis Likert—who was instrumental in developing questionnaire design as we know it today—was one of the principal proponents of this emancipatory approach, first known as survey feedback (French & Bell, 1999). Following a more recent debate within organisational theory about how researchers’ prioritisation of the production of an ‘interesting paper’ might be detrimental to the refinement of ideas and working through theories (see for example Barley, 2016; Davis, 2015), there is value in prioritising the mundane and unspectacular. In the present thesis, I seek to follow Weick’s advice: to stop, look again and juxtapose the original survey feedback literature against the widespread use of surveys and measures of experiences and attitudes in organisations. Have we missed something important?

1. The psychosocial work environment and job satisfaction

1.1 Overview of the literature

There are two overlapping academic research traditions concerned with individuals' attitudes towards and evaluations of their jobs: the job satisfaction tradition and the occupational stress, health and wellbeing tradition. The job satisfaction tradition focuses on the individual and the antecedents and consequences of 'job satisfaction'. The occupational stress, health and wellbeing literature, on the other hand, looks beyond the individual. It emphasises an individual's experience of the job, but further describes how factors in the work environment constitute risks to the health and wellbeing of employees.

In this chapter, I review the differences in the perspectives towards individuals, groups and organisations between the research strands. I reveal how both traditions share an interest in the effect of various aspects of the job on employees. However, when it comes to the perspective of the employee in an organisational setting, there are marked differences between the two approaches, which is especially apparent at the methodological level.

1.1.1 Job satisfaction research

Job satisfaction is a subset of job attitudes. Judge and Kammeyer-Mueller (2012) argue that job satisfaction is among the most popular and influential areas of enquiry within organisational psychology. They count over 33,000 published articles on the topic and note that the trend is accelerating. It is noteworthy that at the crux of the research on job attitudes—job satisfaction—lie multiple controversies at the conceptual level.

Weiss (2002) has argued that job satisfaction encompasses various attitudes and evaluations that, although interrelated, cover distinct aspects of employees' evaluations of their jobs. He perceives, however, that the affective aspect—how one feels about the job—is distinct from cognitive evaluations. These two subsets contribute to different facets of 'job satisfaction'.

The most recent comprehensive review of the literature underlines the importance of distinguishing between affective attitudes and more cognitive evaluations (Judge & Kammeyer-Mueller, 2012). Since there are both cognitive and affective approaches to job satisfaction, it follows that there is no universally

agreed-upon definition. Hackman and Oldham (1974), for example, regard job satisfaction as the outcome of their diagnostic survey, which stresses the perceived content and design of a job across several dimensions.¹

Job satisfaction research tends to emphasise the affective aspect of job satisfaction over cognitive evaluations of the job. Job satisfaction is thus frequently conceptualised as ‘how people feel about their job’ (Spector, 1997, p. 2) or as ‘an evaluative state that expresses contentment with and positive feelings about one’s job’ (Judge & Kammeyer-Mueller, 2012, p. 343). Looking at a sample of published studies from the past two decades, it would seem that studying job satisfaction is restricted to affective evaluations.

Within the attitudinal approach, employees evaluate a particular aspect of the job or the job overall—with some degree of favour or disfavour. Here, satisfaction measures often stress the emotions associated with the job or the ‘impact’ of the job on the employee. This emphasis can be found, for example, in the widely used ‘The Job in General Scale’ (Ironson, Smith, Brannick, Gibson, & Paul, 1989). There are two critical problems with this approach. First, the global definition for ‘satisfaction with the job’ is inclusive, which means there has been a tendency to treat job satisfaction as unidimensional—stressing the perceived impact of the job on the person. This uni-dimensionality comes at the cost of exploring the breadth of particular job facets as well as social context (Judge & Kammeyer-Mueller, 2012). A further problem herein is the lack of attention to the way various characteristics of jobs and their contexts affect employees and their job performance, as most related studies rely on one-off self-report questionnaire measures.

However, over the past two decades, evidence has accumulated that points to job satisfaction—conceptualised as a global affective evaluation—showing substantial within-person variability. Notably, this variability is almost as high as that between respondents, when investigated using intensive longitudinal methods (Ilies & Judge, 2002). This aligns with the general finding of experience sampling studies: what people think and feel about a number of aspects of their work—as well as the attitudes they hold—is influenced by what they are doing, their social

¹ The Job Diagnostic Survey has considerable overlap with the Job Demand-Control (-Support) model of psychological wellbeing and occupational stress (Johnson & Hall, 1988; Karasek, 1979) which was the most prevalent research model related to occupational stress in the 1980s and 1990s (Van der Doef & Maes, 1999), indicating that the distinction between the two strands of research is often difficult.

situation and their emotional state at the time they report their experience (Schwarz, 2012).

The largely individual focus within job satisfaction research, as well as a preoccupation with how the concept can be shown to covary with behavioural outcomes—such as performance and organisational citizen behaviours—means that the concept does not allow for a nuanced understanding of the numerous factors influence people's perception of their job. Yet, within the field of occupational stress, health and wellbeing, there is a range of theoretical frameworks, which allow for the analysis of a multitude of job-specific and contextual factors that affect individuals in organisations.

1.1.2 Psychosocial work environment

Research centred on health and safety in organisations is concerned with workloads, poor management or physical hazards such as noise, ergonomics and the psychosocial work environment—problems that affect employees' wellbeing. An early model that encompasses many sources of stress at work, and is still considered important in this field, is that of Cooper and Marshall (1976). Over the years, several models of job design (Kompier, 2003) have also gained influence, as have a number of other factors related to the study of wellbeing at work. Within this broad and fluid field of research is the concept of the psychosocial work environment (PWE). The PWE focuses on processes at the meso-level of the organisation (social formation), the job and the social relations of the employee at work (psychosocial factors) (Martikainen, Bartley, & Lahelma, 2002). The meso-level concept concerns factors that exist between the macro-level of organisational and social structures and the micro-level of individual psychological factors (Martikainen et al., 2002). The PWE literature also includes concepts such as organisational justice, quality of leadership, offensive behaviours, job security, emotional demands and role conflicts (Pejtersen, Kristensen, Borg, & Bjorner, 2010; Ruguiles, 2014).

Arguably there are some similarities between the models and frameworks for studying PWE and job satisfaction. However, while the former focuses on identifying how features of the job's design and context affect the wellbeing of the employees at the meso-level (Cooper, Liukkonen, & Cartwright, 1996; Cox, Griffiths, & Rial-Gonzalez, 2000), the latter primarily studies the micro-level experiences of the individual worker. Consequently, the concentration within job satisfaction research on predicting employee behaviours such as employee citizen behaviour and performance (Organ, 2018) obscure how a job's characteristics or

social and organisational factors affect the employee. In contrast, PWE research has sought to improve occupational health and wellbeing in organisations and reduce work-related stress at the organisational level (Cooper et al., 1996; Leka, Griffiths, & Cox, 2003).

The application of continuous risk reduction strategies that involve employees in both the identification of hazards in the work environment and in the generation of actions to remediate them (Cox, Griffiths, Barlowe, et al., 2000) has resulted in positive effects (Cox, Karanika-Murray, Griffiths, Wong, & Hardy, 2009). For example, in the UK, the Health and Safety Executive's Stress Management Standards (Cousins et al., 2004) outlines a hazard identification approach that combines a self-report questionnaire (the HSE indicator tool) and focus group discussions with employees, with the aim of continuous improvement. While it has shown some success in reducing risks associated with psychological factors (Cousins et al., 2004), only 20% of European organisations inform their employees about psychosocial risks (Leka, Van Wassenhove, & Jain, 2015). The low percentage of uptake suggests that a reactive approach to mending harm associated with psychosocial factors in the workplace has taken precedence over prevention, specifically through risk management (Leka et al., 2015). Moreover, this represents a departure from the acknowledgement that protecting employees from a harmful psychosocial work environment is just as important as dealing with traditional health and safety issues. Kompier (2004) points out, that prevention of a harmful psychosocial environment necessitates an audit of the risks, which again requires the active involvement of employees.

1.2 Measurement and interventions in organisations

Measuring people's perceptions of work and intervening to improve factors related to employees' experiences of their jobs dates back to the human relations movement of the 1930s. Since then, various schools of thought have approached this topic differently, and the prominence of specific methods have risen and fallen over time. Often a method rises to prominence because it contains a perspective on people and organisations that reflects wider political and societal movements (Miller & Rose, 2008). In the following, I will briefly discuss the organisation development (OD) tradition, which since its inception has been concerned with finding ways to measure and change social systems in organisations.

1.2.1 The organisation development tradition

Scholars in the field of organisational studies have criticised OD researchers for not being rigorous enough in the methods they employ (Neuman, Edwards, & Raju, 1989). Some have observed that the theoretical OD approach has faded from relevance (Pasmore, 2018). What follows is an evaluation of these various critiques.

The initial promise and enthusiasm for OD in organisations waned considerably over the past 30 years, as evidenced by a retrospective account by one of the founders of the field (Schein, 2015). Despite this, there have been some attempts to re-establish it and solve contemporary issues by embracing new technology and methods (Pasmore, 2018). However, it is somewhat paradoxical that there has been an ongoing debate about the crisis in OD field since the early 1990s (Weick, 1990). At the same time, many of the original ideas of OD have gained acceptance in organisations, often under the new name 'change management' (Worren, Ruddle, & Moore, 1999).

Much of the crisis has revolved around whether the underlying tenets, theories and interventions are still relevant today (Burnes & Cooke, 2012; Schein, 2015). At the same time, it is clear that some of the values and methods deemed radical when they were stated by (Tannenbaum & Davis, 1969) are now taken for granted. Further, they underpin many change management initiatives in today's organisations (Worren et al., 1999). Hence, it is relevant to ask if the increasing invisibility of OD as a practice in organisations is more a case of the incorporation of its theories and practices into mainstream change and organisational behaviour (OB) initiatives, or a shift away from these tenets.

My perspective is that the tenets of human relations and OD are different from OB and change management in the way they approach the individual, at both the relational and organisational level. Hence, theories and techniques of interventions within the OD and change management perspective might share similar names or superficial characteristics, but the underlying theories and values differ. Changes in the conceptualisation of organisations and the style of interventions have evolved. These modifications reflect a general advancement of knowledge, developments at the societal and technological level, as well as ideological and political paradigmatic shifts. Thus, many of the axioms of organisational development may have fallen to the wayside because of contemporary conceptualisations of work.

French and Bell's retrospective account of the OD field (1999), published two decades ago, envisioned its bright future, with thriving employees forming effective self-managing teams and showing their potential as the building blocks of effective organisations. However, this image has largely been displaced by an individualised

view of the employee, who is to be 'engaged' by the organisation. Schein, one of the founders of the OD field, has criticised this development as missing the dynamic and situated nature of work, especially the importance of the group as a unit of analysis (2015).

Indeed, the current discourse visible in management consultancies or the popular business press emphasises aligning the people in the organisation with the current market, changes in the production processes or information systems. According to Whyte (1987), this split from considering the relational, situated and cultural aspects of work and the organisation started as far back as 1950. In his retrospective account of the development from human relations to OB, he dates the beginning of the 'withering away of the Human Relations' to a critique in the 1950s, which reduced it to the study of communications (Whyte, 1987). Although, he argues that this initial critique was misguided, he acknowledges that the human relations school failed to properly integrate external economic, technological and structural elements. Thus, compared to human relations, OB, and the wider organisational theory within which it is situated, represented a shift from the micro to the macro level and from a focus on interpersonal relations to organisational structures, technologies and the impact of environmental factors. Moreover, Whyte (1987) notes that from the 1950s to the 1980s, researchers moved away from qualitative methods like interviews and observational data towards quantitative data from questionnaires. This move was accompanied by a shift in emphasis within the literature, from studying general patterns of relations to a focus on the more rigorous testing of hypotheses. In addition to these characteristics, he reveals the rise of a sharp distinction between theory and practice. This latter point had been a hallmark of the organisational development movement.

As human relations and OD withered away and OB and change management gradually took their place, rapid shifts and the competitive marketplace were privileged over the socio-emotional factors in organisations. Consequently, human resources became conceptualised as 'engaged employees' who are seen as competitive parameters to be optimised by the organisation (Loveridge, Willman, & Deery, 2016). This conceptualisation marks a dramatic shift from the perspective of the OD movement, where the competitive advantage was in improving factors related to the human-processual level (Friedlander & Brown, 1974). In this process, the socio-relational factors, which were the concern of OD—and by extension aspects of its replacement *change management*—have gone from having a presence in the academic literature to mainly being a set of techniques and approaches used by practitioners (Pasmore, 2018; Schein, 2015).

What is significant for this study is that the subjectivity of the employees and their involvement in change processes subsequently have received less attention. The OD approach—anchored in a social psychological paradigm with a focus on applying behavioural science to solve problems in organisations—has waned. In its place, the OB perspective is employed to offer tools and techniques for a manager to act ‘on their employees’ through structural interventions or decision architectures. Yet somewhat paradoxically, many of these theories, as Pfeffer (1997) points out, are not able to provide explanations for organisational behaviour as accurately as those founded in sociological and psychological theories.

Nevertheless, the adoption of a method by an organisation is rarely the result of a meticulous evaluation of its validity or efficacy. Rather, the popularity of a theoretical perspective or a method of intervention within organisational theory is the result of a complex interplay between several developments at the societal, cultural and technological levels. As such, the adoption of theory and methods within organisations could be seen similarly to those found in the domain of aesthetics (Kieser, 1997).

1.2.2 The rise and fall of theories and methods within organisational theory

It is often difficult to disentangle the implicit theories from what might be termed *management fashions*. The promise of betterment and the existence of a threat are often the most salient part of any method, which can be said to fit within the category of management fashions. In their analysis of the cyclical rise and fall of management fashions, Abrahamson and Fairchild (1999) show that the arrival of a management fashion is often first visible in the popular press, then in the semi-academic literature and lastly in the academic literature. This time lag from introduction and usage in organisations to academic scrutiny leads to longer periods where methods are widely used, but where there is little knowledge about their validity. This lack of evidence, and the tendency to use a method prior to an understanding of the underlying theory among practitioners, might nevertheless mirror what authors like Galbraith (1980 cited in Abrahamson & Fairchild, 1999) have argued: emergent organisational practices are often the result of the tinkering of inventive practitioners. It is those emergent practices to which scholars subsequently assign labels and develop theories.

Apart from the cases where management fashions emerge from practices which have proven useful in organisations, there are cases where a fashion is deliberately manufactured. Abrahamson (1996) points to a substantial effect from the supply side, in the form of consultancies that constantly produce and offer new methods

and theories. Only a small percentage of these gain a foothold and become widely adopted, and even in those cases organisations rarely move beyond the level of rhetoric.

From the literature on management fashions, it is clear that methods and theories related to organisational theory tend to follow predictable patterns from birth and early adoption to popularity and widespread use and end in their eventual demise. Yet, the fact that a certain method or theoretical approach has fallen out of favour does not necessarily reflect a lack of theoretical substance, nor negate its pragmatic usefulness. It does, however, suggest that it is no longer perceived by organisations as offering answers to their problems or, more likely, that it fails to provide them with an attractive frame through which to view their challenges. As alluded to in the preface, this has led to scholars arguing that within the field of organisational theory, there is a tendency to prioritise the novel and exciting over the mundane (Davis, 2015), resulting in a lack of coherence. Hence, theories and methods are often abandoned before they have been properly explored. Thus, the field has become increasingly poorer at establishing what constitutes a viable theoretical strand (Barley, 2016).

Certainly, some of the methods that have fallen out of favour both within organisations and among academics still have considerable utility. Taking the fashion analogy one step further, the decline of a method is more a result of the end of a management fashion cycle than the result of its being proved inadequate. Moreover, just as the fashion industry tends to recycle and reference trends from previous decades, management fashions also borrow from past methods and theories, though the legacy is rarely openly acknowledged. Thus, it is easy for a cynic to dismiss a new method or theory as ‘old wine in new bottles’. In doing so, however, one runs the risk of dismissing subtle but important differences—just like a piece of clothing might reference a style from an earlier era, it nevertheless contains new features.

When it comes to evaluating interventions related to the psychosocial work environment, the topic for this thesis, it is crucial to look beyond the veneer of a given method and investigate the underlying theory and to trace its historical origins. In doing so, it is possible to critically evaluate what is new and thus merits further investigation, as well as establishing the existence of an evidence base for an intervention that may be comprehensively researched within a different paradigm.

1.2.3 *The problematic assumption of order and linearity*

Assumptions of order and linearity in organisational systems are prevalent in both the job satisfaction and PWE literature. This 'structural-functional perspective' on people in organisations assumes that we can study human networks as *ordered systems* with repeated cause and effect links (Tsoukas, 2005). This perspective poses a limitation to their explanatory power and applicability in organisations, since it backgrounds the *processes* associated with job satisfaction or PWE. For example, *risk reduction* rests upon the assumption that organisations are ordered systems, where change can take place once the analysis of a system and the strategies for intervention have been completed (Cox, Karanika, Griffiths, & Houdmont, 2007).

Consequently, the ordered system perspective places considerable emphasis on outcomes, 'what can be done', to solve a set of identified problems. This has led some researchers within the occupational stress field to critique the assumption of linearity when studying the effects of interventions related to work stress (Cox et al., 2007). They argue for replacing the assumption of linearity with a complexity perspective, which allows for systems to be correlated and interact in both synergistic and inhibitory ways. As well as being non-linear in their relationships, they show dependency on both time and context. Consequently, they are more likely to reveal the dynamic processes underlying organisational systems.

Similarly, Tsoukas (2005, chapter 2) has proposed that complex social systems require intricate forms of 'knowing', namely forms of understanding that are sensitive to context, change, events, beliefs, power, feedback loops and circularity. This complexity perspective necessitates mapping the field of forces in a nuanced way, which enables managers and their employees to see the restraints that keep them from acting differently. For example, by discussing the issues around processes, they engage in mapping constraints as they see them but also in spotting possible actions. In other words, the discussions make it possible for participants to make sense of the world and their actions within processes.

One way to map the field of forces in relation to the psychosocial work environment as it is experienced by the employees is through the method of survey feedback, which is among the earliest interventions within the OD tradition (French & Bell, 1999). The sensemaking perspective (Weick, 1995; Weick, Sutcliffe, & Obstfeld, 2005) presents a useful theory for analysing the processes associated with a survey feedback intervention. I will return to the sensemaking perspective in section 2.4. In the following, I will briefly discuss the historical origin of the survey feedback intervention in the OD context.

1.2.4 The origins of survey feedback within OD

Organisational development emerged from the human relations school, especially the work of Kurt Lewin, as part of a broader attempt to improve organisations (Gallos, 2006). From the 1950s until the 1980s, researchers began looking at the organisational survey as an instrument to facilitate learning and change within organisations. Both French and Bell (1999) and Burke (2006 cited in Gallos, 2006) depict survey feedback as one of the four 'main stems' of organisational development: one of the precursors of OD along with laboratory training, action research and the sociotechnical and clinical system approaches.

The early development of the OD field was strongly associated with two research centres in the US: the Research Center for Group Dynamics (RCGD), located at the Massachusetts Institute of Technology (MIT), led by Kurt Lewin; and the Survey Research Center at the University of Michigan (Whyte, 1987). In 1947, the two centres merged into the Social Research Center (SRC) at the University of Michigan. Several of the students and associates of the RCGD relocated at the time. The merger brought with it a substantial cross-pollination of ideas and methods (Likert, 1979; Whyte, 1987), which eventually inspired a new research group led by Rensis Likert. The SRC began to pioneer quantitative survey methods that found use in organisations as well as in other sectors of society (Likert, 1979).

At the SRC, Rensis Likert and Floyd Mann began a 1948 investigation into how surveys could be used to map employee perceptions, behaviour, reactions and attitudes at the Detroit Edison Company (French & Bell, 1999; Mann, 1957). Mann observed that few changes occurred when the survey data was solely relayed to a manager. The employees, who had provided the data, did not have a chance to participate in the interpretation of the survey data and planning of possible remedial actions. On the other hand, substantial changes occurred when employees were subsequently involved in the discussion of the survey results and discussions of what could be done to bring about improvements.

2. Quantitative data as a mobiliser for change

The previous chapter described the origins of survey feedback and situated it within the organisational development tradition. I highlighted how its roots in Lewin's theories of action research (Lewin, 1946) and force field theory (Lewin, 1943; Mann, 1957) shaped its focus on participants' interpretation of self-report survey data in a social system that afforded primacy to the social rather than the individual level. However, the term 'survey feedback' has not been consistently used within OD, nor in the wider psychological, management or OB literature. Consequently, this chapter explores studies that employ a similar method or methods and involve the collection and interpretation of self-reported data. This exploration will be done by both contrasting the survey feedback method with the other uses of questionnaires in organisations, and a consideration of the core values in the OD tradition. In this chapter, I also examine the literature on quantitative self-report data. I then review the evidence of the experience sampling method and intensive longitudinal methods as enablers of insight and mobilisers of change efforts, and I question if they can be implemented in an organisational context. Moreover, I introduce the sensemaking perspective as a theoretical framework, which can provide insight into the mechanisms underlying the mobilising effect associated with the survey feedback intervention.

2.1 Survey feedback and group feedback analysis

Survey feedback (SF) is an organisational intervention. It evolved as a means to assess job satisfaction or morale in a department, or in larger groups in organisations (Mann, 1957; Miles, Hornstein, Callahan, Calder, & Schiavo, 1969). At the same time, it is a tool for evaluation, control and assessment of leadership (Heller, 1969). In contrast, *group feedback analysis* (GFA) emerged as a field research technique to improve the quality of research data and to add qualitative material to statistical information (Heller, 1969). Nevertheless, it is at times difficult to distinguish between SF and a GFA approach in the literature. This confusion might be because both approaches combine data collection, data analysis and feedback meetings.

The critical difference between SF and GFA is that survey feedback is focused on the feedback drawn from questionnaire surveys, whereas GFA describes a feedback method where data come from a variety of sources including structured interviews, minutes of meetings, observations and questionnaires (Heller, 1969).

The analysis thus involves a data summary, ranging from charts with frequency distributions, averages for questionnaire data to the graphical representation of ethnographic data. In GFA feedback meetings, data is presented to participants to assess its validity. As well as checking its accuracy, participants are encouraged to contribute in-depth descriptive accounts of underlying complex decision processes, hidden agendas and conflicts, as well as fuller explanations of motives or antecedent circumstances (Heller, 1969). The method thus provides an answer to the critique voiced by Lewin (1946) that underlying motivations and sentiments are often lost when surveys are used as a way to uncover facts about intergroup relations.

The GFA approach stresses the importance of participants' rights to gain from experience (Heller, 1969). GFA is also more intensive than the SF method, as it involves a more fine-grained analysis of narrower aspects of participants' experience (Heller, 1969; Miles et al., 1969). Moreover, GFA embeds the ideology that participation and influence are integral aspects of improving people's experiences in an organisation (Heller, 1969). Nevertheless, to the best of my knowledge, Heller's call for a more rigorous test for the effectiveness of GFA as a mobiliser for change (1970) has yet to be answered.

Survey feedback is a method that explicitly involves employees in the process of interpreting data from organisational surveys (Miles et al., 1969). It belongs to the OD tradition, which is an umbrella term that encompasses several approaches to interventions and change within organisations. Both OD and SF share the explicit goal of improving both learning and problem-solving in a collaborative process between employees and management, which is often supported by a facilitator. Like the widely used risk management approaches to eliminate hazards in the psychosocial work environment (Cox, Griffiths, Barlowe, et al., 2000), SF combines quantitative and qualitative data about how employees experience various aspects of their job, the organisation they belong to and their at-work relationships. What is significant about the SF method is its perspective on people, organisations and change. This view stems from the human relations tradition and was largely developed at the SRC at the University of Michigan, which was influenced by Lewin's approach to changes in real social systems (Lewin & Gold, 1999).

Survey feedback differs from the frequent use of surveys as it is practiced today, where employees complete a questionnaire on various aspects of their at-work experiences. In most cases, the objective is to provide management with information about employees' attitudes towards various aspects of their job. In contrast, SF involves employees in the process of interpreting data and devising future action.

Whereas the mainstream use of questionnaires typically entails collecting and disseminating survey data, with the primary function of contributing to metrics in a management information system, the survey feedback intervention method is characterised by a different perspective on people and organisations. In Germany (Jöns, 2000) as well as Scandinavian countries (Elo, Leppanen, & Sillanpaa, 1998), for example, SF plays a critical role in documenting and improving workers' health and wellbeing. Furthermore, within the field of job satisfaction, there is evidence to suggest that SF thrives as a method in the applied world (Spector, 1997). Because these data reside outside the academic literature, it is difficult to find support for this notion. Moreover, in the applied world of organisational initiatives, it is not always clear what a method entails. Hence, the terms 'survey' and 'feedback' might well refer to a process that is entirely different to survey feedback as it was originally thought out.

Adding to the difficulty of determining what constitutes SF are recent developments in technology that make it easier and cheaper to develop and administer surveys in organisations. As a consequence, new ways of designing, displaying and gathering data mean that the distinction between supplying and interpreting data today is more ambiguous than it was 70 years ago. One exciting advancement is the various forms of intensive longitudinal methods (ILM) now available, of which the experience sampling method (ESM) is of particular relevance to SF. In this case, the continuous employee completion of ESM questions changes the very process of participation. The employees answering questions in an ESM setup should not solely be seen as supplying data to the organisation. Rather, the very nature of answering questions across time and place means that participants engage in an ongoing process, continuously reflecting and reporting on their experiences and attitudes. Consequently, we gain insight into their attitudes and evaluations.

2.1.1 *The decline of survey feedback*

Worren et al. (1999) argue that much of what was once considered OD has morphed into *change management* and, in that transition, the theoretical frameworks of the OD perspective have blurred with a managerial perspective of how to implement successful change processes in organisations. In other words, OD themes have not vanished, but have become popularised within a management discourse. Yet, as mentioned in the previous chapter, this popularisation also carries with it a deeper focus shift within organisations, from improving human functioning and processes within the organisation to strategic choices concerned with factors outside of it (Whyte, 1987). Moreover, it carries with it a fixation on leadership as the main

catalyst for change (Lakomski, 2005).

An example is illustrative of this change. Golembiewski and Hilles's book (1979) *Toward the responsive organisation: The theory and practice of survey/feedback* was reviewed by Sherwood and Gardner (1980), who conclude that the authors' particular application of SF represents '...an elitist view of organisational consulting and change in its focus on managers developing strategies for enhancing the effectiveness of their organisation' (Sherwood & Gardner, 1980, p. 18). The reviewers argue that the treatment of the method does not give sufficient attention to the people who provide the essential input for the survey, and that it fails to appreciate the potential in the SF process. Nevertheless, I maintain that the perspective the reviewers criticise today represents the mainstream view of change in the OB literature, as well as the use of surveys in organisations.

This shift in focus from the interpretation of employees to a management-led intervention mirrors a more significant trend away from the core tenets of OD towards an OB paradigm. This process has been noted in the retrospective accounts of several prominent researchers within the OD field (Heller, 1998; Schein, 2015; Whyte, 1987) and is mirrored in the decline of scholarly interest in OD.

2.2 A review of the survey feedback literature

In this section, I review the existing literature on SF with regard to its efficacy to support change efforts in work groups and organisations. I limit the area of interest to factors related to the psychosocial work environment and job attitudes, such as job satisfaction and engagement.

To the extent that the published literature allows, I adopt a systematic approach to the identification of relevant studies as well as the evaluation of the strength of the evidence presented herein.

2.2.1 Introduction to survey feedback

The survey feedback method is an organisation development intervention that involves the employees in all of the following: the interpretation of data, the sharing of knowledge, the formulation of problems and the generation of possible solutions in a collaborative environment often referred to as a *feedback conference*. The feedback conference generally consists of a naturally established *work group* within the organisation. The term *work group* refers to a group of people who have an ongoing working relationship and report to the same manager within the

organisation (Mann, 1957; Miles et al., 1969). At a feedback conference, the employees in the work group collectively comment on, interpret topics related to and discuss future actions for their work environment, using survey data which they themselves provide (Miles et al., 1969).

The survey feedback method fits within the broader process consultation tradition (Schein, 1995); however, the extent to which various implementations adhere to all the elements of the tenets of process consultation varies. Since the vast majority of SF papers contain scant information about the exact nature of the feedback conferences, I do not include this criteria in the literature search. However, in keeping with the original ethos of survey feedback, I only incorporate studies where employees were involved in the interpretation of survey data.

The criteria I use for inclusion are as follows:

- The study should involve the application of the survey feedback method and contain at least one measure of the method's impact.
- The study design should contain a time span between the SF intervention and the measure of the method's impact.
- Data should be self-reported and concerned with how employees experience aspects of their jobs.
- Data should be quantitative.
- Data interpretation and analysis should take place in naturally occurring work groups and thus maintain the social relations that employees experience on a day-to-day basis.
- Action plans or action steps should, at least to some degree, be determined by the employees involved.

2.2.2 Research gap and aims

Survey feedback reached peak popularity in the mid-1980s. At this time, however, it was still unclear if the method could generate change (Conlon & Short, 1984). Indeed, the literature on the effectiveness of OD interventions in the late 1970s and early 1980s showed considerable caution about the efficacy of OD techniques, including survey feedback (see for example Bowers & Franklin, 1975; Nadler, 1976). Nadler, Mirvis, and Cammann (1976) stress that one should not base an evaluation of the effectiveness of the method on observed improvements in survey data alone. Similarly, Conlon and Short (1984) suggest that obtaining unobtrusive data such as productivity and absenteeism is needed to strengthen the evidence base for the

efficacy of the method.

A literature search reveals that since the mid-1980s, survey feedback has dropped out of fashion as an organisational intervention. However, it is not unusual to find that the proponents of a 'new method' replicate old theories (Abrahamson & Fairchild, 1999; Hackman, 2009). Accordingly, it is necessary to incorporate other approaches that have historically come from within the field—and which adhere to different traditions—that adopt the ethos of survey feedback as it was initially proposed by Mann (1957) and Miles et al. (1969). This means incorporating research that resembles the approach but omits the original name. One example is 'participatory risk management work stress intervention' (Dollard & Gordon, 2014). Subsequently, I base my inclusion criteria on the core tenets of the survey method, as opposed to terminological phraseology.

It is also relevant to note the aforementioned development within organisational research from a human relations perspective to an OB perspective. This means that the distinction between 'feeding back survey data' to various groups within an organisation and 'survey feedback with naturally occurring work groups' has been neglected. This distinction needs clarification and a more detailed analysis of the factors that influence the SF method's effectiveness as a mobiliser for change in organisations.

Aims of the review. This review is of two parts. First, I identify studies that use a survey feedback approach to systematically collecting and interpreting quantitative data regarding job experience, relations at work and the organisational environment with the view to bring about change. Second, I examine the research on the effectiveness of the survey feedback process, including the following: the relationships between survey feedback processes and improvement in the psychosocial work environment, job evaluations, attitudes and performance. The aim of the close analysis of survey feedback processes, methodological and contextual, that affect efficacy, is to provide a synthesis of the mechanisms underlying effective survey feedback. With this end in mind, I conduct a content analysis of the methodological quality of published research to establish if, and perhaps when, the method has efficacy and applicability in organisations.

2.2.3 Method

As I previously discussed, 'survey feedback' appears within several research traditions. Therefore, this analysis will draw on literature from across the following research traditions: organisational stress and wellbeing, organisational development and organisational behaviour. For the review, I employ a narrative synthesis

approach (Popay et al., 2006) because the corpus is not homogenous and involves several studies where the description of the applied methodology is thin.

Database search procedure. I searched eight academic databases (EBSCO, Business Source Complete, EconLit, PsychInfo, PsycARTICLES, PsychINFO, SocINDEX and Web of Knowledge), which were chosen based on their coverage of work and organisational psychology journals, as well as journals of management, organisation and the social sciences. I accessed all databases in June 2015. I began by identifying studies that involved interventions and were characterised by the active involvement of employees in gathering and interpreting quantitative data about their work environment. My primary criteria were: studies that involved self-report data in the form of surveys; and studies that subsequently employed a method where the participants, in naturally occurring work groups, interpreted the data with the view to improve aspects of the job. Further criteria for inclusion: the study involved employees completing some form of quantitative questionnaire related to attitudes towards or evaluation of the job or organisation; and employee involvement in the interpretation of the data.

The following Boolean strings were entered into each database: (survey feedback OR participatory process intervention OR participatory action research OR job crafting) AND (work) AND (psychosocial OR job satisfaction OR engagement OR stress OR well*being OR work health OR organisational climate survey). Since the purpose of the review was to gain an overview of the method's efficacy since its inception in the late 1950s, I decided not to impose a time limit on the search. The initial scoping of the literature suggested that the majority of the studies originated in the 1970s and 1980s.

The cross-disciplinary nature of the method meant that it was not possible to develop a search strategy relying solely on keywords. Henceforth, I identified the majority of the studies through a manual search of the references included in other papers and reviews, and an extensive Google scholar search. In the initial screening of the results from the database search, I checked the papers for relevance by title and abstract. I subsequently reviewed the full text of studies that met the initial screening criteria (N=74) or where the abstract contained insufficient information. At this point, I was specifically concerned with whether the studies explicitly described a process where the employees were involved in the interpretation of questionnaire data in work groups with the following goals: improving aspects of organisational functioning or advancements in work life. Table 2.1 illustrates the literature review process.

Table 2.1 The literature search process

Step 1a: Initial search	Database: EBSCO, Business Source Complete, EconLit, PsychInfo, PsycARTICLES, PsychINFO, SocINDEX and Web of Knowledge
	Search terms: Title or abstract searched using Boolean string: (survey feedback OR survey-guided feedback OR group feed-back analysis OR participatory process intervention OR participatory action research) AND (work) AND (psychosocial OR job satisfaction OR well*being OR engagement OR stress OR work health OR organisational climate survey)
	Items searched: Academic journals, books, dissertations
	Limitations: Articles published in English
	Results: 178
Step 1b: Studies identified by author	Studies identified by author via reference list in articles or Google scholar search
	Results: 53
Step 2: Screening of search results	The titles and abstracts of the 178 papers were manually searched.
	References were checked for relevance by title and abstract based on the criteria that they investigated the effect of a 'survey feedback' intervention. A further criterion for inclusion was that the process involved employees completing some form of quantitative questionnaire related to attitudes towards the job or evaluation of the job or organisation, and that participants were involved in the

	interpretation of the data.
	Number of studies included: 21
Step 3: Selection of papers	Full papers (N=74) from steps 1b and 2 were manually searched.
	Inclusion criteria: Studies including the survey feedback method applied to a work setting where employees completed a form of quantitative survey in the form of a questionnaire. Survey topics must concern either job attitudes or evaluations of factors in the psychosocial work environment. Moreover, all included studies must explicitly state that the employees were involved in the interpretation of questionnaire data in work groups with the goal of improving some aspects of organisational functioning or improvements to work life.
	Number of papers included: 19 (17 studies).

Data extraction and preliminary synthesis. I extracted the relevant data to characterise the studies, evaluate their quality and thus the weight that should be placed on their findings, and generated data relevant to evaluating the efficacy of the method in aggregate. The data extracted from the studies were synthesised using the following categorisation:

1. Method—including the study type and design, the setting and the type of data collected.
2. Key findings.
3. Effects observed on self-report measures (attitudinal, observational or experiential).
4. Effects related to impact on performance or organisational functioning.
5. Notes on overall importance, strengths and weaknesses of the study.

A general problem with intervention studies is that authors tend not to provide

adequate details on the precise nature of the intervention (Beer & Walton, 1987; Popay et al., 2006). I found a majority of the studies to be of low methodological quality, rendering a traditional categorisation inapplicable. Accordingly, I decided not to apply a formal system of categorisation regarding the methodological quality of the studies. However, as this factor has a major bearing on the evaluation of the method's efficacy, an evaluation is included in the overall quality assessment.

I conducted a preliminary synthesis to examine the evidence of the effectiveness of SF and the factors associated with the method's efficacy. This synthesis explored SF concerning attitudinal and experiential self-report measures connected with employees' experience of work and organisational performance. I achieved this by categorising the recurring themes mentioned in the studies that affected the method's efficacy, as well as descriptions of the intervention.

2.2.4 Results

Research papers selected. Utilising the initial selection criteria, I obtained 74 articles. However, only 19 papers, reporting 17 studies, met all the criteria. All appeared in articles in peer-reviewed journals and, as per the inclusion criteria, described a longitudinal research design involving a survey feedback intervention in a work context, its effect on either attitudinal or performance measures or both. The study designs varied, with eight papers (seven studies) adopting an experimental or quasi-experimental design, either with a control condition or several experimental conditions. From all the studies, only four papers reported ex-post-facto studies. These fell into two categories: one where the work groups themselves selected the type of feedback process employed; in the second, the units in a large organisation participated in an SF intervention and were compared on several measures to units that had participated in another OD intervention. The remaining seven papers reported on six studies where the SF intervention was the one experimental condition, and no control was available.

I found some evidence for a positive effect of the survey feedback method intervention on self-report measures (attitudinal or experiential) in all the studies. However, in four studies the evidence was ambiguous: it included both improvements in some dimensions and a worsened situation in others. The strength of the evidence varied greatly both in terms of the observed effect sizes associated with the intervention and the general quality of the research designs. Only eight studies included unobtrusive organisational measurements regarding productivity or organisational impact such as sick leave. Of these, six studies reported a positive change as a result of the survey feedback intervention. Three papers referred to an

effect of the intervention, but its size and significance were not documented beyond its impression on the researchers (Amba-Rao, 1989; Bergstrom et al., 2008; Sørensen, Head, & Stotz, 1985). A decrease (worsened situation) in two dimensions related to employee–management relations, simultaneous with an increase in organisational commitment and initiative behaviour, was reported once (Sackmann, Eggenhofer-Rehart, & Friesl, 2009). Elsewhere, signs of improvement in the social climate and relations within teams based on observations, conjoined with increases in psychological distress, were observed (Elo & Leppänen, 1999).

Table 2.2 below provides an overview of the reviewed studies. It outlines the methods, main findings, measures used (both self-report and organisational), as well as general comments on the studies' designs.

Table 2.2 Studies included in review

Study	Author(s)	Method	Key findings	Self-report measure (attitudinal or experiential)	Performance/organisational impact	Notes
1	Amba-Rao (1989)	Case study of an SF intervention involving three cycles of SF over three years at a small manufacturing firm. Participants were blue-collar worker (N=23). An action research strategy was employed to test solutions to problems voiced by employees and revisit the issue in a subsequent SF cycle. Focus of the paper was mainly on the underlying processes in SF as a change intervention.	Intervention was associated with positive changes in the PWE over the three cycles, with a dip in self-reported satisfaction and perception of the work environment from the first to second. The author stresses the need for a long-term timeframe to institutionalise change efforts.	Human Resource Index was applied at three cycles of SF. Improvements in a number of both intrinsic and extrinsic job factors mentioned. However, there is no mention of effect size or significance, nor in which of the 15 dimensions change occurred. First cycle of SF identified problems related to organisational culture and policies, quality of management, participation and satisfaction. The second cycle showed a worsening in most of these factors due to a technostructural change initiated by management. The SF process helped clarify the problems and after the third cycle all the measures improved.	Improvements noted after first cycle on a number of indicators: quality in terms of scrap (unacceptable items), percentage of on-time shipping and improvement in delivery time and operating expenses.	Case study with no control group. The paper does not specify which of the dimensions changed between first, second and third cycle of the SF intervention. Unclear whether the improvements reported for all dimensions after the third cycle represented an improvement over the first.

2	Bergstrom et al. (2008)	Comprehensive workplace intervention in Sweden (AHA study) focusing on work and health in industrial settings. Four companies participated over a three-and-a-half-year period, including a no treatment group. Total number of participants: 4,894 (80% were blue-collar). Interventions focused on health behaviour and exercise but included PWE. The survey feedback element is described in detail in Björklund, Grahn, Jensen, & Bergström (2007). Feedback at the individual level was provided via a screening questionnaire that discussed health behaviours and the PWE. SF was used in work groups to assess PWE. Education and focus on health behaviours were included in the	Positive effects on smoking habits, health-related quality of work life and sick leave.	Measure of PWE included job demands control (JDC) dimensions as well as questions regarding role clarity, skills development, predictability of work, feedback on quality of work, work/life balance and commitment to the organisation. No mention of change in these measures.	Sick leave decreased in one of the four companies. A similar trend (non-significant) in another company supported this trend.	SF was part of this larger comprehensive intervention programme. Effect of SF cannot be isolated from the other interventions. The SF intervention is described in detail in Björklund et al. (2007).
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		intervention.				
3	Björklund, Grahn, Jensen, and Bergström (2007)	Ex-post-facto study of the four organisations in Sweden participating in the AHA study as reported by Bergstrom et al. (2008). Participants were 1,236 workers (75% were blue-collar). Investigates the SF intervention effect over a period of 36 months. Outcome measures were psychosocial work environment and sick leave. The SF intervention was carried out within the organisation with no involvement of the researchers. Participants were assigned to one of three conditions post-hoc based on how the feedback instructions were conducted in different units: feedback with action plan, feedback with no action plan and no feedback. The control group condition received no feedback.	Only participants who received SF with action plans reported greater improvements on the self-report measure of PWE. No change was observed in the feedback with no action plan or the group with no feedback or action plan. Concludes that action plans are essential for effects of SF.	QPSNordic was used to measure PWE. The observed changes in the 'SF with action plan' groups appeared in dimensions concerning leadership and commitment to the organisation. No changes were found regarding demands and control over the job.	No difference in sick leave over the three-year period using the organisations' registers.	There are two methodological limitations. Firstly, the study does not take into account the nested nature of the data (unit level) and might thus underestimate the effect of the intervention. Secondly, the intervention strategy was chosen by the organisations and the work units themselves. The authors do not provide any information as to why the units (departments) in each of the study's conditions chose a particular intervention strategy. Confounders are thus likely in this self-selection process. The study indicates the need for an examination of the causal role of action plans and commitment as necessary for the efficacy of SF.

4	Born and Mathieu (1996)	Intervention case study with a one-year lag between T1 and T2. Investigated the influence of the employees' ratings of supervisors and their subsequent use of the feedback in feedback sessions on the change in ratings. Participants were 142 work groups with 1,450 participants in an US army facility.	Differential effects: supervisors who initially received higher ratings by employees were more likely to use the feedback from the sessions with employees and improve over time. The inverse was true for groups where the supervisors received low ratings initially.	Questions from the 'Survey of organisations'. Ratings on management supervision and management communication and work-unit climate. No effect was found by comparing pre- and post-test over the one-year period when the analysis did not factor in whether the manager acted on the SF process.	None	Highlights the importance of the process through which the SF is conducted (what goes on in the feedback sessions; whether the manager has the skills to facilitate the workshop) and how is it subsequently used (action plans). Supports the notion that action plans are important for change to take place.
5	Bowers (1973)	Ex-post-facto study of the effects of SF compared to three other OD interventions (interpersonal process consultation, task process consultation, and laboratory training) in 23 organisations within ten companies across a variety of sectors in the US. Participants (N=14,812) were both white- and blue-collar workers. Control groups engaged in 'data hand-back', where results were handed back to supervisors, and a no	SF found to be associated with significant improvements over a one-year period for the majority of the measures of organisational functioning. Of the other interventions, only interpersonal process consultations (which share communalities with SF) showed improvements.	Survey of organisations captured parts of the PWE. Job satisfaction (JobSat). factors intrinsic to the job were not included. Participants receiving the SF treatment showed improvement in 11 of the 16 measures. Part of the observed efficacy of SF compared to other intervention strategies was attributed to SF that targeted 'organisational climate' factors (extrinsic job factors concerned with the overall organisational culture, structure and functioning). The other	None	The most comprehensive comparison of SF with relevant controls ('data hand-back' and no treatment). The size of the study means that the findings carry considerable weight. Assignment to treatment groups was not random but determined by the change agent involved with the organisation. Golembiewski, Billingsley, and Yeager (1976) have subsequently questioned whether the change measure would be equally likely to pick up changes in the other two OD interventions.

		treatment control, where data were not disclosed to manager or employees.		OD intervention strategies did not deal with this level but with the processes within the work group.		
6	Cohen and Turney (1978)	Intervention study of the US army, comparing an OD treatment including survey feedback, participatory problem solving and job enrichment (N=138) with control groups. Pre- and post-tests were four months apart.	Positive changes in employees' perceptions and performance as a result of the intervention. Not possible to isolate the SF component as the original study was altered in the process such that the control groups received an intervention (autonomous teams).	Work environment questionnaire was constructed, covering both extrinsic and intrinsic job factors. No change was found in the WEQ dimensions over time. However, the intervention was associated with an increase in satisfaction compared to control groups.	Performance measured by the effort the employees expended in performing the job: the time the employee searched for assigned communications as objectives met by employees and hours spent per day accomplishing the objectives.	Not possible to directly observe an effect of SF because of the inclusion of other OD initiatives. The original design was exceptional as it included a both a 'straight control' and a 'Hawthorne' control, which included attention but no theory guided intervention.
7	Conlon and Short (1984)	An ex-post-facto study using a cohort in the US Air Force to investigate how SF can work as a change device regarding organisational attitudes. Particular emphasis was on the group supervisors' involvement in the feedback process. The treatment group (N=89) received the SF intervention. A matched control group consisted of 383	Supervisors' involvement in survey feedback was found to be critical for the effect of survey feedback. Effects were only found in the cases where supervisors fed the data back to employees.	Organisational assessment package: 93 questions covering both extrinsic and intrinsic job factors. Improvements higher in the SF group compared to the matched control for the following: supervisory characteristics, task perceptions, goal clarity and opportunity for advancement.	None	Ex-post-facto design: treatment and control groups were matched on several organisational and functional characteristics. Unclear why the control group did not receive treatment in the form of feedback.

		participants in the same functional area. Pre- and post-tests were about six months apart.				
8	Dollard and Gordon (2014)	An intervention study using participatory risk management to reduce work stress in an Australian public sector organisation. Capacity building workshops based on an existing OD survey were used to assist work groups in assessing risks in the work environment that could affect stress. Participants (N=611) consisted of four intervention groups (N=94) and 17 control groups (N=511). SF intervention conducted by organisational psychologist.	Organisational and job design factors significantly improved in the intervention groups compared to the control groups. Overall attitude ('morale') also significantly improved. JDC factors showed the greatest improvements across groups. Management support for the intervention and participation seen as the main causes for a successful intervention.	OD survey with 23 questions in total—eight scales—measuring a subset of PWE. Significant changes on five of the eight scales—excluding 'work stress', 'organisational change' and 'local empowerment'.	Sickness and absenteeism lower in intervention groups.	The control group (no treatment) is problematic since it cannot be ruled out that the attention given to the treatment group (which also included high management support and attention) caused the observed effects. Moreover, the groups chosen for the treatment conditions were the ones with the highest perceived risks in the OD survey and the observed effects could be a case of regression towards the mean. OD survey is not very comprehensive, and validity is not investigated beyond internal reliability.
9	Eklöf and Hagberg (2006)	An extension of a previous study (Eklöf et al., 2004) investigating quality modifications made to the work environment.	Positive intervention (SF) effect in the supervisor feedback group on social support. The results suggest that the effect for group feedback might also be present,	Improvement in the PWE was measured using a questionnaire where respondents rated how changes in the job demands control and support (JDCS) dimensions affected their	None	The authors note that the complexity of some psychosocial factors might have lent themselves less well to the short group feedback meetings than to the individual and the supervisor feedback

			although this was not significant compared to the control group (no feedback). No effect on the JDC dimensions.	jobs—from 'big impairment'—'big improvement'.		conditions. This would weaken the potential effects of the group feedback method.
10	Eklöf, Hagberg, Toomingas, and Tornqvist (2004)	Intervention study examining the effects of survey feedback programmes for 36 work groups in ten organisations (N=381). Focus was both the ergonomics of the workplace and the PWE. Three feedback conditions: feedback to individuals, feedback to supervisors and feedback to groups, and a control. Groups were randomly assigned to conditions using a blinded procedure. Effects were measured by asking the participants to state the number of modifications in workplace design or work technique that related to a modification in the PWE.	Feedback had some effect on the number of modifications of the ergonomic working environment and work techniques. No effect on the number of changes regarding the PWE was observed for group feedback (survey feedback). The supervisor feedback condition had an effect on the PWE.	Measure of changes to the JDCS model at both baseline and follow-up indicated the efficacy of the feedback sessions in terms of perceived changes on the JDCS dimensions within the last six months. Participants indicated yes or no to whether they had perceived changes. The number of modifications in the PWE were only significantly different from the control group in the supervisor feedback condition.	None	An attempt to design a randomised intervention study: groups were equal in size and included several job and organisational types. The three types of feedback were then randomly assigned to the work groups. The PWE was treated superficially at feedback sessions (participants perceived JDCS model as 'abstract' and difficult to understand). The authors discuss at length the many possible biases in the design. However, the measure of change relies on the participants answering 'yes' or 'no' to a question regarding perceived modifications within the last six months. This is problematic because of recall biases as well as how 'changes' are defined. The missing effect on the JDCS factors might be because they are not as easily changeable within the work group as

						ergonomic factors, but instead require managerial or organisational attention.
11	Elo and Leppänen (1999)	Three-year intervention study in a light metal factory (N=773) within 12 departments where health promotion teams within the company used SF among other interventions to improve the PWE and physical fitness among employees. Changes were assessed after three years using a perceived changes questionnaire.	Employees were generally satisfied with the health promotion teams and initiatives. Findings include improved social climate and participation in the development of their work. But the strenuousness of work increased.	An occupational stress questionnaire was employed to assess the PWE. Substantial differences between departments were found. Some evidence points to an improved social climate and relations within the teams, but the study also suggests that both mental and physical strenuousness of work increased. The authors point to the external economic climate as the cause for the latter. There was no follow-up measure using an occupational stress questionnaire to allow for a direct comparison.	None	The three-year timeframe allows for the analysis of lasting effects of the intervention, which is lacking in the shorter longitudinal studies. However, the 'perceived changes questionnaire' approach would have made the study less likely to find changes that were less salient. Further, it is difficult to isolate the effect of survey feedback from other health-promoting initiatives such as the opportunity for physical exercise at the company, which was anecdotally mentioned as contributing to the improvement in social climate. Case study with no control.
12	Elo et al. (1998)	Intervention study with SF applied as method for stress reduction at an international paper company (N=118). Survey data consisted of an occupational stress questionnaire deployed in three	Variability of work as well as physical and mental strenuousness of work decreased. As a consequence of the SF intervention, occupational health staff at the organisation changed their working model	Occupational stress questionnaire was used to assess the PWE. In the one department that participated in the follow-up study, there were significant changes in the job design, with greater perceived variability added. The	Reference the improvements in the work environment supporting productivity.	The study does not specify the length of the follow-up period. Only one group (N=28) completed the questionnaire twice. No mention of changes on scales outside of variability and strenuousness. The latter was attributed to a changed economic environment,

		departments. Only one department participated in a follow-up survey three years later.	towards active co-operation. Survey feedback subsequently implemented as an occupational health service in the entire organisation.	overall mental and physical strenuousness decreased over the three years. Used pre- and post-measures as well as ongoing observation and questioning of perceived changes.		which placed a demand for increased performance on the organisation. Case study with no control.
13	Gavin (1984)	Case study of an OD project at a mining company (N=400) centred around survey feedback but also involving management training. Primary focus is participants' perceptions of the feedback process and learning outcomes. Feedback sessions were facilitated by external OD consultant. After initial feedback in work groups, a second feedback session was carried out using the same survey data.	Facilitator and employee ratings of the efficacy of the feedback sessions were strongly correlated. Groups with higher scores regarding satisfaction on a variety of job facets including management, supervision, problem-solving efficiency and company fairness tended to have more positive attitudes towards the feedback process.	Survey data consisted of a tailored but unspecified questionnaire developed for mining organisations, including items related to attitudes towards pay, benefits, work conditions, promotions, supervision and company management. The study did not include a pre- and post-measure of the attitude questionnaire. A majority of participants indicated that the SF process provided them with valuable insight and solved important issues. Ninety-one percent of participants indicated that they would like to continue with the SF meetings and 96% considered them a good	Productivity increased 45% the year following the intervention, which led to the implementation of employee relations programmes and formal systems of open communication at the organisation.	The study's measures and methods are opaque. It is not possible to assert what part of the intervention entailed survey feedback and how much was management training. The survey was only administered once and, as a result, changes in the attitudinal measures could not be investigated. Case study with no control.

				idea.		
14	Jöns (2000)	Longitudinal study (1995–1997) consisting of three measuring points. Measures included employee survey and supervisor assessment with additional measures of satisfaction towards the supervisor and an assessment and evaluation of the feedback process. The study had three feedback conditions: 1) a neutral moderator provided the feedback, 2) the manager of the department in question provided feedback or 3) the group did not receive any feedback.	Evidence of the efficacy of feedback. The groups receiving feedback showed improvements in ratings on several dimensions compared to the groups without feedback. Those receiving feedback from the manager generally showed greater improvement compared to ones with a neutral moderator. Managers with experience running the feedback process were judged as providing better feedback quality.	Employee survey of attitudes: satisfaction, information policy, employee participation and financial rewards. Supervisor assessment: assessment of behaviour as well as attitude towards the supervisor.	None.	States that the data consist of workers at an organisation with 10,000 employees. However, the exact methodology is not laid out, but references a previous paper the same author published in German.
15	Klein, Kraut, and Wolfson (1971)	Ex-post-facto study examining the impact of attitude survey feedback on the attitudes of 521 manufacturing employees and 112 managers towards the feedback process and their perceptions of survey utilisation. The approach to survey	SF was found to be more effective than written feedback. Two feedback meetings were more effective than one. No additional benefit was found from a third meeting. Utility was greater when the manager responsible was feeding back the	Two attitudes were measured: participants' perceived utility of the survey feedback process and satisfaction with the process. The process variables were of two classes: communication and involvement, the former predicting greater satisfaction with survey	None	Unclear what constituted the attitude questionnaire that was used. No follow-up to investigate changes included in the attitude questionnaire. The two time spans before the effect was measured are too short for an effect to materialise. The self-selection concerning method used leaves the design open for a

		feedback was determined by the work units. Researchers subsequently grouped them according to the level of data used, the person responsible for the feedback and the number of feedback meetings conducted. Impact was measured through a questionnaire two weeks after the intervention.	data.	feedback and the latter predicting better perceived utilisation of the survey's results. The management group perceived utilisation and satisfaction as highly related.		number of potential confounding variables.
16	Mann (1957)	The earliest study concerning the efficacy of the survey feedback method. Longitudinal intervention study of eight accounting departments. Managers of the four departments carried out several survey feedback meetings with employees over a two-year period. Two of the eight departments had no feedback meetings and served as the control group.	Departments in the SF condition showed more significant positive changes in employee attitudes and perceptions compared to the control. Change was measured on the same 61 questions asked at both measurement occasions and through a 17-question perceived change survey administered at the time of the second survey.	Twenty-five percent of the questions showed relative mean positive changes at the .05 level or better. An additional 57% of the questions showed positive but not significant changes. The major positive changes concerned intrinsic job factors (task importance, relevance decision authority), view of manager (interpersonal skills, task management), career progression and work group collaboration and effectivity. For 15 of the	None	Details from the questionnaire used and the data analysis performed are not provided.

				17 questions on perceived change, a significantly higher proportion of participants in the SF groups than the control group indicated that change had occurred.		
17	Pasmore and King (1978)	Longitudinal intervention study (two and a half years) at a production company with three measuring points. Compared the impact of technostructural (sociotechnical system or job redesign) and survey feedback interventions on a number of attitudinal and performance measures on two comparable units in a production facility.	Employee attitudes were affected by both the SF and the combined technostructural and SF interventions. Only the combined SF and sociotechnical intervention resulted in major productivity improvements and cost savings.	A combination of attitudinal and experiential measures was used. Both the SF and the technostructural interventions resulted in an improvement in employee attitudes related to general job satisfaction, intrinsic motivation and job involvement, a decrease in alienation and a greater variety in job design. Satisfaction with specific aspects of the job and working conditions, intergroup relations and supervisory consideration were not affected by the interventions. However, the combined SF and technostructural interventions had a larger effect than SF alone.	Productivity in the form of cost reductions and units produced was only improved by the sociotechnical system intervention. No evidence was presented of job redesign or SF being related to increased productivity. However, the authors point to the likelihood that the technostructural interventions were possibly enabled by the SF intervention that preceded them. No effect on absenteeism was found.	No control group in the study makes it difficult to rule out reactivity due to an observer (Hawthorne) effect.

18	Sackmann et al. (2009)	<p>Longitudinal action research study (four years) of a comprehensive strategic change programme at a trading company (N=225) involving survey feedback at T1, T2 and T3 with additional survey information at T3. Several other OD interventions were part of the programme, including management workshops and the incorporation of managers' performance goals. A systemic approach to change involved a learning and becoming perspective to change, trust and appropriate role perception. It also incorporated the specific use of management instruments to contribute to sustained change, which resulted in performance improvements and a</p>	<p>Attitudes towards change improved over time, as did employee affective organisational commitment and initiative behaviour. Dimensions relating to the manager-employee relationship did not change over time. Interviews and participant observations reported findings that contradicted the negative developments found in some of the attitudinal measures.</p>	<p>Attitudinal measures were: leader-member exchange, employee trust in their supervisor, affective organisational commitment, identification and involvement in the organisation, employee awareness of the cost of leaving the organisation, initiative behaviour (organisational citizen behaviour) and attitude towards change. Positive changes (T1-T3): affective organisational commitment (T1-T3) and initiative behaviour (T1-T3). Negative changes were found in leader-member exchange (T1-T3), trust in supervisor (T1-T3) and continuance commitment (T2-T3).</p>	<p>Managers of the departments set higher goals and surpassed these at T3. Suggestions for improvement submitted by the employees increased from T2-T3.</p>	<p>Case study with no control group. Mixed results on attitudinal measures. Unclear the effect of the SF intervention on its own. Top management attributed improvement from T1-T2 to SF. However, the change agents discouraged top management from focusing solely on SF as a change initiative for the entire organisation.</p>
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		move towards a learning organisation.				
19	Sørensen et al. (1985)	Longitudinal intervention study (three years) at a community service organisation (N=42–67). Used a quality of working life intervention involving SF to investigate the effect of various levels of participation on employee attitudes and financial performance.	Employee perception of participation and involvement increased as a consequence of SF, as did a measure of financial performance for the units involved. The intensity of involvement was associated with greater change. Study found a time lag between employee attitudes and performance.	Used Likert's Organizational Profile and Control Graph Questionnaire and found increased participation and involvement. Positive movements reported for 17 of 18 measures. Greatest improvement in dimensions regarding whether subordinates' ideas are sought and used constructively by management, how free subordinates feel to talk to supervisors about their job, how well superiors know problems faced by subordinates and the use of participation in organisational goal setting.	Financial performance of the unit increased over the three years. Organisational overall evaluation containing external clients' ratings of units indicated an improvement.	No control group; no test for statistical significance of change.

I rejected most of the 53 papers from the final selection because the survey feedback procedure used did not fit the criteria of employee involvement in a naturally occurring work group or organisational unit to interpret quantitative survey data concerning their work environment in order to devise corrective actions. Some of the rejected studies described a design that involved representatives from different work groups in an organisation. These representatives took part in the interpretation of organisation-wide data and subsequently in the design of action guidelines for the organisation (e.g. Alderfer & Holbrook, 1973). Others focused on groups of managers who carried out the interpretation and action guidance based on employees' survey responses (e.g. DeJoy, Wilson, Vandenberg, McGrath-Higgins, & Griffin-Blake, 2010; Holmes, Strasel, Cosentino, Leader, & Daltas, 1977; Solomon, 1976). While several of the rejected studies explicitly used the term 'survey feedback' to describe the method used, the method employed diverged substantially from the core tenets of the SF method as initially described by Mann (1957) and Miles et al. (1969), where the situated and social nature of the feedback process within the work group is a crucial component.

Methodological quality. Intervention case studies were prominent among the research designs, with seven papers reporting the effect of a longitudinal SF intervention within an organisation. From these seven, four studies utilise SF as part of an extensive organisational intervention. An additional four ex-post-facto studies analyse the effect of a survey feedback intervention. From these, two examine how the involvement of participants or managers in the feedback process affected the impact of the intervention. Eight studies report true experimental or quasi-experimental designs, half of which compare an SF intervention with a control group. The other half describe studies where variations of an SF intervention were compared to one another or to other OD interventions. Only one study, which is reported in two papers (Eklöf & Hagberg, 2006; Eklöf et al., 2004), explicitly states that the work groups were randomly assigned to a specific condition. The remaining two studies do not describe the allocation of the groups to the conditions in the study. Table 2.3 below contains an overview of the study designs employed.

Table 2.3 Types of research design in the review

Research design	Description	Study
Case study—no control	Intervention study with only one condition.	1, 4, 11, 12, 13, 18, 19
Ex-post facto	Research design where the SF intervention occurred without interference from the researcher. The effect of SF is examined retrospectively.	3, 5, 7, 15
(Quasi) experimental field study with control group	Intervention study where the SF treatment is compared with a control group (no treatment).	2, 6, 8, 16
(Quasi) experimental field study with several treatment conditions	Intervention study where several varieties of SF or other OD interventions are compared.	9, 10, 14, 17

As previously discussed, the general methodological quality of the included studies is low, with under half of the studies falling within a category of experimental or quasi-experimental designs. This low quality reflects the status in the broader field of OD and the general issue of methodological shortcomings noted by Terpstra (1982). As Terpstra argues, scholars within OD could improve the overall quality of their research in several ways. Firstly, they could include control groups and random assignment conditions to their designs. Secondly, researchers must ensure adequate sampling. Thirdly, studies would benefit from increased transparency in the reporting of change measures, for instance a report of pre- and post-measures indicating statistical significance. Fourthly, a higher statistical sophistication in analysing the change scores should be used to account the nested nature of work groups in organisations. Finally, the authors should report both the validity and reliability of the measures and include additional measures to support self-report data. Examples of such unobtrusive measures are productivity or performance data obtainable from company records as well as observational and interview data (Terpstra, 1982).

Impact of survey feedback on the psychological work environment, job attitudes and organisational performance. What follows is a discussion of the key findings reported in table 2.2 related to the survey feedback intervention as a mobiliser for change efforts, including self-report measures of psychosocial work environment factors, job attitudes or organisational performance.

Survey feedback as a mobiliser for change efforts related to the PWE and job attitudes. Owing to the selection criteria, all 17 studies analysed were longitudinal and included one or more self-report measures. Most examined changes in pre- and

post-survey feedback measures. There were three exceptions: Eklöf and Hagberg (2006) and Eklöf et al. (2004) did not compare the pre- and post-survey scores, but asked participants to answer questions on whether they had experienced changes since the intervention; Bergstrom et al. (2008) did not report changes in scores on PWE; and Gavin (1984) focused on employees' perception of the SF process as well as organisational performance measures.

In 14 studies, factors encompassing or related to the PWE were included as outcome measures. In 12 of these, there were improvements in one or more of the dimensions measured. Only one study cited in two papers (Eklöf & Hagberg, 2006; Eklöf et al., 2004) saw no improvements. The authors speculate that this resulted from the participants' difficulty reporting perceived changes related to job demands and control. One possible explanation given is that the managers, as non-experts, were tasked with facilitating the feedback conference. Yet, this explanation does not seem to be supported as there was an improvement in the JDC scores in the condition in which the manager received the feedback.

Overall, I found considerable differences concerning the breadth of the PWE covered in the different studies. This ranged from a sole focus on a job demands and control (JDC) model to extensive questionnaires covering both extrinsic and intrinsic job-related factors. From the articles included in the review, the SF intervention was associated with a positive mobilising effect regarding the PWE overall. However, as the construct of PWE is both wide and without a commonly agreed-upon definition, it was of some importance to further examine which part of the PWE in the survey feedback intervention was effective.

To analyse the effectiveness of PWE in the survey feedback intervention, I referred to the classic categorisation of factors intrinsic and extrinsic to each profession (Cooper & Marshall, 1976) and 'crossed levels' by investigating both micro- and macro- structures (Hackman, 2003). A common critique leveraged against OD interventions is their privileging of small groups and dynamics within those groups over organisational structures and context (Whyte, 1987). As a result, I wanted to investigate further if the SF intervention produced any changes in the culture and structure of the organisation, or if it was restricted to the socio-emotional aspects of group life.

Factors intrinsic to the job. There is a substantial body of research that examines the impact of intrinsic job factors such as strain, wellbeing and job satisfaction. One exemplary model is Hackman and Oldham's (1974) *job characteristics model*, which focuses on skill variety, task identity, task significance, autonomy and job-based feedback. Another is Karasek's (1979) *job-demands-control (JDC) model* which centres

on the relationship between the demands of a job in relation to its autonomy and variety. As mentioned in chapter 1, there is considerable overlap between the job characteristics and JDC models, although they differ slightly in their purpose. Research on the JDC model has mainly been concerned with the demands-control dimensions in relation to job strain and job re-design; and the job characteristics model has been used to measure motivational potential and job satisfaction. Yet, both models were conceived at a time when it was perceived that job design was the main influence on worker satisfaction and well-being.

There has been a substantial paradigmatic shift in the nature of work since the 1970s, when the interest in job characteristics began (Oldham & Hackman, 2010). Today, jobs are less defined and employees have more agency with regards to being able to 'craft' their jobs (Wrzesniewski & Dutton, 2001). This is to say that workers, over a period of time and in collaboration and negotiation with the organisation, are able to affect what constitutes the content and 'design' of their jobs. This is thought to be the result of an increase in professional complexity, with workers floating in and out of roles and projects, and with frequently changing or fleeting managerial relations (Oldham & Hackman, 2010). Hence, factors once considered to be the very core of understanding a job's impact on the worker are no longer seen as a defining characteristic.

One consequence of this change is that job properties are no longer considered stable or something that can be understood using traditional self-report measures (Daniels, 2006). Another is that the JDC model has been expanded to include social support (Johnson, Hall, & Theorell, 1989). This extension of the model, which was originally intended to classify jobs according to their inherent characteristics, has nevertheless contributed to a blurring of the distinction between intrinsic and extrinsic job factors. For example, it considers a relational aspect that would have been traditionally categorised as an extrinsic job factor.

A later development related to the JDC model is the *job demands resources* (JDR) model, which looks at the demands experienced at the job, but stresses that the resources available for the worker to meet such demands are crucial when assessing the impact on the worker. These resources are found at the individual and organisational level and include resources like supervisory guidance and career opportunities (Bakker & Demerouti, 2007). These factors would have been conventionally categorised as extrinsic to the job and reflect a general need to include a wider range of factors in order to gain a more complete understanding of employee wellbeing.

Aspects of job design were addressed in ten of the identified studies. In eight,

the impact of an SF intervention led to changes on one or more factors intrinsic to the job. The two studies that did not find an improvement for the JDC dimension were comprehensive workplace interventions in Sweden (Björklund et al., 2007; Eklöf & Hagberg, 2006; Eklöf et al., 2004) and where the SF interventions were a general approach implemented at a large scale with little researcher involvement. Among the studies that found a positive effect were Amba-Rao (1989), who found that the SF intervention led to changes in the physical work environment for a group of factory workers. In the study by Conlon and Short (1984), workers reported that the task performed had changed as a consequence of the SF intervention. Cohen and Turney (1978) also report that the survey feedback process led to a job enrichment programme with the explicit goal of increasing job flexibility and control, which led to an increase in performance and job satisfaction.

Strong evidence in favour of SF as an effective facilitator for change is found in a study by Dollard and Gordon (2014). This involved a range of intrinsic and extrinsic job factors, which it sought to improve through capacity building workshops. Elo et al. (1998) also discover that employees reported greater variability in the job as a result of the SF intervention. Additionally, task importance and decision authority were among the major positive changes during a two-year SF intervention reviewed by Mann (1957). Elsewhere, Pasmore and King (1978) find improvements in job design as a result of an SF intervention, but here it is perceived that the effect in the condition was brought about by its combination with a socio-technical intervention that introduced autonomous work groups. Collectively, these findings suggest that an SF-based process lends itself well to organisational interventions where the purpose is to harness employee knowledge and agency to improve the core tasks and content of the job.

Extrinsic job factors. The shift towards the inclusion of extrinsic job factors in describing a job poses a number of problems: the multiplicity of factors which influence employees' wellbeing and satisfaction (Ruguiles, 2014); and its contribution to the heterogeneity of theoretical frameworks (Dewe, 2012). As a consequence, mapping the terrain of extrinsic job factors involves a plethora of models and theories within organisational culture, leadership and organisational policies, group climate, relationships with co-workers and perception of managers. In practice, there is the consequence of having to exclude a number of dimensions and perspectives, as a general and comprehensive model or framework for extrinsic job factors is unachievable.

To provide a synthesis of the literature on the efficacy of the SF feedback intervention when considering extrinsic job factors, I distinguish between micro-

and macro-level structures.² I use *macro-level structures* to refer to those that are concerned with the organisation as a whole, including culture, organisational policies, organisational structure, perceptions of top management and overall working conditions. I employ *micro-structures* to refer to the relational aspects of work, including relationships with co-workers, team dynamics and perceptions of the immediate manager.

Nine out of the 19 papers include macro- and micro-level structures, which can be classified as extrinsic to the job. Of these, eight find that the SF intervention was associated with positive changes. Only one study (Cohen & Turney, 1978) did not find that the SF intervention was associated with a difference in change score between the survey feedback condition and the control condition. The micro-level dimensions include: supervisor–subordinate relationship, peer group relationship and supervision quality, and performance feedback from manager. The same level of change is found for macro-level structures concerning the perception of the job training available at the organisation and the communication patterns between groups at the organisation.

Eight studies report improvements in macro-level structures. Amba-Rao (1989) finds that a three-wave SF intervention at a small manufacturing firm led to an improvement in employee perceptions of the organisational culture, policies and senior management. Bowers (1973) compares the effectiveness of SF to three other OD intervention strategies, which involved employees addressing both tasks and interpersonal processes, but did not address the macro-level of the overall organisational climate. Part of the observed efficacy of SF, compared to the other intervention strategies, is attributed to the targeting by SF of several levels, including overall ‘organisational climate’ factors. Conlon and Short (1984) observe improvements in goal clarity in the organisation and improved opportunities for advancement. In contrast, Dollard and Gordon (2014) do not find evidence of improvements on a measure of ‘organisational change’. Elo et al. (1998) note that one consequence of the SF intervention was a revised approach to how the occupational health service worked in an organisation, with a shift towards active co-operation with employees. Jöns (2000) identifies the association of SF with

² It should be noted that micro- and macro-structure in organisational studies do not have uniform meanings. As Hackman (2003) points out, what is macro to one researcher is another’s micro-structure.

organisation-wide changes in information policy, employee participation and financial rewards. Mann (1957) finds improvement in perceived career progression as higher in the SF condition compared to controls. Finally, Sørensen et al. (1985) discover that the SF intervention led to an increase in employees feeling that they participated in organisational goal setting.

Micro-level structures are observed to improve in 11 of the studies. Among these, seven concern the perception of and relationship with management. The majority find improvements concerning the perceived skills and competency of the management team: Conlon and Short (1984) report improvements on scores of supervisory characteristics compared to the matched control; Amba-Rao (1989) discusses improvements in the quality of management over the three year period. Similarly, Born and Mathieu (1996) note improvement in ratings of management supervision and management communication over a one-year period. Mann (1957) perceives increasing ratings on interpersonal skills and task management of the immediate manager. Positive changes regarding the relation with the manager and the general perception of management are discerned by Björklund et al. (2007), who also observe changes on dimensions concerning leadership in the groups assigned to 'SF with action plan'. Jöns (2000) remarks on positive changes in behavioural assessment as well as attitude towards the supervisor. Finally, Sørensen et al. (1985) notice that employees' perception of their relationship to management was among the greatest changes. This includes how free subordinates felt about talking to supervisors about their job and how well superiors understood the problems faced by subordinates. No changes with regard to the perception of or relation to the manager occurred in three studies. Moreover, in the study by Cohen and Turney (1978), no changes are found in the survey dimensions over time. In a more recent study by Dollard and Gordon (2014), no significant changes related to the dimension of local empowerment, which involves the relationship with the immediate manager, are reported. Furthermore, Pasmore and King (1978), who find significant changes related to intrinsic job factors as well overall job satisfaction, observe no changes in either supervisory consideration or intergroup relations.

Six of the eight studies that included measures related to co-workers, either in terms of social support or the work group climate, show improvements associated with the SF intervention. These are reported as general improvements in work 'group climate' (Amba-Rao, 1989; Born & Mathieu, 1996), in the 'group process dimension' (Bowers, 1973) and 'social support' (Eklöf & Hagberg, 2006). Elo and Leppänen (1999) reveal evidence to suggest that there was an improved social climate and relations within the teams, while Mann (1957) demonstrates that work group collaboration and effectivity improved during the SF intervention. However,

the general absence of an effect of the SF intervention recorded in the study by Cohen and Turney (1978) also extends to co-worker relations.

Job attitudes. Attitudes related to an overall evaluation of the job, such as job satisfaction, engagement or commitment are included in six studies. First, Björklund et al. (2007) find an increased commitment to the organisation in the 'SF with action plan' group. Further, Amba-Rao (1989) discovers that overall satisfaction increased over the three year period, which is corroborated over a similar period by Jöns (2000), using three measurement points. Dollard and Gordon (2014) report an increase in 'morale' among the significant changes in measures between T1 and T2. Similarly, Sackmann et al. (2009) see a significant change between the first and third measuring points, four years apart, on a classification related to affective organisational commitment.

Measures of organisational performance. A recurrent topic in the reviews of organisational performance in relation to OD concerns the lack of quality, which in part results from a reliance on self-report measures (Terpstra, 1982). As previously mentioned, Terpstra recommends that more OD studies include hard 'unobtrusive' data, such as performance or production records, to supplement self-report data. There are indeed grounds from which to argue for the benefits of obtaining unobtrusive performance measures relevant to the processes targeted by an intervention like survey feedback. For instance, at least three studies that involve the technostructural level (Amba-Rao, 1989; Cohen & Turney, 1978; Conlon & Short, 1984) show that the SF intervention brought about changes in how work was performed.

Significantly, just under half of the included studies (nine) include performance measures in the form of either productivity numbers, measures of performance, reduced waste or records of absenteeism. Of these, six find improvements following the SF intervention. Absenteeism is investigated in two studies, with Bergstrom et al. (2008) reporting a significant drop in sick leave in one of the four participating companies. A similar (but not significant) decrease took place in an additional company, supporting this trend. Dollard and Gordon (2014) also recognise a small effect on absenteeism in the SF intervention group compared to the control group. Yet, Björklund et al. (2007) do not find a significant difference between the 'survey feedback groups' and the 'no feedback groups' in terms of sick leave obtained from official registers.

Linking an effect of SF to overall organisational performance constitutes weaker evidence for the method's efficacy than a more direct measure. This has been

discussed elsewhere in the OD literature, for example by Hackman and Wageman (1995) in relation to the effect of total quality management on organisational performance. The authors stress that researchers need to study the effects of the intervention and, explicitly, the processes the intervention is supposed to affect, rather than referring to the general improvement of organisational performance. This should involve both manipulation checks and measurements of process criteria.

Just under half of the studies include general performance measures. Gavin (1984) assesses an increase in productivity of 45% following the year of the intervention. Sørensen et al. (1985) report that the financial performance of the unit increased over three years. Cohen and Turney (1978) obtain a proxy measure for performance in the form of the time the employee searched for assigned communications, the objectives met by employees and the hours spent per day accomplishing the objectives. In this case, the measures relate to the processes targeted by the SF intervention and thus provide a credible link with the observed changes to the work environment. However, Pasmore and King (1978) do not find changes in cost reductions and units produced for the group assigned to the SF intervention. Nonetheless, they do observe one unit that received a combination of the SF and sociotechnical system intervention. Consequently, the study design makes it difficult to draw any firm conclusions.

The role of the facilitator in survey feedback conferences. A handful of studies investigate the impact of the person facilitating the survey feedback conferences. Whereas the original survey feedback process, as proposed by Mann (1957) and Miles et al. (1969), relied on an external OD expert as a facilitator (change agent), later models have made the manager responsible for facilitating the dialogue around the survey data. Jöns (2000) suggests this change reflects modern organisations' continuous monitoring of processes. One consequence of this change is that the manager is responsible for mastering change processes, rather than relying on external agents. Yet, this may be daunting for a manager with no training in process consultation (Schein, 1995). Furthermore, feedback conferences involving the manager and employees can leave sensitive topics unexplored and run the risk of developing 'collusive norms' (Alderfer & Holbrook, 1973).

In contrast, the literature supports the view that feedback conferences led by the manager are more effective than those led by an external (neutral) facilitator. In the study by Jöns (2000), for example, greater improvement was seen in the groups receiving feedback from the manager, compared to those with a neutral moderator. Moreover, the managers with experience in facilitating the feedback process were

judged as providing a better quality feedback. Conlon and Short (1984) find improvements only in the cases where supervisors ran the feedback conferences. In addition, Klein et al. (1971) report that when the manager was responsible for data feedback, SF utility was enhanced. Similarly, Eklöf et al. (2004) argue that the supervisor feedback condition had a positive effect on the PWE. Nevertheless, it is not clear from the literature if the feedback conferences would benefit from a process led by a more competent external facilitator than a low-skilled and lesser rated manager.

Differential effects. Three of the studies find differential effects for the intervention. Gavin (1984) maintains that groups with higher scores for satisfaction, and for a variety of job facets including management, supervision, problem-solving efficiency and company fairness, tended to have more positive attitudes towards the feedback process. Born and Mathieu (1996) specifically investigated differential effects related to the evaluations of the supervisors and find that those who initially received higher ratings by employees were more likely to use the feedback from the sessions with employees and to improve over time. The inverse was true for groups where the supervisors received low ratings initially. This led the authors to conclude that the SF intervention is associated with a differential effect where ‘the rich get richer and the poor get poorer’ (Born & Mathieu, 1996).

The role of action plans. In the current review, my aim has been to provide a holistic description of the SF intervention. It is thus necessary to mention that, across the literature, the descriptions of specific approaches taken to survey feedback are almost universally vague. As discussed in section 2.2.3, one will often find that papers that report intervention studies lack a detailed description of the nature of the intervention. Indeed, in the case of a complex intervention like survey feedback, which includes both a set of measures (the survey) and an interactive process (the feedback conference), there has been a tendency among authors to focus more on a description on the instruments used, and less on the specific approach taken to facilitate the feedback conference and the organisational context, and the procedures to manage the resulting output.

Only three studies investigate the role of action plans in bringing about change. Björklund et al. (2007) find that only participants who received SF with action plans reported greater improvements on the self-report measure of psychosocial work environment at follow-up, and that no change was observed in the groups assigned to the conditions ‘feedback with no action plan’ or ‘no feedback or action plan’. Born and Mathieu (1996) stress the importance of how the outcomes of the SF conference are used and conclude that action plans are significant. Dollard and

Gordon (2014) find a strong association between the reported implementation of action plans and observed change on a given measurement variable.

Data synthesis. Table 2.4 below provides a synthesis of the findings discussed above with references to the included studies detailed in table 2.2.

Table 2.4 Synthesis of findings

Factors	Description	Positive change	No change or Negative change
Intrinsic job factors	Job demands, control, variety, task significance, role ambiguity, physical hazards	1, 6, 7, 8, 11, 12, 16, 17	3, 9, 10
Organisational structure and climate	Organisational culture, structure, policies, top management, participation in decision making, consultation of employees, working conditions (resources and budgets), job security, career development	1, 5, 7, 8, 12, 14, 16, 19	6
Relations with co-workers	Social support and relationship with colleagues, climate in the work group	1, 4, 5, 9, 11, 16	6, 17
Perception of and relationship with manager	Competency of manager, guidance, development and social support from manager	1, 3, 4, 7, 14, 16, 19	6, 8, 17
Performance	Productivity, performance, reduced waste, absenteeism	1, 2, 6, 8, 13, 18, 19	3, 17
Overall attitudinal	Job satisfaction, engagement, commitment	1, 3, 5, 8, 14, 18, 19	
Process evaluation	Evaluation of the survey feedback process regarding usefulness and perceived changes	11, 13, 14, 15, 16, 17	

Table 2.5 contains a summary of the three processes in the reviewed survey feedback studies that were found to be associated with a mobilising effect.

Table 2.5 Processes related to a mobilising effect in survey feedback

Factor influencing effectiveness of SF	Description	Study
Management led	Evidence suggests that having the manager facilitate the feedback conferences is associated with greater improvement for the work groups.	6, 7, 10, 14, 15

Commitment and action plans	Actions plans following SF essential for a successful process and dimension-related improvements.	3, 4, 8
Differential effects	'The rich get richer' effect. Work groups with the highest (best) scores on the survey indicating a better work environment experience the greatest improvements as a result of the SF process. Managers who have the highest ratings and who are more skilled at facilitating the feedback conferences are better at enabling change as a result of the SF intervention.	4, 13, 14

2.2.5 Summary

The lack of systematic amalgamation of the effectiveness of the SF method is evident. Moreover, the term 'survey feedback' appears across research traditions that represent different views of employees, groups and organisations. Although it is rooted in the social-psychological tradition of organisational development and group dynamics, a vast majority of the references to 'survey feedback' in the organisational behaviour literature focuses on how to improve employees' attitudes or organisational citizen behaviours. Unfortunately, this obscures the focus on collaborative learning and development activities in favour of the management's interpretation and actions following survey data. Subsequently, I have distinguished between these two kinds of literature and concentrated on the studies that implement survey feedback in the form of an OD intervention.

This literature indicates that a survey feedback intervention produces a positive effect on factors that constitute the psychosocial work environment and facilitates change efforts in PWE dimensions, both intrinsic and extrinsic to the job. The method affects the micro-level of the work group as well as the structural level of the broader functions and culture of an organisation. Furthermore, recent studies have pointed to the method's continuing relevance in organisations. Participatory and collaborative efforts found in SF interventions that address the level of the work group mirror 'job crafting' interventions in which the employees reflect on the resources available to shape and craft the job to obtain a better fit (Tims, Bakker, & Derks, 2013; Wrzesniewski & Dutton, 2001).

From the nine studies that investigate the effect of survey feedback interventions on organisational performance, seven show a definite associative link. However, there is limited information on a relevant measure of performance for many jobs, as well as a lack of control for confounding factors, which means that these results are tentative. Nevertheless, the synthesis highlights multiple factors and processes associated with successful SF interventions. A total of four factors

were found to be associated with favourable outcomes of the use of the SF method.

Boundaries for the efficacy of the survey feedback method. The review suggests that organisational as well as processual influences are associated with the method's ability to act as a lever for change efforts. Notably, the efficacy of survey feedback was shown to be enhanced when constituted by the backing of top management. This finding is consistently mentioned in the OD literature as a key component of successful interventions. One finding of particular interest was the more significant effect of SF when the immediate manager facilitated the feedback conference rather than utilising an external OD expert. Also significant, the SF method has a differential effect. In other words, work groups that function well from the start benefit more from the intervention than poorly functioning groups. This finding indicates that the more resources applied to the implementation improve the result. It also reveals that the organisational and work group commitment to the process, and the devising of action plans, are associated with superior outcomes of SF. The method has a greater effect when the researchers ensure that a methodical implementation has taken place.

Limitations and outline of future research. The primary limitation of the review is owing to terminological guise. Not all the studies included in the review use the terms 'survey feedback' or 'participatory intervention'. For example, the study by Dollard and Gordon (2014) encompasses all the characteristics of the original survey feedback definition but does not use the term. Henceforth, it is likely that other studies, with interventions that could be included under the term 'survey feedback' due to their methodological scope and approach, were missed in the search. This problem ties into the more significant issue of increasing fragmentation within organisational studies, where a lack of clear and consistent terminology across the field makes it hard to gain an overview of the current knowledge base (Schein, 2015). It clearly undermines the certainty of its comprehensiveness.

In the search procedure, I sought to mitigate this problem by searching for generic keywords related to participation and intervention in relevant journals within the last decade. Through this method, I identified potentially relevant studies within the job crafting literature. Subsequently, I interrogated the literature to identify whether any contained intervention studies that had similarities to an SF approach. However, I discarded all the studies identified through this procedure, as none of them included the interpretation of data in naturally occurring work groups.

A further limitation was the lack of description regarding the intervention. Often

overlooked was the particular facilitative approach used, including the extent that the manager was responsible for the facilitation of the feedback conferences. Additionally, the background and training of the facilitator were either superficially described or absent. Therefore, the skills, approach and enthusiasm of the facilitator appears both critical to the SF approach and significantly underestimated. Thus, future research on survey feedback would benefit from more detailed information about what takes place in the feedback conferences and, specifically, how data feedback influences the dialogue between the participants.

The diversity of the research designs, survey instruments and implementation of survey feedback conferences was also notable. Although it may reduce common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), the heterogeneity of the literature presented an obstacle for analysis and is a hindrance to the creation of a coherent research programme that over time builds an evidence base for the method.

Therefore, I perceive more nuanced data regarding the processes involved in the SF method should extend to measures of organisational performance. Notably, only one of the reviewed studies includes unobtrusive measures of performance concerned with processes addressed by the intervention. As most workplaces become increasingly mediated digitally, such data are now available to researchers.

Another possibility for research could be a more detailed investigation of the processes mediating the change efforts associated with SF. To investigate this aspect of survey feedback, future studies should include an investigation of the process level in survey feedback conferences and not solely the impact on attitudinal or organisational measures. It is possible that theories concerned with interpretation and the agency of organisational members can contribute greater insight into the mediating processes through which the intervention works. One theoretical frame which could be particularly relevant is the sensemaking perspective (Sandberg & Tsoukas, 2015; Weick, Sutcliffe, & Obstfeld, 2005).

It is noteworthy that none of the studies involve the use of alternatives to traditional one-off questionnaires, for example the experience sampling method (ESM). This does not take into account the rise in the availability of alternatives to the traditional questionnaire over the past 15 years. Studies applying longitudinal measures indicate that neither general job attitudes (Ilies & Judge, 2004) nor job characteristics (Daniels, 2006) are stable, but rather vary across time, situations and sociability, and are affected by respondents' moods. Collecting longitudinal quantitative data will therefore likely contribute to a more nuanced view of employees' experience of their work environment and enable a more qualified

dialogue in feedback conferences. Intensive longitudinal methods like ESM allow for a review of variability over time. This variability is mainly visible at the individual level and is not easily aggregated to the level of the work group. Hence, to harness such data sets in connection with survey feedback, future research employing an ESM approach should consider providing participants with access to their data set as well as the data of the work group.

Conclusions. Overall, survey feedback was shown to be an effective intervention to mobilise change efforts in organisational units. A particular strength of the method is its ability to successfully facilitate change efforts across a number of levels, ranging from the organisational structural level, the social-relational level to the specific design and content of the job. Hence, by being associated with successfully producing effects that go beyond the socio-emotional factors in a work group, it stands out from the majority of alternative OD interventions.

Research on SF as a method appears to have dwindled, reflecting a broader trend of individualisation within organisational psychology and OB research. However, it is successfully utilised as an applied method, as pointed out by Jöns (2000). It shows particular promise for improving the psychosocial work environment.

Despite these findings, there is still reason for caution, and it would be wise for future researchers to carefully design and include appropriate control groups, randomise allocation to conditions and pay more considerable attention to the collection of data concerning the feedback process. Moreover, future studies can strengthen the evidence base for the SF method if it minimises the common method effect by using experience sampling methods as well as incorporating relevant, unobtrusive performance data.

2.3 The limitations of self-report measures

The use of traditional self-report measures in the form of questionnaires has been subject to deep analysis. These evaluations have in essence examined their shortcomings in terms of reliability and usefulness. In this section, I review the key arguments and explain my choice of a pragmatic perspective towards self-reported measures in the current research.

Central to the debate concerning the use of self-report measures within the field of psychology is the view that it provides 'information that no-one else knows' (Baldwin, 2000). Within the subfield of organisational psychology that is concerned

with how employees experience work, self-report measures are unique in their ability to capture cognitive and hidden activity as well as overt behaviour, enabling us to isolate different facets of job characteristics (Daniels, 2006). However, as Daniels points out, for a self-report measure to capture *enacted* job characteristics it entails a different self-report measure than the one used for traditional *perceived* job characteristics. This measure should be able to capture the real-time variability of strain, which might be best obtained through measures of momentary affect.

One of the key criticisms levied at self-report measures, particularly in the form of questionnaires, is the difficulty of obtaining general laws at the sample level for each individual in the population under review. Generalisation requires that the within-person processes of the phenomena of interest reflects the distribution in the population (Hamaker, 2012). However, most psychological phenomena differ in distribution between the individual level and the large sample, given that they are non-ergodic (Molenaar, 2004).

The problem of ergodicity extends beyond self-report measures. As Hamaker (2012) notes, it is common to observe phenomena where the distribution at the individual level differs vastly from that of the population level.³ Similarly Ilies and Judge (2002) find that within-person variance in self-reported job satisfaction in an experience sampling study was almost as great as between-person variance. Thus, caution towards making generalisations when investigating change in measures where intra-individual variability is warranted. To counter these known shortcomings, Nesselroade (1991) introduces an approach to distinguish between intra-individual variability and intra-individual change, which later inspired the development of the measurement-burst designs (Sliwinski, 2008) I discuss in section 3.5.3.

Although it is fair to acknowledge the biases prone to self-report measures of psychological phenomena (Schwarz, 1999), self-reporting is also a form of

³ Hamaker (2012) provides the example of how the differences between data at the individual and cross-sectional level can be observed in relation to typing proficiency, measured as words per minute and typos. Expert typists make fewer mistakes and type faster than novices. Thus, the relationship at the aggregate level between individuals would suggest that an increase in typing speed is associated with fewer errors. Yet, at the individual level the relationship is the inverse, with both the expert and the novice introducing more typos as they increase their typing speed. One will thus not gain an understanding of the relationship between typos and typing speed at the individual level by looking at the cross-sectional data.

introspection. As Locke explains, self-report measures contain an element of introspection defined as ‘the process of turning one’s focus inward, towards one’s mental contents and processes’ (2009, p. 29). The method thus points to a key debate in psychology regarding whether introspection has any worth as a method for verification, or if it is only useful for exploring psychological processes (Ericsson & Simon, 1980). In a seminal paper, Nisbett and Wilson (1977) summarise a number of studies across different research fields within psychology to argue that people are not able to reliably provide verbal reports of cognitive processes in an experimental design. Ericsson and Simon (1980) refute that claim by showing that none of the experiments used to show a discrepancy between data and verbal report have consisted of situations where one would expect the participants to be able to provide verbal accounts. Indeed, the authors agree with Nisbett and Wilson (1977) in arguing that:

individuals can know their focus of attention, their current sensations, their emotions, their evaluations, and their plans. They know the intermediate results of their mental operations. These are held in STM and are available for verbal reports. (Ericsson & Simon, 1980, p. 245)

Hence, verbal reports on cognitive processes (introspection) can be said to be valid within certain boundaries.

Although the paper by Ericsson and Simon (1980) appeared only three years after that of Nisbett and Wilson (1977) and refuted many of the arguments cited by the latter as evidence against introspection, it is not uncommon to come across writings within organisational studies which assert an ‘endemic unreliability of self-reports’ (Lakomski, 2005, p. 8) with a reference to Nisbett and Wilson (1977). This is paradoxical because much of what is done within the field of psychology necessitate ‘[...] an ability to introspect in order to grasp even the most basic psychological concepts’ (Locke, 2009, p. 24). Moreover, Ericsson and Simon (1980) suggest in closing that data obtained by the introspective method describes human behaviour that is as readily interpreted as any other, and that omitting such data in a search for objective measurements unnecessarily disregards aspects of human cognition ‘that we know perfectly well how to survey’ (p. 247).

Many of the limitations of traditional questionnaires are overcome by new intensive longitudinal self-report methods. Similar to Schwarz (2012), I perceive that technological developments have allowed for alternatives to traditional questionnaires. As a consequence, researchers should re-evaluate the applicability, strengths and shortcomings of these new methods. While it is pertinent to pay attention to the many threats to reliability of self-report measures, it is worth noting that they can be designed to mitigate many of these concerns. In the following, I

review how the validity of such self-report measures can be enhanced by giving participants access to their data streams. Using examples from different areas of psychology, I further argue that cues from self-report data can be used to aid introspection. In doing so, I wish to move the focus from a debate about the extent to which introspection yields valid information towards the extent to which the process is useful. The focus is thus pragmatic to the extent that introspection is able to assist people in making sense of their situation so that they can act.

It is henceforth necessary to identify and acknowledge the limits of introspection and interpretation in order to define the pragmatic view taken here. In most social relationships and contexts, it is difficult to argue that a certain relationship or context is absent, as it depends on how one chooses to bracket it. Neatly bracketed experiences that we might imagine as researchers are less neat and more distributed in reality. Lewin eloquently points this out, writing:

An adequate psychological description of the character and the direction of an ongoing process can and has to be done on various microscopic and macroscopic levels. To each 'size of a unit of behavior' a different 'size of situation' can be coordinated. (Lewin, 1943, p. 300)

In an organisational context where an employee is asked about how they perceive their manager, the employee might choose to consider the relationship in general, particular interactions that made an impression on them or the last conversation they had with the manager. Alternatively, they might be reminded of the report that they have yet to file, which prompts a recollection of the manager's typical response in those situations. It is entirely possible that either of these cues will yield slightly different responses.

Although some research suggests that *affective events* (Weiss & Beal, 2005; Weiss & Cropanzano, 1996) in the workplace have the greatest influence on forming employees' perceptions and attitudes about the job, the problem facing researchers remains their ability to capture those events. A similar problem faces researchers within developmental psychology, where current research suggests that special moments between parents and children have greater influence than their 'general parental style' (Fonagy, Gergely, & Jurist, 2018). Yet, as the authors point out, it is difficult to note how observational research focusing on aggregated or even time-sampled behaviours will be able to capture 'those needles in the socialisation haystack' (2018, p. 109). As a result, it has been difficult to establish the correlation between observed parenting and child outcome.

Thinking that we can capture the plethora of potentially formative events in the workplace by casting the net widely is clearly problematic, and a fact that is

acknowledged by the proponents of affective events theory (Weiss & Beal, 2005).

This problem of capturing a relevant and representative slice of the real world is well illustrated by *subjective evidence-based ethnography* (SEBE) (Lahlou, 2011), where video recordings of real-life situations are used as the basis for participant engagement in interpretations of real-life situations. Lahlou (2017) shows how a multitude of situations ranging from routine and mundane activities to those requiring heavy concentration and specialised skills contain several interpretative layers (cognitive, social and physical). Lahlou also demonstrates how the re-playing of a real-life situation using the first-person perspective in film footage enables the participant to explore how they are affected by their own mental models, as well as the social structure and the physical affordances of the situation. A key point in the SEBE method is that individuals interpret data in the form of video footage, recorded with a camera that is worn on the person's head, which gives an accurate recording of what originally happened and was perceived by the person at the time of the action. The replay by the participant thus allows an opportunity to revisit the original *action*, but as an *activity* from a position where they have access to the both behaviour as it was recorded, and the motives guiding them at the time (Lahlou, 2017).

In the following section, I explore the similarities between the SEBE technique and the *interpersonal process recall* (IPR) method (Kagan, 1975). The latter was developed to teach communication and interpersonal skills to professionals within the health care and counselling professions.

2.4 Quantitative data as a mobiliser for change

2.4.1 Video recall techniques

Like many novel discoveries, the potential of using a particular form of video playback to aid introspection came about through a process of serendipity and tinkering. In 1961, Norman Kagan, a medical student at Michigan State University (MSU), had student job at the university. He was tasked with videotaping the talks of visiting lecturers to preserve them for future playback. At the time, video recorders were not commonplace and MSU was one of a few institutions to have professional videotape equipment (Kagan, 1975).

The novelty meant several of the visiting lecturers asked to see their videotaped talks immediately after the event. What surprised Kagan and his colleagues was that, in the process of reviewing their performance, the lecturers were able to recall detailed experiences and thought processes that happened at the time, ostensibly on a moment-by-moment basis. This led to the visiting lecturers volunteering information that was often self-critical, reflexive and seemingly unfiltered.

Kagan (1975) describes how the details of a person's internal processes can be volunteered without probing questions. As a result, he and his colleagues viewed the process of recalling experiences from the videotape as a form of introspection. The apparent potency of video playback led Kagan and his colleagues to carry out a series of research studies, which among other things lead them to develop the IPR technique. In its basic form, it defines the act of a participant reviewing a video recording. Though the details and particular uses of the IPR method are beyond the scope of this thesis, it is relevant to underline a couple of characteristics of the technique that make it radically different from simply reviewing video footage of interpersonal situations.

IPR has typically been applied to either help a counsellor, therapist or medical professional develop their therapeutic and communication skills, or to accelerate client progress in therapy sessions (Kagan & Kagan, 1995; Larsen, Flesaker, & Stege, 2008). A commonly used setup is a real life setting where the patient receives treatment from the therapist while being recorded. Depending on the purpose of the session (i.e. training a professional or accelerating a therapeutic intervention), the playback process focuses on the intra- and interpersonal processes that play out in the actual therapy session. These are interactions that people might have been aware of at the time, but which through action and activity have faded as a memory trace.

As with SEBE, the promise of the IPR technique is that it re-immerses the participants in the original situation and seemingly allows access to internal processes that took place at that point in time. This allows participants to explore how the experience guided specific actions. It also enables a facilitator to probe why certain actions were chosen. Where the purpose of the session is to help a professional develop their clinical skills, the playback session will typically involve only the participant (therapist) and the practitioner (the inquirer), whose role it to focus on the processes of the participant.

During video playback, both the inquirer and the therapist can focus on certain moments by pausing the videotape. The inquirer can ask open questions about the process as experienced by the therapist, a specific emotional state or a particular line of inquiry taken. Significantly, the playback is focused on the therapist's own introspection of what happened at the point of time viewed on the screen. The inquirer's questions are less concerned with the content of what is being said than rather the underlying processes: what was being thought at the time, how they felt when asking a question, what made them choose that particular approach, etc.

Entering into this dissection of interpersonal processes, reviewing slices of reality—sometimes minute by minute—can help to reveal the richness of introspection. This might previously have been described as an otherwise inaccessible world of personal preferences and strategies guiding a therapist's behaviour in a clinical situation. The finding of Kagan et al. (1975) is that this is an effective way to help the therapist develop their skills, since the personal preferences and strategies become available for evaluation on two levels. First, they become explicit, so the therapist thus becomes aware. Secondly, they play out in a real-life setting, meaning that they have an immediate effect on the patient. In other words, the video playback allows the therapist and the inquirer to move between the focus on the internal processes and the immediate response from the patient.

2.4.2 *Technology as an enabler of novel methods*

Developments in measurement technology have led to a rapid increase in the use of smartphones and related accessories over the past decade. These devices allow users to gather information about a variety of behaviours such as eating habits, blood pressure, fitness levels, calorie intake and steps taken. *Self-monitoring* has gained popularity and it appears personal data is being used to facilitate learning or behaviour change. This development is sometimes described as the *quantified self* (QS) (Rivera-pelayo, Zacharias, Müller, & Braun, 2012). It involves both quantitative and qualitative objective metrics data combined with the subjective interpretation

and experiencing of data (Swan, 2012).

Developments in technology have also opened up interesting possibilities for the deployment of surveys, as the experience sampling method described below exemplifies. In this approach, the researcher is presented with the opportunity to access ongoing processes. The respondent is thus not just a passive provider of information, but an active and engaged co-creator of data about their experiences regarding certain topics.

These benefits open new avenues for organisational researchers and could improve survey feedback methods in an organisational context. The traditional survey feedback method is rooted in a three-step approach to change, where data is collected and interpreted by a central organisational agent, then disseminated to the relevant groups in the organisation. Pulling data into the centre is predicated on a technological limitation that was relevant in the 1960s when the SF method was originally developed. The first and second stages, collecting and analysing data, were at the time a cumbersome task that involved a substantial amount of manual handling and computing. This is no longer the case.

Technology now makes the early stages of research close to frictionless; it is now possible to design and disseminate surveys online with low effort and cost. This means researchers are no longer bound by the three-step approach. In place of the one-off paper or online questionnaire, 'survey periods' can be introduced, where employees provide on-going evaluations of their experiences within an organisation. In short, developments in technology have removed the barriers from the use of surveys in organisations.

2.4.3 The experience sampling method

The ESM was first introduced in a book chapter by Larson and Csikszentmihalyi (1983). In this, the authors follow Lewin's interest in the study of the topology of daily activity (Lewin, 2013) and outline a method to understand how people think or feel about different parts of their lives. Rather than observing people's behaviour across different situations, the authors stress the importance of the method's affordance for the study of the intra-psychic aspects of existence: 'The objective of the Experience Sampling Method is to obtain self-reports for a representative sample of moments in people's lives' (Larson & Csikszentmihalyi, 1983, p. 23). Their approach thus raises the problem of how a representative sample of a person's life can be defined.

It is well understood that self-report questionnaires are prone to a number of biases, from question wording to format and context (Schwarz, 1999). Moreover,

recent studies have indicated that the cultural context also plays a significant role. De Leersnyder, Kim, and Mesquita (2015) find that it was the cultural fit of emotions, rather than certain emotions per se, which predicted psychological well-being in a study using self-reporting. In addition to this, it is well established that people generally perform poorly when accounting for their thoughts and feelings retrospectively (Kahneman, 1999). This has led Kahneman and Riis (2005) to suggest that it is necessary to separate the 'remembering self' and the 'experiencing self' (Kahneman & Riis, 2005) as they are two different perspectives on life. Taken together, there is good reason to exercise caution when deploying self-report questionnaires to capture experiences or attitudes.

Yet, many of the problems associated with traditional questionnaires are countered by the ESM, where participants answer questions repeatedly over a certain time period and across a range of activities and contexts. A key feature of the method is that participants record external coordinates such as location, activity and social companionship together with questions regarding subject matter. In addition, ESM designs often include measures of the participants' emotional state at the time they respond (Hektner, Schmidt, & Csikszentmihalyi, 2007).

The wide adoption of smartphones across the world has paved the way for a rise in ESM studies over the last decade. What previously required the distribution of digital devices to participants can now be delivered through apps on the smartphone. The majority of the published ESM studies have an inordinate focus on the affective side of life, which demonstrates well-known fluctuations within individuals. That makes it well suited for certain areas within the field of psychology – e.g. clinical trials (Verhagen, Hasmi, Drukker, van Os, & Delespaul, 2016). However, ESM has rarely been applied to study the dynamics of experiences regarding social relations and the environment in organisations. Nevertheless, its historical use for investigating emotional or internal states does not restrict its utility. There is scope to explore how the attributes of concrete facts in the environment, such as the PWE, could benefit from an experience sampling approach.

The relevance of the ESM for job satisfaction research is clear when considering how emotions fluctuate over time and are of a somewhat fleeting nature. As a consequence, it is relevant to question the stability of the global and often retrospective accounts given by respondents to the majority of job satisfaction questionnaires. The role of affect experienced, as measured in real-time using the ESM, also revealed individual differences in how employees experience their jobs. Fisher (2000) finds that individuals who exhibit greater variance in their reported

satisfaction also show greater disparity in mood levels. Whether these affective experiences always constitute evidence of individual differences remains unclear. However, it is possible that some of the observed variance is erroneously attributed to the individual level, since the studies did not apply a design that would have allowed for the identification of patterns at the level of the team or work unit.

The shortcomings of a traditional questionnaire approach are not limited to the attitudinal construct of job satisfaction. Recent ESM studies raise critical questions regarding traditional models of job design, including the assumption that jobs have static and objective characteristics that can be assessed through a questionnaire (Daniels, Glover, & Mellor, 2014). As a consequence, Daniels (2011) argues for the increased use of ESM in research that concerns stress and wellbeing. He suggests that the method has the capacity to bring a fresh perspective to individual differences that have been overlooked in prior research.

Although ESM represents an improvement over traditional questionnaires, the method has its own limitations. When Hurlburt and Heavey (2015) interviewed participants who took part in an ESM experiment, they found that the participants did not report the thoughts that they had during experience sampling. Instead of adhering to the instructions to report their experience as it happened, the participants gave a mixture of presuppositions, judgements about the experience and the experience itself.

Nevertheless, there is much in the research to highlight the advantages of ESM. In particular, it enables researchers to examine job characteristics, relationships at work and organisational topics in more nuanced ways. The limitations of ESM should, however, also be extended to the social-psychological level of analysis. The promise of ESM is that it allows for the study of individual processes outside the laboratory, including factors influencing employees social and relational characteristics. A key challenge is, therefore, to move the analysis from the individual level to a relational or group level in an organisation. Only if the analysis is moved from the individual to a meso-level, like the psychosocial work environment perspective, is it possible to include a relational and organisational perspective. This necessitates an emphasis on the collective experiences of employees, as well as a process that helps to outline actions and initiatives that can change an undesirable state.

2.4.4 The case for using new methods

Technological progress has made it easier for organisations to obtain information about their processes. Sensors, computers and networks form a digital layer that

permeates our lives. In organisations, everything from manufacturing processes to internal and external communications is mediated by technology. As a result, large amounts of data are produced, often as a by-product, of organisational operations. Then *big data* can be analysed using data-mining approaches such as machine learning, which identifies patterns and relationships without any a-priori theory. Thus, real-time information about production and sales makes it possible to identify and respond to acute problems with greater ease (Economist, 2018a).

The digitalisation of these processes allows for real-time monitoring and ongoing analysis without interference. Data is generated regardless of use but increasingly mined in what some authors call a data revolution (Mayer-Schönberger & Cukier, 2013). Of significance is that the 'data' being produced by technological systems are seeing an increase in application to human systems in organisations. The sensors and computers that today's employees use and increasingly carry with them leave a data trace containing information about the employees' behaviour. Researchers and practitioners have found that this data trace contains a *behavioural surplus* akin to what Zuboff (2019) describes as a key ingredient in the business models of internet giants like Google and Facebook. Zuboff traces the origin of this *surveillance paradigm* back to R. Stuart McKay, who in the 1960s used a radio signal from a transmitter attached to sea turtle to record data about the behaviour of the animal. This allowed the turtle total flexibility of movement in its natural environment and facilitated the researcher's ability to explore otherwise inaccessible parts of the sea turtle's life without intrusion. The measurement was thus not an event but a constant. It was also unobtrusive and concealed.

Pentland (2014) describes this approach to gathering data about social behaviour as *social physics*. For example, organisations try to harness information about human resources through analyses of the data traces that employees leave as they go about their daily tasks (Pasmore, 2018). This includes employees' behaviours and interactions with an increased focus on unobtrusive data collected about social systems (Economist, 2018b). There is a technology-centric logic inherent in this centralisation of information and the provision of rapid and near real-time information.

When it comes to measuring soft factors such as attitudes of people in the organisation, this paradigm typically includes self-report measures. These are kept short and sent out as a 'pulse' at a higher frequency in order to obtain the close-to-real-time information. Often the dashboard that management then has access to contains a measure of a few attitudes that encompasses what the team believes to be key aspects of employees' current attitudes and feelings towards the job and the

organisation as a whole. Yet, this metric of employees' current states is just one of many that make up the score-card of the organisation.

The developments within technology have made it possible to probe employee data at a much greater frequency and aggregate and analyse the results quickly, using machine learning algorithms that flag problematic patterns to the people who have access to the information. This allows for the quick and easy collection of data about the employees and, subsequently, analysis and intervention. However, few popular or academic accounts of how new technology is applied to the human side of organisations mention how making these data streams available to the people who generated them in the first place might enable them to understand their situation better and enable action.

2.4.5 The emancipatory potential of self-reporting

However, analysing data concerning changes in social and psychological factors in a work group setting introduces complex phenomena. These are structural and environmental, nested in relationships, the physical environment and within individuals. Depending on the specific phenomenon that is being investigated, change is likely to happen at different paces. Designing a study that measures the effect of a method thus involves how frequently data should be collected to get at the underlying process of change. One pragmatic concern regards the feasibility of convincing participants to devote time and effort to the study and thus striking a balance between the required effort, involvement by the participants and a research design that is robust enough to pick up the major themes. This process should involve the prior selection of the critical issues that the study should address.

The focus on identifying the best way to measure daily experiences at the hedonic level (hedonometrics) has had the resultant effect of researchers trying to compare methods like experience sampling with the *day reconstruction method* (DRM) (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). Its focus has been the expense and complexity of the method, the burden on participants and the qualities of measurements. What has been neglected, however, are the measures of people's experiences in a context where the purpose was to bring about awareness or change. In an organisation, a survey of the work climate is often initiated with a view understand and to improve it.

In the following section, I interrogate the literature to present a case that the intensive longitudinal method is conducive to organisational change efforts.

2.5 Intensive longitudinal methods as mobilisers of organisational change

In this section, I consider whether a survey feedback research design could allow employees to make sense of the factors that affect them at work by providing extensive individual feedback after the experience sampling period. At the level of the work group, following the methodology of survey feedback, employees are able to collectively engage in the process of interpreting the data for the work group and identify common issues affecting them and the PWE they share. Applying these modern technological developments and practices moves the process beyond the original implementation described by French and Bell (1999). However, the possibilities of modern technology will likely enable it to move closer to the intent of the original process, where employees were very involved in the design, implementation, interpretation and action planning phases (Miles et al., 1969). Therefore, I investigate what the ESM can bring to the SF design.

To understand how the collection and interpretation of data have changed in recent years, one can look at what has broadly been referred to as the quantified-self movement (Rivera-pelayo et al., 2012), which refers to individuals who use self-monitoring apps for smartphones to help them obtain quantitative data related to a number of bodily or mental states. Websites like *quantifiedself.com* purport to help *self-trackers* 'obtain self-knowledge through numbers' and address topics for personal improvement ranging from sleep and medication to happiness and relationships. This movement has been made possible by the accessibility of quantitative personal data feeds from the plethora of sensors and devices that people use in the various domains of their lives. Misappropriated, this self-monitoring can no doubt lead to an overly strong emphasis on individual traits, habits etc. On the other hand, it can help individuals make sense of complex aspects of their lives in order to reflect, gain understanding and act.

2.5.1 *A natural next step for survey feedback*

When researchers have applied ESM to the areas of job satisfaction, stress and wellbeing among employees, the focus has overwhelmingly been on describing dynamics within an individual. This may owe to the method's focus on variability within individuals. However, this does not negate its suitability for analysis at the

group or organisational level.⁴

Survey feedback as described in the OD tradition (French & Bell, 1999; Miles et al., 1969) places great emphasis upon employee involvement and agency in both the design of the questionnaire and in interpreting the data it produces. It is the employees who interpret the data and elevate themes related to their job and workplace in the feedback conferences. The feedback conferences are typically led by the manager of the work group or by a specialist facilitator from outside the organisation. A survey feedback method will also often entail that the work group complete a concrete action plan as part of the process.

The ethos of the survey feedback method is based upon the regular involvement of employees: they are both collectors and interpreters of data about their jobs and the organisational work environment. Yet, the interpretation of data and completion of action plans is limited to the feedback conferences at the work group level. However, considering the observations from the *quantified-self* movement, there is good reason to believe that participation and engagement would increase once participants are given access to their own data.

2.5.2 *The dynamic nature of work*

Within the past two decades, researchers have spearheaded considerable theoretical developments as to how one should conceptualise the nature of work. As briefly discussed in section 2.2.4, the perspective of jobs as consisting of static factors that define each profession's design is increasingly being questioned (Oldham & Hackman, 2010). An alternative perspective, *job crafting* (Wrzesniewski & Dutton, 2001), thus explores how employees draw on or appropriate various resources available to them to fit their particular situation. This means that intrinsic job characteristics are conceptualised as a shaping or a crafting activity carried out by the employee rather than static properties of the job, separate from the individual who performs them (Demerouti, 2014). Job crafting thus envisions job design and job characteristics as a dynamic interplay between the demands and resources available to the workers and their eventual use (Demerouti, 2014; Nielsen, Stage, Abildgaard, & Brauer, 2013). This is a dynamic process that lends itself well to an

⁴ Representing and analysing dynamics at the group level, as captured by longitudinal methods, is associated with considerable complexity and requires the use of multi-level models only recently available (Lang, Bliese, & Adler, 2019).

ESM study design, as recent studies have indicated (Daniels, Beesley, Wimalasiri, & Cheyne, 2013).

One intervention study that sought to promote health in the workplace, drawing on the job crafting perspective, finds that improvements in wellbeing are associated with reflection, awareness, insight, self-direction and self-management, as well as group coherence, social support and actions (Nielsen & Randall, 2012). The authors conclude, however, that job crafting privileges the individual over social factors. Nevertheless, Daniels (2011) has argued that (dynamic) individual factors are scant in studies of occupational stress and wellbeing. This disparity may indicate that research into the dynamic interplay between the organisational-relational level and the individual level could help close the gap in knowledge regarding how to improve wellbeing in the workplace.

There are other factors that influence the PWE of employees outside of a job's design. Relational and organisational factors also influence wellbeing (Cox, Griffiths, & Rial-Gonzalez, 2000). Whether these extrinsic job factors are characterised by dynamic processes, as in the case of job design, remains uncertain. ESM has mainly been applied to the study of constructs that are thought to fluctuate at a somewhat rapid pace. For this reason, affective states have received a lot of attention in ESM-based research in organisations (Weiss & Beal, 2005). Indeed, Beal (2015) argues that other constructs, such as organisational identification, are generally thought to be slower to change and thus harder to capture within an ESM design.

The fact that job characteristics were previously thought to be relatively stable was in part a reflection of the method used to study them. In a similar vein, it is possible that other attitudes or perceptions regarding the job exhibit a greater fluctuation than previously thought. There are few theoretical discussions in the literature around which constructs are amenable to an ESM design, for example. However, from a theoretical point of view, it is interesting to investigate whether such general attitudes and perceptions fluctuate over time and space and reflect the mood, activity and social situation of employees.

Beal (2015) maintains that it is a logistical challenge to decide on an ESM interval that would reflect change among the constructs believed to change at a slower pace. Nevertheless, this only poses a problem if the purpose of the ESM study is to capture a process among employees as it happens. Another way to think about the rationale for using ESM in organisational settings is to construe it as a measure that samples employees' perceptions or attitudes over a period of time. Such an approach is more likely to collect opinions, attitudes and perceptions across

a variety of situations and activities. As a result, these data will have a higher likelihood of representing the multi-faceted nature of the job and the perceptions, attitudes and opinions the employees have of their work. Thus, such a view would dispense with the notion that it is possible to obtain a ‘true’ measure of said perceptions and attitudes, and instead focus on obtaining a better—more representative as well as more useful—measure.

In classical test theory, a person’s score on a particular test is thought to consist of the *true score* plus a measurement error. The true score is thus a platonic ideal that can never be achieved but only approximated by constructing psychometrically valid measures (Novick, 1966). In much the same way—as most measures used to assess individual differences in psychology include several items in order to minimise measurement error—ESM can be seen as an attempt to increase the number of situations from which opinions, perceptions and attitudes are sampled. As a consequence, the resulting measure from the multiple sampling occasions are more likely to represent the true score of the individual. Such use of ESM does not meet the requirement of being a measure of a process, since the sampling intensity and duration is unlikely to exactly match the change characteristics of the particular phenomenon of interest. The use of ESM in such situations might therefore provide less than complete information about the processes affecting the employees. Nevertheless, it might still represent an improvement over traditional questionnaire methods and illustrate much needed information about individual and situational dynamics that could guide further research. Moreover, these same properties might make it more useful as a catalyst for change efforts.

2.5.3 Potential benefits at the individual level

At the phenomenological level there are substantial differences between completing a questionnaire and taking part in an ESM study. The repeated nature of the measures requires more time and effort on behalf of the participants, which leads to the greater involvement of the participant in the process. As a result, participants become more invested, which is thought to be associated with a higher level of reflection about their own situation. It is thus plausible that the experience sampling method, through introspective processes among the participants, brings about greater awareness and self-reflection among participants. Evidence from a longitudinal self-report study of subjective wellbeing suggests that there might be an effect related to such increased involvement and awareness (Bakker, Burger, van Haren, Oerlemans, & Veenhoven, 2016).

As mentioned in the previous chapter, self-tracking—or monitoring

techniques—share many attributes with the ESM. The former explicitly make the data collected available to participants as data points over time through the self-tracker. By way of comparison, if a researcher were to make the participants' data accessible to them in a format that is relatable, participants would no longer be conceptualised as passive providers of information. Rather, they would be classified as active agents who reflect on and make sense of the information they provide. This degree of involvement in both the data gathering process, as well as in interpretation, has the potential to affect participants' perceptions of the process and their motivation to participate. If this is indeed the case, it is likely to also address the well-known problem of survey fatigue and non-response to surveys (Rogelberg & Luong, 1998).

2.5.4 Connecting the feedback strands

The internet pioneer Marc Andreessen (2011) has proclaimed that 'software is eating the world', foreshadowing the present day where automation and data streams are in the process of changing everyday exchanges. Once software is infused into a product, it changes to the extent that there remains only a superficial similarity between the original and the software-infused product. As an example, one can still refer to a modern smartphone as a mobile phone. However, apart from sharing the functionality of being able to make a telephone call, the mobile phones of the 1990s bear little resemblance to today's smartphones, which are in fact pocket computers based on sophisticated operating systems on par with personal computers.

Applying this analogy to the use of questionnaires in organisations, and survey feedback in particular, one can assume that the very nature of survey feedback changes once it is infused with technology. This breaks up the traditional method of data collection and allows the researcher to feed data back to the individual and specific work units. Especially, it enables participants to engage with the data in an interactive way. Just as with the telephone, we are left with a procedure that only bears superficial similarities to a previous procedure.

2.5.5 The emancipatory potential of intensive longitudinal methods

Schwarz (2012) suggests that global or retrospective measures are often superior predictors of choice or behaviour. This view is consistent with the finding in OB research, which shows that an employee's job satisfaction is the most useful measure an organisation can obtain to predict future outcomes and behaviours of the employee (Roznowski & Hulin, 1992 as cited in Weiss, 2002).

While the job satisfaction literature has mainly been concerned with prediction,

either in relation to performance or to various organisational citizen behaviours, Schwarz (2012) contends that *prediction* by an observer is not the only purpose of behavioural science. Its broader concern should lay with *understanding* the human experience. In relation to intensive longitudinal methods, this should entail insights obtained by taking the actor's perspective and using real-time measures *in situ*.

Indeed, there is more to psychology than providing an observer with insight into the human experience. It is also relevant to help participants gain insight into their own experiences and harness the emancipatory potential of providing them with data. The purpose thus becomes to *understand* in order to *act*: going beyond prediction by turning to *who* interprets data to gain from its potential. As I discuss in section 2.7, noticing, interpreting and enacting aspects of the social environment form central tenets of the sensemaking perspective, which has relevance in relation to analysing how the survey feedback method might mobilise changes in an organisational context.

When the continuous measuring aspect of the ESM is paired with the feedback potential available through technological devices, a new perspective on surveys in organisations emerges: surveys metamorphose from one-off instances, in which employees provide data, to a collaborative and continuous process. Here the organisation obtains data at the same time as the employees, through data feedback. As a result, the employees gain knowledge and insight about themselves in relation to the job and the organisation simultaneously obtains aggregated survey data about the employees.

Moreover, an ESM approach applied to a survey feedback setup entails a change from a linear survey->analysis->feedback->action plan design, to a design with feedback loops at both the individual and group levels. Moreover, the survey phase, where participants complete the ESM questions, prompts the employees to have an increased awareness and reflexivity regarding the job factors measured. This is likely to affect both the engagement of the participants as well as their interpretation of data at various points in time if data is available in an easily accessible format.

Several researchers have noticed that ESM data contains a richness that allows for the study of dynamic psychological processes: it stimulates researchers to interpret data in an almost narrative form which '[...]stimulates a series of mental images, like the inner movie one plays in imagination when reading a story by Dickens or Dostoyevsky' (Hektner et al., 2007, p. 278). These findings, combined with those from the QS movement, suggest that participants would be able to contribute to the interpretation of data.

Considering these technological changes, alongside the knowledge that survey feedback has generally been found to be an effective method for eliciting change in organisations, there is reason to believe that the survey feedback method can be expanded upon. The inclusion of more nuanced ESM data could add to the effectiveness of the method by offering longitudinal data.

At this point it is useful to revisit one of the first published writings on the survey feedback method. Miles et al. (1969) describe how the effect of engaging with survey data can lead to a corroboration of the participant's feelings. Alternately, it can have discomfoting effects if it contradicts beliefs held by the participants. Moreover, the authors point out that it may encourage participants in a survey feedback conference to begin to wonder why people responded in a certain way, triggering a review of what might be taken-for-granted knowledge. Furthermore, the authors point out that the analysis of data can lead to a discussion of related issues that are not necessarily part of the data.

When Miles et al. made these observations half a century ago, they took group feedback sessions and aggregated group data as their point of departure. Experience sampling data and the availability of feedback at the individual as well as the group level is likely to make these effects more salient.

2.6 Experience sampling in an organisational context

The preceding sections have outlined three main reasons to support the continued pursuit of an SF approach. Firstly, the method is consistently referred to as among the most effective OD interventions. Secondly, intensive longitudinal methods have been associated with increased awareness, introspection and change at the individual level. Thirdly, I have argued that current technology makes it possible to design and implement SF interventions that are closer to the original ethos of the method than what was previously possible. In summary, the collection and feedback of data at multiple levels and times have been made vastly cheaper, easier and more flexible by information technology. Nevertheless, the focus on ESM thus far has been as a tool for understanding variability at the level of the individual. It has not seen much use as a method in an organisational context, nor as a way to obtain data about the dynamics of the social world.

2.6.1 ESM beyond its use at the individual level

Job satisfaction may be something that we can measure and conceptualise individually, but job satisfaction is dependent on an organisational, cultural and

professional context. I have previously discussed how the emphasis on the non-ergodic nature of many psychological phenomena has been a boon for the use of intensive longitudinal methods. However, there is a risk that the ESM focus on variations within individuals reduces the social and relational level to individual experiences recorded as companionship, activities and contexts. Albeit, at a wider level, the past decades have witnessed a change in the way many social psychological phenomena are approached, favouring a more individual and less situated and culturally bound analysis (Adams, Estrada-Villalta, Sullivan, & Markus, 2019).

The shift towards atomisation and individualisation is particularly evident in organisational psychology, where the heavy influence of the OB perspective in the academic literature has marginalised that of organisational culture and intergroup relations rooted in disciplines like social psychology, sociology and anthropology (Pfeffer, 1997; Schein, 2015). Scholars like Adams et al. (2019) have attributed this shift to the neoliberal ideology increasingly prevalent in much psychological research, characterised among other factors by a radical abstraction of the individual from their social and material context, and an entrepreneurial view of the self as an ongoing development project. In a similar vein, Klikauer (2013) points to the rise of an ideology of *managerialism*, where axioms underlying management theory and the mindset of the practicing manager obtain a privileged position and become prevalent when analysing societal issues at large.

It seems clear that much of the use of ESM in an organisational context has focused on the individual employee at the cost of properly considering the social and contextual aspects of organisational life. Moreover, there has been an emphasis on the method as a tool for research and less focus on the method's usefulness for improving organisational practices. If the full potential of ESM is to be realised in organisational practice as well as research, it needs to be applied to 'real-life situations' to bring insight into the organisations and employees using the method. This has been carried out within the domain of clinical psychology, where the evidence suggests that intensive longitudinal methods, like diary writing, have ecological validity for the participants and are capable of supporting change efforts.

Ecological validity and the ability to mobilise for change are interrelated. Data collected in real-world environments makes it possible to generalise from the data to the participants' real lives, constituting the ecological validity of the method (Shiffman, Stone, & Hufford, 2008). Within the clinical domain, scholars have pointed out that it is the ecological validity of the diary method that makes it conducive for the generation of insight among participants, as well as an effective

catalyst for change (Cohen, Edmunds, Brodman, Benjamin, & Kendall, 2013). My supposition is that ESM has an equal potential to be effective at the group level in an organisational context, as it contains the qualities of ecological validity found in the diary method. Yet, the analysis of data should not be limited to the individual level, but should take place in a situated and social setting. The key to the method's efficacy will thus be its ability to maintain ecological validity, so that the employee and the work group to which they belong experience that the data generated reflects their individual and shared experiences and can be used as a point of departure for generating insight and identifying areas and pathways for change.

As I discuss in section 2.7, the shift from using intensive longitudinal data at the individual level to a social level requires a shift in the theoretical lens applied. It is thus vital that the analysis applied to the group level is able to identify the key components of the collective process, including how it allows a group to notice patterns of importance, how those are interpreted and understood and how they can be used to instigate possible actions. However, before discussing the ways in which the inclusion of the sensemaking perspective is useful from a theoretical standpoint, it is relevant to briefly outline the practical reasons for the use of survey feedback in organisational assessments.

2.6.2 The pragmatic rationale for survey feedback

One argument for the further exploration of the survey feedback method pertains to the pragmatic level. As pointed out by Dollard and Gordon (2014), most organisations already have a process in place that involves regularly collecting data on organisational climate, job satisfaction or engagement. The authors show that a relatively simple addition of involving employees in a survey feedback process to an existing organisational diagnostic survey process was associated with positive effects.

It thus seems like a natural next step to investigate whether a change in how data is collected can further enhance such a survey feedback intervention. As discussed above, based on evidence from its use at the individual level, the supposition is that—compared to a traditional questionnaire—the perceived improvement in ecological validity of an intensive longitudinal method will lead to its superiority to generate data that can act as a catalyst for change at a group level.

The present research combines a longitudinal investigation with intensive longitudinal methods and individual feedback. The underlying rationale is to harness the effect identified at the individual level (diary methods in clinical psychology and self-monitoring in the quantified-self movement) with the change

potential identified in traditional survey feedback interventions. This shall be achieved by adapting ESM in a way that enables introspection on behalf of the individual, as well as sensemaking within the work group at the organisation. The focus is thus on pairing a method that within the OD tradition has been perceived as among the most effective for eliciting change and improvement. This applies specifically to the psychosocial aspects of working life, with a technological solution that permits the study of individual perceptions over time. At a concrete level, this involves feeding survey data back to the participants at both an individual and a group level.

Another practical issue to consider is if and how the ESM can be adopted to a construct like the PWE. As previously discussed, the PWE, although lacking a commonly agreed-upon definition, is a wide construct. Thus, its very nature makes it a poor match for an experience sampling method, which favours narrow constructs and few variables, and is measured in an intensive manner. Anticipating section 3.5, it is possible that an approach that prioritises the sampling of experiences over the intensive nature of traditional ESM designs can mitigate this problem.

The mobilising effect of the individual level can be understood using theories from clinical psychology (see for example Jarrett & Nelson, 1987). The analysis of a survey feedback method based on ESM data at the group level requires a theoretical perspective that considers the social and situated nature of how actors in an organisational context perceive, understand and construe the organisational reality in which they act. The sensemaking perspective offers such a framework, and it is this that I will turn to next.

2.7 Sensemaking as a process of mobilising for change

In this section, I will argue that the sensemaking perspective can be used as a theoretical frame to elucidate the micro-mediating processes thought to underlie the mobilising potential of the survey feedback method. After a brief discussion of the main aspects of the sensemaking perspective, I will explore how the method of survey feedback from its early inception has implicitly contained assumptions that are similar to those found in the sensemaking perspective. I will then make the argument that viewing the survey feedback process as a planned event that seeks to elicit sensemaking activities, provides it with a theoretical frame that enhances the understanding of the micro-mediating processes underlying survey feedback. Finally, I will discuss how the omission of emotion in most research has excluded a

vital source of information from the analysis of sensemaking activities.

Consequently, I will discuss how a survey feedback method which include both emotions and longitudinal data concerning participants' experiences in the data stream will likely enhance the potential for sensemaking activities.

2.7.1 The sensemaking perspective

The sensemaking perspective forms a central theoretical strand within organisational social psychology and has had a major impact on organisation studies (Sandberg & Tsoukas, 2015). Originally proposed by Weick (1979), it has undergone changes over the years from an original emphasis on cognitive 'cause maps' to a social constructivist perspective, with an increased focus on language rather than cognition as the locus of sensemaking (Sandberg & Tsoukas, 2015). Yet another perspective has since emerged, which uses the sense-making term (Kurtz & Snowden, 2003; Snowden, 2010)—albeit with an added hyphen. It shares the core aspects of the original sensemaking perspective in its focus on narrative and action, but differs by relying on a naturalising epistemology (Browning & Boudès, 2005). Nevertheless, the SP resides within what Pfeffer (1997) refers to as the interpretive cognitive model of behaviour within organisational theory. As Maitlis, Vogus, and Lawrence (2013) point out the sensemaking perspective appeals to both researchers and practitioners in that it allows for the capture of the lived experience of organising.

The popularity of the sensemaking perspective stands in contrast to the lack of scholarly critique, as noted in two critical reviews (Holt & Cornelissen, 2013; Sandberg & Tsoukas, 2015). The latter regret that there have not been many efforts in trying to reconcile the different uses of the term, and highlight that there are several inconsistencies in the field. Getting a handle on the sensemaking perspective is therefore somewhat challenging. In the following, I will look at the sensemaking perspective by following the tradition started by (Weick, 1979; Weick, 1995). In a later overview of the sensemaking perspective, Weick et al. (2005) offer the following definition of sensemaking:

Sensemaking involves the ongoing retrospective development of plausible images that rationalise what people are doing. Viewed as a significant process of organising, sensemaking unfolds as a sequence in which people concerned with identity in the social context of other actors engage ongoing circumstances from which they extract cues and make plausible sense retrospectively, while enacting more or less order into those ongoing circumstances. (Weick et al., 2005, p. 409)

An important part of this definition is the notion that individuals, by acting on the basis of their beliefs, enact their reality. They subsequently and retrospectively seek to make sense of this reality. This forms a recursive loop, where the provisional

sense made forms the springboard for the individuals to act again. Sandberg and Tsoukas refer to this as ‘the unending dialogue between partly opaque action outcomes and deliberate probing’, which they describe as being ‘at the heart of sensemaking’ (2015, p. 9). In its focus on the duality of action and structure, the sensemaking perspective addresses a central question within social theory and has several commonalities with *structuration theory* (Giddens, 1984), although the latter is a general theory of social action. Structuration theory can be said to place a greater emphasis on the process of structuration of action, whereas the sensemaking perspective emphasises the micro-level analysis of how the process of organising is partly predicated on the sensemaking activities of actors. Yet, both theories stress the duality of actor and structure.

A central aspect of the sensemaking perspective is that it revolves around episodic triggering events. It is the ambiguity of an event and its disruptive effect on activity in an organisation that force actors to retrospectively make sense of a disrupted activity (Sandberg & Tsoukas, 2015). Although Weick (1995) notes that there are many possible trigger events for sensemaking, including those that are constructed by the actors themselves, sensemaking has to a large extent come to be associated with what Sandberg and Tsoukas (2015) classify as *major unplanned events* of which Weick’s own description of the Mann Gulch disaster (Weick, 1993) is one example. Yet, some scholars (see for example Patriotta & Spedale, 2009) have applied the sensemaking perspective to the analysis of what Sandberg and Tsoukas (2015) categorise as *minor planned events* in organisations. Nevertheless, the same reviewers find evidence to suggest that such instances of the application of sensemaking are rare. Yet, their example of a minor planned event suggests that the framework has much wider applicability than the literature would suggest:

One type of planned minor events, commonly focused on in sensemaking studies, are meetings in which a group of people is brought together, each one with his or her own view of the specific task at hand. A diversity of views triggers sensemaking efforts to overcome the ambiguity about what the task is about. (Sandberg & Tsoukas, 2015, p. 13)

Clearly planned minor events, such as the meetings referred to in the quote, would also encompass feedback conferences—as they are used in survey feedback interventions.

Another key point in the definition of sensemaking offered by Sandberg and Tsoukas (2015) is that sensemaking is characterised by a sequential process. First, individuals bracket, notice and extract cues from their experience in the process of creation. These form the content of a subsequent interpretation process, which involves elaborating on the initial sense generated, which is then developed into a more complete narrative of the interrupted situation. Crucially, the sensemaking

process involves a step of enactment, where individuals act on the more complete narrative created. In reviewing the empirical literature on sensemaking applied to organisational settings, Sandberg and Tsoukas (2015) note that the vast majority fail to distinguish between the *creation* and the *interpretation* process in sensemaking and only a few take all three into consideration.

Sensemaking beyond interpretation. Weick (1995) explicitly points out that sensemaking is different from interpretation in that ‘when people discuss interpretation, it is usually assumed that an interpretation is necessary and that the object to be interpreted is evident. No such presumptions are implied by sensemaking’ (Weick, 1995, p. 14). Sensemaking, Weick continues, is just as much about constructing, filtering and creating facticity. Nevertheless, in their review of the literature, Sandberg and Tsoukas (2015) note that most of the studies of sensemaking have equated it with interpretation. In the following I will discuss how sensemaking can be seen as consisting of a three-way process as proposed by Sandberg and Tsoukas (2015).

Though the proposed three-way process of *creation*, *interpretation* and *enactment* is often characterised by both overlaps and recursive loops, it represents a useful model for identifying sensemaking activities. The advantage being that it allows the observer of a process to break into the recurring loops and consider which cues are selected and created for further elaboration and interpretation by actors, and how this leads the actors to enact the interpretation, and in turn create new cues and interpretations. While these processual hallmarks provide an indication of sensemaking efforts, the additional marker of *outcome* is a necessary characteristic indicating that sensemaking has taken place. Sandberg and Tsoukas (2015) assert that a constituent of sensemaking is that particular outcomes are generated by the sensemaking process. This entails that actors during an episode either generate sense, and as a consequence move towards restoring organisational activities, or alternatively arrive at non-sense, which will often lead to further interrupted activities. Reflecting the focus on major unplanned events, the literature on sensemaking has overwhelmingly been concerned with how sense is restored and has paid less attention to the restoration of action in terms of organisational activities. Even less attention has been paid to episodes where non-sense is the outcome of the sensemaking process or where activities are not restored (Sandberg & Tsoukas, 2015).

Sensemaking: A specific process The three interrelated sensemaking processes identified in the review of the sensemaking literature by Sandberg and Tsoukas (2015) constitutes a significant contribution to the sensemaking literature. In short,

actors first create cues that they then focus on for interpretation in order to act. They do so as an ongoing organisational activity until the interrupted organisational activity is satisfactorily restored. The three processes can be found in Weick's own description:

The process of sensemaking is intended to include the construction and bracketing of the textlike cues that are interpreted, as well as the revision of those interpretations based on action and its consequences. (Weick, 1995, p. 8)

In this sentence one can thus identify the three processes: 1) the *creation* process, which is when participants notice and extract cues from the interrupted situation—what Weick also describes as bracketing; 2) *interpretation*, which is the process in which the initial sense made from the extracted and bracketed cues from the creating process are elaborated into a more complete and coherently organised narrative of the situation in question; 3) the *enactment* process—acting on the more complete sense made of the interrupted situation. As the sensemaking perspective involves the recursive nature of action and interpretation, it follows that already taken actions by the actors become part of the environment in which they now engage. As a result, this can lead to further iterations of the three processes, creating an ongoing cycle until the interrupted activity is satisfactorily restored through the congruence of sense and action.

Although Sandberg and Tsoukas's (2015) identification of sensemaking as partly defined by its distinctive process brings greater clarity to the construct, as well as the research invoking the term, it contains a paradox, as it is rare for studies on sensemaking to take all three processes into account. The authors note that the vast majority of studies (84%) do not distinguish between the process of bracketing and noticing of cues (the creation process) and the fleshing out of a more elaborate narrative based on those cues (the interpretation process). This not only leads to a situation where it becomes difficult to distinguish between sensemaking and interpretation. It also misses a central point of the sensemaking perspective: it is about constructing, filtering and creating facticity in an ongoing recursive process.

Minor events triggering sensemaking The majority of sensemaking studies have taken place in relation to major events. One example is Weick's (1995) analysis of the Mann Gulch disaster, where the breakdown of sensemaking among firefighters led to catastrophe. Another example is planned organisational changes, which similarly cause a disruption of hitherto taken-for-granted approaches among actors in an organisation who retrospectively engage in sensemaking activities (Lüscher & Lewis, 2008). In their review of the literature, Sandberg and Tsoukas (2015) invoke a simple two-by-two matrix of the characteristics of the events referenced in studies

of sensemaking. The authors split events into major or minor events, and note whether these were planned or unplanned. By this categorisation, the Mann Gulch disaster is classified as a major unplanned event, whereas restructuring at the Lego company (Lüscher & Lewis, 2008) is seen as a major planned event. Major events, whether planned or unplanned, account for 49% of published studies on sensemaking.

Minor events—planned or unplanned—were identified in only 17% of the published papers. According to Sandberg and Tsoukas (2015), this is noteworthy as minor events are thought to be much more common and more likely to trigger sensemaking on a daily basis. The remaining 34% of studies encompass hybrid events where there are both planned and unplanned elements.

Related to the critique that the sensemaking perspective has tended to focus on major events, is the critique voiced by both Holt and Cornelissen (2013) that the majority of studies have investigated sensemaking activities—not just in relation to major events—but to distinct episodes. Rather, Sandberg and Tsoukas (2011) argue, sensemaking is likely to happen during ongoing activities as in the form of *absorbed coping* when actors respond to a situation as it unfolds often without being aware of their involvement. Instead, ‘Acting is experienced as a steady flow of skilful activity in response to one’s own sense of the situation’ (Dreyfus, 2002 cited in Sandberg & Tsoukas, 2015, p. 25). Similarly, Giddens (1984) points out how actors can exhibit highly skilled practical knowledge in the way that they navigate the structural constraints of their daily lives without them necessarily having the discursive knowledge that will allow them to explicitly account for the resources and knowledge they are drawing on.

Having noticed the bias in the sensemaking literature towards major events Sandberg and Tsoukas (2015) argue that a process of *immanent sensemaking* takes place as actors go about their daily lives. This process resembles absorbed coping and is likely to be more common than the sensemaking process observed in relation to clearly demarcated events triggering retrospective sensemaking. Holt and Cornelissen (2013), with reference to Heidegger, point to three ways our otherwise common-sense entwinement with the world can break down and elicit the interpretative inquiry characteristic of sensemaking: when things no longer work, when things are missing and when things block our thoughts or movement. Like Holt and Cornelissen (2013), Sandberg and Tsoukas (2015) cite Heidegger’s notion that it is when we encounter an interruption in our absorbed coping that we start singling out and thematising our practice. Sandberg and Tsoukas (2015) further argue that accepting the immanent mode of sensemaking will allow for a significant

extension of the sensemaking perspective as well as a range of areas where the perspective can be applied.

However, compared to the mainstream view of sensemaking, the trigger events related to immanent sensemaking are likely to be less salient. This poses both a conceptual challenge in defining what constitutes an episode of interruption, as well as a practical research challenge of capturing such an episode. Nevertheless this sensemaking perspective represents an opportunity to significantly extend existing sensemaking research (Sandberg & Tsoukas, 2011).

Researchers are left with a key issue of how to capture such minor trigger events and episodes of immanent sensemaking. As I discussed in section 2.3, it seems unfeasible to 'cast a net' that is wide enough to be able to capture the multitude of lived experiences of employees in an organisation. Nevertheless, it is possible that a minor planned event such as a survey feedback conference creates an opportunity for sensemaking activities. Moreover, it is conceivable that enhanced survey data with a longitudinal element is more likely to capture episodes which can trigger sensemaking efforts in subsequent feedback conferences.

2.7.2 Survey feedback as an instance of sensemaking

The connection between sensemaking and a survey feedback process seems clear when looking at the three process of sensemaking (creation, interpretation and enactment) as described by Sandberg and Tsoukas (2015) and the original proponents of both survey feedback (Mann, 1957; Miles et al., 1969) and group feedback analysis (Heller, 1969) where the actors are intimately involved in the creation, selection, interpretation, and enactment of data, to which they attended.

However, as argued in section 2.2. the literature on survey feedback suffers from a lack of explication regarding the exact nature of the feedback conferences. As a consequence, the theorising regarding the mechanism, through which survey feedback affect change efforts, is scant. It is therefore difficult to ascertain to what extent participants in survey feedback interventions have indeed engaged in sensemaking efforts. Yet, reading Miles et al. (1969), who were among the original proponents of the survey feedback method, it seems clear that at least one of the mechanisms proposed by the early implementations of the survey feedback method encourages participants to make sense of their situation in order to act.

In their provisional theoretical account of how survey feedback works, Miles et al. (1969) provide a description of the effect of presenting what they call 'objective survey data' to participants in a feedback conference. Data presentation, they argue, is likely to have one of three effects: it can corroborate the participants' feelings or

have a disconfirming effect if they contradict the beliefs of the participants. Nevertheless, the third effect, which they identify as the ‘inquiry-encouraging effect’, is where participants consider why people responded as they did—what the underlying causes might be—and also how these might be altered. Moreover, they claim that the examination of the data ‘usually also leads to discussion of related problems not directly dealt with by the data’ (Miles et al., 1969, p. 459).

Implicit in this description is the notion that participants create the cues that become the basis of the discussion—akin to the interpretation process in the sensemaking perspective—and that the participants then use data to confirm or disconfirm beliefs. Moreover, the authors state how the process of change enters into the picture, when participants seek to grasp how perceptions can be changed. As the feedback conference in itself is a minor and planned trigger event—and as it inherently is directed towards attempting to restore sense and organisational activity—it contains all the constituents of sensemaking as identified by Sandberg and Tsoukas (2015).⁵

In conclusion there is much to suggest that the process of survey feedback as a whole—and the feedback conferences in particular—are episodes where sensemaking activities unfold. Furthermore, sensemaking activities are likely to be enhanced when data feedback is extended to also include the individual level and when data are longitudinal and contain a continuous record of experiences, as well as emotional states. As argued in section 2.4, longitudinal quantitative data has been shown to facilitate individuals’ descriptions of their activity based on behavioural cues using a video playback method. Moreover, diary methods in a therapeutic context has been shown to facilitate insight and change efforts by concentrating on significant events similar to the trigger events described in the sensemaking literature. It is thus feasible that intensive longitudinal data combined with extensive data feedback at the individual and group level will facilitate sensemaking activities in survey feedback conferences.

⁵ The fourth constituent of sensemaking noted by Sandberg and Tsoukas (2015) are the situational factors influencing sensemaking: context, language, identity, cognitive frameworks, emotions and politics. I will briefly discuss three of these in section 2.7.3 in connection with critiques of the sensemaking perspective.

2.7.3 Critiques of sensemaking

As previously discussed the sensemaking perspective has received less scholarly scrutiny than the popularity of the perspective should merit. Nevertheless, both Holt and Cornelissen (2013) and Sandberg and Tsoukas (2015) outline several gaps in the literature of which I will limit my discussion to four. Chief among those is the above-mentioned focus on major events and clearly demarcated episodes at the expense of the more immanent sensemaking that can occur as a result of smaller disturbances of routine activities. As Feldman (2000) shows, smaller disturbances in routine activities are often the root of organisational changes. Similarly, from a structuration perspective (Barley, 1986) and (Orlikowski, 1996) point to how changes occur as part of a structuration process when actors contend with the introduction of new technology and procedures in an organisational context. A refocus of the sensemaking perspective towards non-episodic and immanent sensemaking is thus likely to capture more of the events that impact the overall achievements in organisations. In sum sensemaking should be seen as 'ubiquitous rather than exceptional' Sandberg and Tsoukas (2015, p. 22).

A second gap identified by (Sandberg & Tsoukas, 2015) is that the sensemaking perspective has mainly focused on the micro-contexts, cognitive frameworks and the linguistic factors that influence sensemaking at the expense of the larger organisational and societal context. As a consequence, the influence of power, politics and technology has been under-researched. As such this mirrors the critique levied against much of OD research (discussed in section 1.2.1) that the perspective fails to integrate vital external economic, technological and structural elements into its theorising.

The third gap in the sensemaking literature concerns the nature of temporality in sensemaking. Weick (1995) refers to the retrospective nature of sensemaking its most distinguishing characteristic. Yet Gioia and Chittipeddi (1991) added the concept of *sensegiving* to SP to refer to future oriented acts performed by managers when communicating with the purpose of creating meanings for a target audience of organisational stakeholders. Although the term sensegiving has been widely accepted (see for example Maitlis & Lawrence, 2007; Weick et al., 2005) it is problematic in that it relies on linear view of communication where sense is transferred from one actor to another, rather than part of an ongoing interaction. As (Sandberg & Tsoukas, 2015) point out, the 'sensemaker' is also the 'sensegiver' and vice-versa. They argue that both 'making' and 'giving' should be implicated in the process of sensemaking, thereby highlighting the well-known problem of punctuating interactional communication (Watzlawick, Bavelas, & Jackson, 1967).

Nevertheless, the problem with temporality extends beyond the use of the sensegiving term and concerns the core constituent of sensemaking as being a retrospective activity. As Sandberg and Tsoukas (2015) point out, even the supposedly future-oriented 'saying' involved in sensegiving is—according to Weick et al. (2005)—a retrospective activity, as sense is derived from an imagined future perfect state. Yet, both prospective sensemaking—in which people engage in strategic discussion about the future—and the anticipation that actors experience when carrying out ongoing activities, are left unaccounted for in this retrospective approach to sensemaking. Being immersed in a practice often comes with a level of anticipatory thinking that is different from prediction (Klein, Snowden, & Pin, 2011) and which is omitted in the current mainstream sensemaking perspective (Sandberg & Tsoukas, 2015).

The final point concerns the literature's neglect of the embodied nature of sensemaking. The focus on the linguistic and cognitive aspects has been to the detriment of 'the various forms of embodied sensemaking that constitute a significant part of organisational life' (Sandberg & Tsoukas, 2015, p. 25). Future research should include the phenomenological aspect of sensemaking which entails a focus on perception, speech and emotions.

2.7.4 The role of emotions in sensemaking

Maitlis et al. (2013) argue that emotions play a key, and under-examined, role in several aspects of the sensemaking process. Emotions, they argue, are involved in the triggering, shaping and concluding of sensemaking activities. They contend that the role of emotion in sensemaking extends beyond the mainstream perspective, which has taken emotion to equate the arousal of the autonomic nervous system that happens when an ongoing flow of activity is interrupted. Instead, the impact of emotions on sensemaking should consider an emotion's valence as well as its intensity.

Among the questions left unanswered in existing sensemaking research is why certain events trigger sensemaking efforts whereas other do not. In reviewing the literature, Maitlis et al. (2013) do not find evidence to support the notion that sensemaking is always triggered when a situation or event is novel, unclear or contrary to expectation. Instead, they argue that sensemaking—being a potentially unpleasant process—requires individuals to be energised, in order to engage in it. The costs of engaging in sensemaking concern the cognitive effort required, the potential impact on the identity of the individual, as well as the social costs associated with a situation that might require the person to admit errors and

confusion. Hence, the authors stipulate that engaging in sensemaking requires an individual to experience an emotional reaction that can fuel the effort required and overcome the barrier that is the perceived psychological and social costs.

Citing evidence that individuals pay more attention to negative events than positive events—and that they furthermore interpret their own negative feelings as signs of problems in the environment, which require systematic processing of information—Maitlis et al. (2013) stipulate that feeling anxious or sad are more likely to energise individuals' search for meaning than positive feelings of joy and delight. Similarly, Bauer (2015)—using a pain analogy in relation to a functional view of resistance—argues that pain, in its capacity of being an atypical perception, is better suited to as a motivator for action and change. Yet, he notes that its diagnostic and discriminatory value is unreliable. Rather, he argues, the emotion is useful at the pragmatic level, because it requires our attention and interrupts current action.

Drawing on affective events theory (Weiss & Beal, 2005; Weiss & Cropanzano, 1996) Maitlis et al. (2013) argue that emotion generated by the trigger event is dependent on how the event is evaluated in relation to its impact on personal goals. Thus, triggers evaluated to have a greater impact on important goals will lead to more intense emotional reactions. Furthermore, the authors point to the intensity of emotions as an important factor determining whether an individual will engage in sensemaking activities. Emotions of low intensity—as well those of very high intensity—are thought to impede sensemaking processes. The former are likely to fail to provide adequate motivation for overcoming the barrier associated with the costs of sensemaking, whereas the latter are likely to interrupt thought processes as such. Accordingly, individuals are more likely to engage in sensemaking activities when a potential trigger event generates moderately negative emotions—either by it being perceived as having a moderate impact on important goals, or a significant impact on moderately important goals.

A survey feedback method—if it involves the capture of longitudinal data regarding the ongoing experiences of individuals in organisations as well as the capture of embodied emotional experiences—addresses two key points contained in the critique levied against the sensemaking perspective: the neglect of emotions and the focus on clearly demarcated episodes at the expense of the ongoing non-episodic sensemaking process that constitute the majority of organisational activity.

2.8 Summary and research questions

The reviewed literature suggests that the survey feedback method is effective in mobilising change efforts related to the psychosocial work environment. Anecdotal evidence from within both the job satisfaction literature and the stress and wellbeing literature suggest that this notion has wider acceptance. Furthermore, longitudinal self-report data collection and feedback at the individual level has been shown to be associated with a mobilising effect at the individual level, as evidenced in other domains, such as quantified-self research and the use of diary methods related to cognitive behavioural therapy.

While few studies have investigated whether access to ESM data streams at the participant level increases awareness and change efforts, researchers have argued that using ESM allows them to analyse survey data in an almost narrative way, providing insight into the dynamics of people's lives, just by looking at the data of participants (Hektner et al., 2007).

Based on the literature reviewed in this chapter, I arrive at two research questions:

Is it possible to design an experience sampling measure of the psychosocial work environment using an item sampling approach? (Hedonometrics)

Does applying an ESM approach to a survey feedback intervention concerning the PWE mobilise change efforts over and above a traditional questionnaire approach? (Hedonopragmatics).

2.9 Hypotheses

In considering a survey feedback intervention at an organisation, I developed the following hypotheses:

H1: Compared to work groups participating in a survey feedback intervention based on a traditional questionnaire, work groups taking part in survey feedback interventions based on an ESM design will show significant improvements regarding the psychosocial work environment.

H2: Compared to work groups participating in a survey feedback intervention based on a traditional questionnaire, work groups taking part in survey feedback interventions based on an ESM design will show significant improvements in job satisfaction and mood levels.

H3: Compared to work groups participating in a survey feedback intervention based on a traditional questionnaire, work groups in the ESM condition will engage in more instances

of sensemaking during the feedback conferences and generate more actions for the action plans.

H4: The item sampling approach to the psychosocial work environment and job satisfaction will show measurement equivalence with the questionnaire approach.

3. Methodology

The present study contains two empirical sections: The first focuses on establishing the viability of a new approach to experience sampling design, which allows for the broadening of the method's application. The second part investigates the mobilising potential of the experience sampling approach when applied to an organisational intervention targeting the psychosocial work environment. The study seeks to investigate the prevailing notion that SF is an effective mobiliser for change in organisations by contrasting an ESM version of the intervention—thought to enhance and amplify the opportunity for sensemaking—with a traditional SF intervention based on a questionnaire. Furthermore, the study adopts an exploratory approach in identifying key elements affecting the sensemaking processes and thereby seeks to advance the theoretical understanding of the sensemaking process in the survey feedback intervention.

Empirical research of the mobilising effect of a survey feedback intervention on change efforts in an organisational context necessitates an organisational setting as well as an intervention. Moreover, it calls for a methodology that can establish a plausible connection between the intervention (the cause) and its outcome (the effect). An appropriate research strategy should thus seek to combine the requirement to study an intervention in a real organisational context and the need to exclude as many potential confounding variables as possible. In the following section, I discuss my rationale for the chosen experimental research design

3.1 Choosing a research strategy

Field studies within the discipline of organisational psychology date back to the human relations school of the 1920s and 1930s, where pioneers like Mayo and Roethlisberger field famously mounted experimental designs and collected data about people within the Hawthorne Works (Whyte, 1978, 1987). Subsequent critiques indicate how these studies harbour problems detangling causes and effects, resulting from interventions in an existing social system (see for example Sonnenfeld, 1985; Whyte, 1978). Indeed, some of these issues were discussed in the debate surrounding the famous Hawthorne studies, which even today plague the field. Thus, a field experiment as a research strategy requires careful consideration of both its strengths, allowing for causal inferences, and its weaknesses, being resource-intensive and difficult to situate within an organisation. Shadish, Cook,

and Campbell (2002) point out that randomised experimental field studies—and to some degree, the quasi-experimental variety—play a crucial role in establishing causal inferences across domains.

As discussed in section 1.2.2, organisational interventions rise and fall in popularity over time and follow a predictable cycle described as *management fashions* (Abrahamson, 1996). In these cycles, the early investigations of a given method tend to be case studies with a positive slant (Abrahamson & Fairchild, 1999). Hackman and Wageman (1995), in referencing the total quality management movement, point out that early evaluations of a new technique are commonly written by members of the focal organisation and fixate on positive global outcomes like increased productivity. A method usually only attracts the attention of researchers later in the ‘fashion lifecycle’ as it becomes more widely adopted. Consequently, the particular method or theoretical framework is often at the end of its lifecycle, when the validity claims of a method have been investigated. By this time, organisations will often have moved on to the next concept (Abrahamson & Fairchild, 1999). From a research point of view, a crucial step in the validation process is to move beyond case studies and the focus on global outcomes, and to conduct research projects that include both explicit manipulation checks and measurements of process criteria (Hackman & Wageman, 1995).

Establishing internal validity thus means using an experimental variation in the mechanisms thought to underpin the survey feedback method, which actualises the concept of construct validity. To ensure construct validity, one has to establish that the particular instances of survey feedback applied in a study represent the higher-order construct of ‘survey feedback’ (Cook & Shadish, 1994). As my review of the literature on survey feedback made clear, many prior studies have relied on either post-hoc, case-method or quasi-experimental designs. It was therefore not possible to rule out alternative explanations for the observed relationship between the method and the change efforts. Among the many concerns in this regard are the procedures of assignment to treatments, which have often been both non-random and unclear.

While previous studies in other domains have suggested adding an ESM component, which might have additional mobilising effects in producing awareness and change (Ludwigs, Lucas, Burger, Veenhoven, & Arends, 2017), the research objective of the present study was to investigate the mobilising effect of a modified version of survey feedback. Hence an experimental design was used to investigate any causal links. Since field studies have rarely used truly experimental designs, the internal validity that concerns the causal inference is less compelling. As such, an

appropriate experimental design was required to contribute to the gaps in the survey feedback literature.

Shadish et al. (2002), who discuss how experimental research can establish generalised causal inference, advocate the use of *programmes of research* rather than single one-off studies. The view taken here is that it is unlikely that a single study can establish a strong causal link. It is more feasible to demonstrate a causal link piecemeal over several studies, each dealing with a few aspects of the larger validity question. The authors also note that such a research programme is likely to commence without any overall plan or strategy. Rather, as a piece of research progresses, the gaps in knowledge are fleshed out, and the programme of research eventually draws to a close. This is then only retrospectively described as a 'programme of research', since the majority of such programmes start when a researcher notices a relationship that they would like to investigate further.

Typically, the first step in a research programme is investigating the size and dependability of the relationship between variables. Formally this step is referred to as establishing the statistical conclusion validity (Shadish et al., 2002). Then, researchers try and determine the internal validity. That is, to investigate if the relationship is indeed causal: does A cause B, or are they merely associated? A research programme that has established internal validity would then often proceed to a third phase, which focuses on characterising the phenomenon with greater precision by establishing the construct validity. Having ascertained these three forms of validity, it becomes relevant to specify the boundaries of the relationship—asking if and how it is generalisable to other arenas, contexts and populations and thereby establishing external validity.

In the view of Shadish et al. (2002), researchers will often shift back and forth, as weaknesses become apparent and are actualised by new research findings. Moreover, the starting point can differ, as is the case when the phenomenon that captures a researcher's attention already has considerable external validity. An example of this is when two phenomena are found to co-vary across settings and with different populations, but without researchers understanding the underlying causal link. However, it might initially be unclear whether it is possible to infer a generalised causal link between the intervention and the outcome. In the particular case of survey feedback, it is the intention of this research to contribute to this understanding by describing and evaluating the internal and construct validity of the method.

The part of the study that is concerned with establishing the validity of a new sampling approach to ESM lends itself well to a purely quantitative experimental

field study, where the psychometric properties of the ESM instruments can be compared to traditional questionnaires. The other part of the study, concerned with the mobilising potential of the experience sampling method compared to a traditional questionnaire, can only be partially explored within a purely quantitative experimental research strategy. To contribute to the understanding of the processes underpinning the mobilising effect of survey feedback, an appropriate research strategy should thus adopt qualitative methods sensitive to some of these processes.

3.2 The experimental field study

An experiment is 'a study in which an intervention is deliberately introduced to observe its effects' (Shadish et al., 2002, p. 12). A randomised experiment is one in which the units are assigned to receive the treatment(s) or control(s) by a random process, whereas in a quasi-experiment the assignment of the units to different conditions does not happen at random. For both these variations of the experimental design, the purpose is to test descriptive causal hypotheses about manipulable causes to support a counterfactual inference about what would have happened in the absence of the treatment (Shadish et al., 2002).

Experimental field studies differ from laboratory experiments. In the words of Cook and Shadish, 'field experimenters are usually guests in somebody else's organization' (1994, p. 560). This affords the researcher less control over the treatment standardisation than would be available in a laboratory environment. In practice this means that experimental field studies are difficult to maintain when factors such as attrition and participation cannot be controlled to ensure that treatment exposure and standardisation are consistent within and between experimental conditions (Cook & Shadish, 1994). The somewhat unwieldy nature of the method, as well its tendency to necessitate the allocation of substantial resources from both researchers and the participating organisation(s), may explain why it is underused in organisational studies. The resource-intensive nature of the experimental field design means that its use is warranted only in cases where there is an existing robust theory and when the parameters can be operationalised in accord with that theory (Shadish et al., 2002).

A key strength of the experimental field study is its ability to provide descriptive causal connections, establishing the likelihood of a cause-effect relationship. It is less well suited for *explaining* causal relationships (Shadish et al., 2002), or describing the underlying mechanism responsible for the cause-effect

relationship. The specificity necessitated by the experimental approach means that it is often difficult to include all the possible causal contingencies in one study.

Moving towards an understanding of a causal connection will thus require that one can identify the processes that result from a variation in treatment (Cook & Shadish, 1994). The same authors refer to these as *micro-mediating processes*, which they argue are best studied by adding other methods to the experimental frameworks. The authors continue to cite Cronbach's call for the use of qualitative methods to generate and defend hypotheses about such micro-mediating processes in order to generalise causal connections among unstudied populations and classes (Cronbach, 1982 cited in Cook & Shadish, 1994). They also note that this view has not gained acceptance or generally affected the way social science researchers use experimental field studies. Indeed, Schein's (2015) recent critique of the dominant research paradigm in organisational psychology points precisely to this limitation of relying on purely quantitative approaches:

...much of what is done today in organization behaviour departments in business and management schools has moved into a degree of quantitative abstraction that eludes me. After 60 years in this arena, I am convinced that we are still at a Darwinian stage of searching for constructs and variables worth studying and are still waiting for some Mendelian genius to organize the field for us. In other words, I still think that good observation, phenomenology, fieldwork, ethnography, and careful case analyses are more important than quantitative statistical hypothesis testing. (Schein, 2015, p. 3)

Implicit in Schein's critique, which extends beyond this quote, is that there is a limit to how useful a purely quantitative hypothesis testing approach is for advancing the field. Hence, methods that contain an explorative element are needed for understanding the micro-mediating processes as well as for identifying relevant constructs to study.⁶ In addition Cook and Shadish (1994), researchers should be cautioned against seeking to establish simplistic cause and effect relationships in the social sciences. For example, current philosophical thinking highlights that causes and effects are structurally related in conditional ways. In practice this means that researchers using a field experiment should see any causal connection as part of a larger explanatory system that cannot be fully known. In such a system, effects can be classified as dependable if they are frequently observed. But in accord with the

⁶ A parallel critique can be found among social scientists who adhere to a complexity perspective. Tsoukas (2005) suggests that within the study of organisations, the overarching emphasis has been on *outcome* at the *expense* of process. The author goes on to recommend that methods involving a narrative aspect will enable researchers to pay attention to present activities, as well as past experiences, to understand current tendencies in the organisation.

notion of a research programme, the causal contingencies can only be established over time, typically when a literature study draws together the results of several individual experiments.

While it is undoubtedly true that qualitative methods can add value to an otherwise purely quantitative experimental design, the pursuit of approaching a causal explanation benefits from experiments that are designed to include variations in treatments thought to contain the underlying explanatory mechanism. As discussed in section 2.2.4, only a few survey feedback studies have employed this approach to study the effect of the intensity of the treatment (e.g. the number of feedback conferences) and the quality and nature of the feedback (e.g. delivered by the manager or a neutral external expert). But even though these studies have advanced our knowledge of causal explanations, they merely offer glimpses of underlying processes and suggest their importance. They are less helpful in moving the field towards an understanding of *how* survey feedback mobilises change and *why* this is the case. To achieve a comprehensive causal explanation, more is gained by making the experiment exploratory. This opens the black box of the mediating processes taking place within the feedback conferences as a result of the intervention, making a plausible case for their influence on the observed effect. In the following section, I describe the design of the experimental field study I employed to test my formal hypothesis and to explore the processes that occurred during the survey feedback intervention. Having described the experimental design I employed, I discuss the main validity concerns related to the experimental field study and how these relate to this particular research design.

3.2.1 Research design

The focus of the present study was to investigate changes in participants' perceptions of the PWE. As these were thought to occur over a longer period of time, a longitudinal research design was appropriate (Rosenthal & Rosnow, 2008). Although a longitudinal design can be either retrospective or prospective, a field experiment employing this approach enables an evaluation of the effect of a treatment over time. Wanting to observe the effect of an SF intervention, it was important to specify a timeframe within which I would expect changes to manifest. Given the scarcity of the literature investigating this matter in relation to experimental field studies in organisations, I had to first rely on the implicit knowledge that could be gleaned from existing intervention studies that employed SF. I then drew on the broader literature reviewing the methodological quality of OD intervention studies.

Choosing a relevant timeframe for the present study meant considering a number of factors related to the wide-ranging nature of the PWE construct. As Hackman and Wageman (1995) discuss in relation to organisation-wide total quality management initiatives, there is often a discrepancy between short-term and long-term organisational results. Deciding how long to wait before studying the outcomes of an intervention is not a straightforward process. I decided on a strategy where I would look in detail at the SF process within the separate work groups. I expected to find that some aspects of the PWE fell within the employees' realm of direct influence, such as social support and the climate within the work group. These were themes where a change effort could yield results within a shorter time span if a work group decided to initiate changes. But I also reasoned that the behavioural changes in the work group might not immediately manifest themselves in the self-reported experience measures.

I estimated that changes in such areas would manifest in perceptions and self-report measures within months. I thought it likely that change efforts aimed at organisational culture, the behaviour of top management and the design of the job were more likely to contend with structures embedded in the larger system of the organisation. Although the literature suggests that these factors can be addressed successfully through an SF intervention, the timeframe required to observe the effects is potentially years rather than months.

One SF case study by Amba-Rao (1989), as discussed in section 2.2, supports this view, with changes in organisational structures and job design taking place four-and-a-half years after an SF intervention. As a whole, the study—which had two measuring points in the interim—lends support to the hypothesis that the SF intervention did mobilise change efforts related to structural aspects of the organisation and the job. The authors of another of the reviewed studies point out that their three-and-a-half year longitudinal SF study allowed them to examine the 'lasting effects' that shorter intervention studies could not capture (Elo & Leppänen, 1999). Hackman and Wageman (1995), on the other hand, argue that the longer one waits for the effects of an intervention to be realised, the more those results are open to confounding by other factors.

Indeed, the above-mentioned studies exemplify one-third of the survey feedback analyses included in the review, which contain a number of simultaneous interventions and initiatives that are not described in great detail. It is therefore an example of how a longer time span for a field study actualises some of its most serious validity threats. This leaves the problem of disentangling the effects of a focused intervention from a range of changes that are either planned or a

consequence of the complex adaptive system that constitutes an organisation. Albeit, a long time span in a longitudinal design is preferable if it is matched by several measurement points, allowing the researcher to extrapolate a trend from multiple moments in time (Rosenthal & Rosnow, 2008). Yet, in the absence of several measuring points, a longer timeframe poses several problems not least in the present case where the participating units will have to agree on actions at the first measuring point, which should remain relevant and on participants' minds at the second point. I decided on a timeframe of about one year between T1 and T2, reflecting an often-used timeframe in the studies reviewed, the most recent being Dollard and Gordon (2014), who superimposed a survey feedback design onto an existing yearly organisational survey cadence.

Anticipating the discussion in 3.3.1 on negotiating access to an organisation, I had to contend with a number of practical limitations associated with situating the longitudinal experiment within an organisation. This meant considering the burden of participation for the units in the organisation as well as the resources it would draw from the organisation. A viable research design would have to take this into account, as well as the additional constraints associated with completing the project within the time limitations of a PhD programme. Other than the pragmatic concerns of being able to mount a project within an organisation, I was faced with the theoretical concerns of designing a study that would allow me to answer my research questions while being mindful of the many validity threats to an experimental field study. The main factors to consider in relation to the longitudinal design were the time between treatment(s) and observations, the sequence in which they occur and the number observations and treatments. From the perspective of the participants, the number of treatments (survey completion and feedback conferences) would have a greater impact on the burden of participation than the time span between measuring points.

All research designs are constructs of emphasis. This is especially true for empirical field studies in organisations with a longitudinal component. The cost of mounting such a design within an organisation is high, and the researcher as a consequence often needs to limit their approach to a few treatment conditions. I chose to emphasise the longitudinal aspect as well as collecting detailed data regarding the processes within the feedback conferences.

The experimental design used was one where work groups were randomly assigned to one of two conditions: one receiving an ESM version of the PWE questionnaire (ESM condition) and another receiving the same questions, but in the form of a traditional questionnaire (QUEST condition). All participants were

immediately given access to their data through an interactive website upon completion of all the questions in the survey or ESM, respectively. Work groups in both conditions participated in a feedback conference shortly after they received this access.

In the feedback conference, an aggregated report consisting of all data from the participants in the work group was presented. The feedback conference was attended by the employees of the particular work group, their immediate manager and the manager at the level above, which in the organisational literature sometimes is referred to as the *manager-once-removed* (Jaques, 1989). Moreover, I was the external facilitator for all feedback conferences, acting as a process consultant (Schein, 1995). Each feedback conference was conducted according to the same principles for both conditions.

The difference in treatments was the data stream (ESM or questionnaire) as well as data feedback at the individual level, where participants in the ESM condition had access to an interactive graph with *mood data* collected over the survey period, as well as an indication of the dispersion of answers on each PWE scale.

Participants in the QUEST condition were not asked questions regarding their mood levels, and the scores of the PWE dimensions were shown as averages on a composite scale. The aggregated group reports used in the feedback conferences were identical across conditions. Hence, were an outsider to observe these events, they would not be able to tell the difference between the two conditions. As part of the survey feedback intervention, all work groups were asked to develop an action plan detailing focus areas and concrete actions to be taken to improve the aspects of the PWE they found important. The procedure described up to this point formed the initial survey feedback intervention (T1). The same steps were repeated approximately one year later (T2) with the only difference being that the quantitative data available at both the individual and the work group level contained both T1 and T2 data, allowing for a direct comparison between them.

The data collected were quantitative questionnaire and ESM data, as well as qualitative data in the form of recordings of the feedback conferences and action plans prepared by the work groups. Table 3.1 below contains an overview of the data collected and the strategy used for analysis.

Table 3.1 Types of data in the study

Data source	Type	Analytical strategy
Survey data collected at T1	Quantitative—ESM and questionnaire data	Scores on PWE scales and JobSat
Feedback conferences at T1	Qualitative—recordings	Thematic analysis (content level) Analysis of how themes were discussed (process level)
Action plans prepared by the unit after T1	Qualitative—text document	Thematic analysis of the action plan Count of concrete actions proposed
Survey data collected at T2	Quantitative—ESM and questionnaire data	Scores on PWE scales and JobSat
Feedback conferences at T2	Qualitative	Thematic analysis (content level) Analysis of how themes were discussed (process level)

Since the pre- and post-test survey data were collected using different methods (ESM or questionnaire) and as these methods were part of the treatment, it is not possible to provide a precise description of the research design using the classic notation for experimental designs (Campbell & Stanley, 1966; Shadish et al., 2002). Any difference between the conditions was therefore predicated on the measure being semantically equivalent across the conditions. This constitutes a separate research question investigated as part of the thesis. Nevertheless, using the notation of Shadish et al. (2002), the design can be approximated as the following:

R	X_{A1}	O_{A1}	X_{A2}	O_{A2}
R	X_{B1}	O_{B1}	X_{B2}	O_{A2} ,

where R denotes a random allocation of the work groups, X_A and X_B the different treatments and O_A and O_B the observations in the two conditions that, while similar in terms of the feedback conferences, differed with regard to their quantitative measures. The numbers '1' and '2' indicate whether the treatment and observation happened at time 1 or time 2.

A more detailed schematic representation is provided in figure 3.1 below, where the greyed-out boxes denote the elements in the study design that differed between the two conditions.

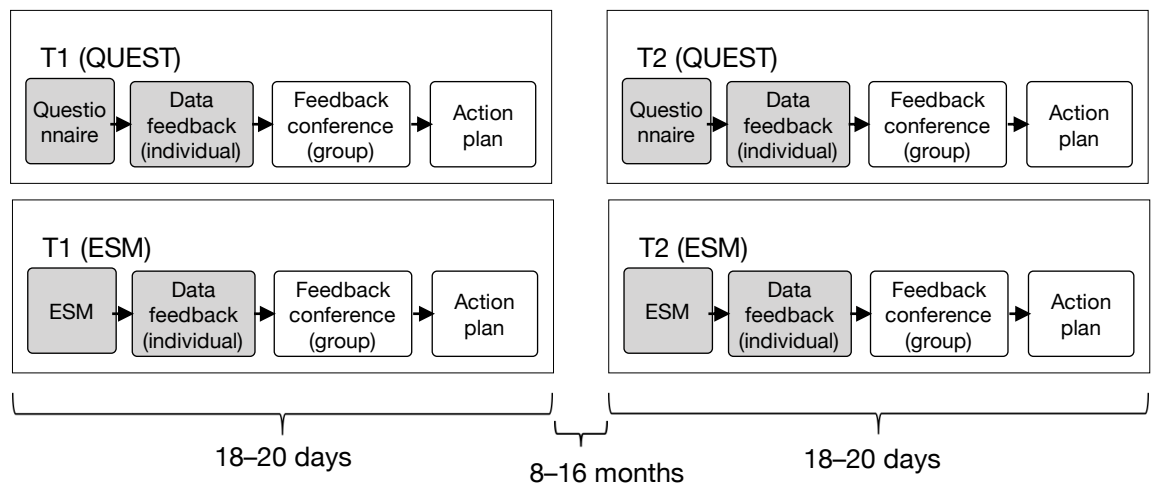
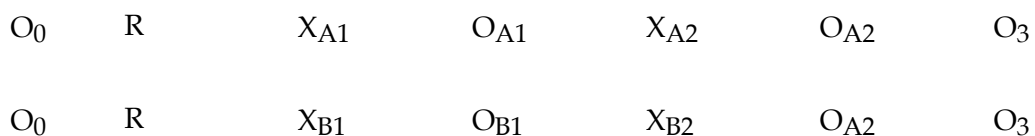


Figure 3.1 Research design

Further details about the specific design of the ESM measures and sampling protocol can be found in section 3.5.6.

The main disadvantage to this design is the inability to rule out that any changes observed between T1 and T2, which could have been caused by differences in the measuring method (ESM or QUEST) or because of a treatment desirability effect. I therefore considered a more ideal research design, taking the following form:



In this design, the same pre- and post-test measures are applied to all units before random assignment to conditions (O_0), as well as after receiving the treatment at T2 (O_3). Nevertheless, I decided not to implement this design as it would have increased the participant burden within an already intensive method. It is quite possible that this would have led to decreased motivation to participate and thus adversely affect both data quality and attrition rates. Moreover, there was the possibility that being presented with the same measures for additional pre- and post-tests would cause an unwanted sensitisation to the measures. When this is a concern, Shadish et al. (2002) advise against the use of pre-tests.

Another important design decision pertained to the choice of relevant comparison group(s). This is relevant to the topic of approaching a causal explanation through the careful selection of variations in treatments. Since the

investigation was concerned with the efficacy of the ESM version of survey feedback, I chose a comparison group that matched the experimental condition as closely as possible, with the only difference being the intrinsic difference in the survey method. I chose not to include a 'straight control' condition, where treatment was withheld, since the research question was concerned with a comparison: the relative efficacy of the ESM approach to survey feedback compared to the use of a questionnaire. All additional factors in the survey feedback design were held constant.

The relatively simple pre- and post-test design with a control group has received considerable criticism over the years. In a seminal paper, Cronbach and Furby (1970) argue that most of the studies that employ this design are unable to adequately distinguish between measurement error and measurement change. This view has since been challenged. Proponents of advanced statistical techniques such as latent growth curves have argued that Cronbach's original was unduly negative (see for example Rogosa, Brandt, & Zimowski, 1982). Nevertheless, I was cognisant of the potential problem that the slightly modified pre- and post-test design I wanted to apply with only two measuring points might present a limit to the statistical analysis of my data. Yet, as a single researcher working within the previously-mentioned constraints, I was conscious of mounting a project that I would be able to handle single-handedly in terms of the data streams produced. The intention was to analyse both quantitative data from the ESM and the questionnaires, the qualitative data from the feedback conferences and the action plans for the participating work groups. As I elaborate in section 3.3.4, another reason for limiting the number of measuring points to two was the need to obtain a sample size that gave me adequate statistical power for the analysis. Thus, between a smaller sample size with additional measuring points and experimental conditions, or a larger sample size, fewer treatment conditions and measuring points, the latter was preferable.

In the section below, I draw upon the recommendations of Shadish et al. (2002) and conceptualise the current study as part of a larger research programme concerned with establishing the validity of the survey feedback intervention. This entails discussing the current research in relation to different aspects of validity in order to establish its strengths and weaknesses.

3.2.2 Validity

The term 'validity' refers to the approximate truth of an inference. In doing so, it involves a series of judgements about the evidence that supports the inference

(Shadish et al., 2002). In the case of survey feedback as an organisational intervention, validity is concerned with the knowledge claims related to the method's efficacy in relation to change efforts.

Measurement reactivity and biases. A central feature of the ESM is the repeated nature of measurements and the resultant exposure for participants. Such repetition of measurement occasions brings to the fore the broader issue of measurement reactivity in ESM research. Measurement reactivity is concerned with systematic bias effects that measures or procedures can have on the data obtained (Barta, Tennen, & Litt, 2012). To systematically investigate reactivity, both the design of the ESM protocol as well as the phenomena investigated require evaluation. The literature remains unclear if certain types of self-report in ESM studies are more prone to reactivity than others, only offering modest evidence of reactivity. Moreover, the evidence is related to self-reporting behaviours deemed to be either problematic (binge eating or alcohol consumption, for example) or to the self-monitoring of pain experienced over time (Barta et al., 2012). This raises the general problem of the tendency in observational diary studies to cite reactivity as a potential limitation, but not investigate it further. Hence it is side-lined by an emphasis on reliability or validity of the measures used, and infrequently examined as part of the study design.

The limited attention the topic has received means there is little systematic knowledge about reactivity in ESM studies of emotions, attitudes and beliefs. One of the few exceptions is a study by Conner and Reid (2012), where the authors find that intensive happiness reporting through mobile technology has either aversive or beneficial effects depending upon the emotional disposition of individuals. Overall, there is no reason to believe that reactivity as well as the biases associated with traditional self-reporting will not affect ESM designs. In much the same vein, Schwarz (2012) makes the point that the cognitive processes underlying real-time self-reporting require systematic exploration. According to Schwarz, it is problematic when inadequate research on the topic is coupled with the belief that the biases associated with self-report measures are absent when using intensive longitudinal methods. In so doing, he suggests, researchers simply substitute known biases of traditional self-report measures with unknown biases associated with intensive longitudinal methods (2012).

Internal and statistical conclusion validity. As stipulated in section 2.7, sensemaking is thought to be a mediating process that forms a central aspect of the mobilising effect of survey feedback. Establishing if such a relationship does indeed exist constitutes statistical conclusion validity. Showing that this relationship is causal—

that the occurrence of sensemaking leads to change—constitutes internal validity.

The particular implementation of survey feedback in the present study is thought to target both the group level and the individual level. Whereas the process of data feedback as an emancipatory process has received attention at the individual level from the literature on diary methods in therapy, video recall methods, and in the analysis of data within the quantified-self movement, the emancipatory process at the group level has received little scrutiny.

In a survey feedback context, sensemaking is seen as a key part of the process—allowing participants to move from awareness to make sense of a situation so that they can act. Gaining deeper insight into the nature of the sensemaking processes in a survey feedback intervention is critical to the present study and one that can contribute to the advancement of theories as to why participatory interventions based on quantitative data are able to mobilise actions.

Construct validity. Construct validity concerns generalising from a sample of instances, and the data patterns associated with them, to the particular target constructs they represent (Shadish et al., 2002, chapter 1). Shadish et al. (2002) discern the higher order constructs that these instances are supposed to represent, arguing that these are more abstract than the particular instances researchers sample in an experiment (molar treatment). Moreover, Nadler (1976) contends that organisations as dynamic systems have regular cycles of events that feedback interventions need to consider. Consequently, the author suggests that rather than one-shot feedback, ongoing interventions should be attempted for the purpose of mitigation.

The current design controlled for the potential confounding effect caused by wider organisational events and life cycles in two ways: firstly, by having the participating groups go through the same survey feedback process at different points within the organisational cycle. Although the time between the first (T1) and second (T2) survey feedback sessions was attempted as a constant across groups, the date of the start varied by up to a year between groups. Secondly, the study involved obtaining qualitative data from the feedback conferences, which gave more detailed insight into the exact dynamics of the SF method.

The focus on process was partly to test a hypothesis, but also to explore previously unknown aspects of a modified method, which could be used for theory development. Indeed, as Sonnenfeld (1985) has pointed out, the failure to distinguish between research into hypothesis generating and hypothesis testing has led to much of the criticism levied against the original Hawthorne studies.

The *Hawthorne effect* in organisational studies alludes to the positive reaction among employees to attention and change, with less significance as to the nature of the change. The Hawthorne effect is the eponym of the Hawthorne Works, an electrical factory outside of Chicago, where the study was based. As Whyte (1989) has discussed, the conclusions from this particular study of the Hawthorne electrical plant are less clear than the conventional wisdom within organisational studies. They are in fact a much more elusive phenomenon. One of the often-observed fallacies of intervention studies is that the mere act of paying attention to the employees contributes to a perceived change among the participating employees.

Since the early human relations efforts in the 1930s, there has been intense interest in identifying effective intervention methods. Nevertheless, the effectiveness of any given measurement has been elusive. On the one hand, the inherent challenge of isolating the effective component of an intervention poses a problem. On the other, it is difficult to find a way to establish that a change has taken place.

The former facet can be further split into two issues: the challenge of changing only the independent variable(s), while holding constant all other factors that might otherwise affect the dependent variable; and what can be called a placebo effect, where the very fact that people believe they are receiving a treatment creates an effect. As noted above, this is often referred to as the Hawthorne effect (see for example Adair, 1984; Levitt & List, 2011; Sonnenfeld, 1985), alluding to an effect where employees react positively to attention and change and that the actual nature of the change is of less importance.

A further issue inherent in most intervention studies is the issue of controlling for confounders in the intervention design. It is notoriously difficult to design a real-world intervention study that allows the researcher to isolate the change within a given treatment. Organisations change constantly, and the people within them also rotate between jobs or leave to work in an external system. Those who remain make up complex systems, where the parts interact in ways that are impossible to map out or exhaustively describe. Hence, what the researcher might attribute to a particular intervention could very well be the consequence of one or several organisational processes or properties outside of the study's design. As a consequence, one should proceed with care in terms of establishing causality from intervention studies. Indeed, as Nielsen, Randall, Holten, and González (2010) argue, it often means lowering the ambitions in terms of the evidence that is possible to obtain.

External validity. In the SF literature, external validity has been investigated in a number of different settings. Equally, the operationalisation of SF has been varied across studies. If one were to design a full solution that takes all the conditions that might affect the efficacy of the method into account, it would entail an extensive design, with multiple SF treatments, settings and sectors. Moreover, as Shadish et al. (2002) point out, diversification of these characteristics also poses a threat to statistical conclusion validity, where low power and range restrictions would present problems for a highly diversified design.

External validity can only be established piece by piece over time. To date, there is evidence to suggest that SF is effective in mobilising change efforts within a range of job-related areas. The present study should be seen as an extension of this. It serves as part of a research programme that, although disconnected over time and with different underlying theoretical underpinnings, nevertheless can be construed as containing an underlying common thread, namely self-reported data feedback. Although earlier usages of the method took a different theoretical approach, the findings associated remain relevant. While they do not explain the efficacy of the method, they do indicate its inherent value.

3.2.3 Threats to validity

A number of validity threats are relevant to discuss in relation to the current study and the particular design I have chosen. In this section, I discuss three of the threats I perceive to be the most significant.

Inadequate explication of constructs. Survey feedback is a category that encompasses a variety of approaches to participatory interventions in work groups based on quantitative self-report data. The self-report data can vary, targeting factors related to employees' perception of their work environment in general, as well as the job they perform. The self-report measures range from broad and general attitudes towards aspects of the job, which often emphasise the affective component of an attitude, to specific evaluations or experiential dimensions of the job and work environment. Although related, they form different constructs and are influenced by individual differences as well as contextual and social factors.

In the present study, a construct of PWE was measured through a questionnaire that emphasises certain aspects of the PWE, while minimising other parts. Extrapolating from this particular operationalisation of the psychosocial work environment to the research area of work-related stress and wellbeing might therefore be problematic. Significantly, there may be a divergence between the job design and the socio-emotional dimensions of team climate. The term 'PWE' in the

current study is used as a handle to refer to a particular operationalisation of PWE and cannot be taken as synonymous with the construct in general.

Mono-operation bias. According to Shadish et al. (2002), most experiments are characterised by only having one or two manipulations of an intervention, which the authors cite as commonly due to resource limitations. This is a problem to the extent that a single operation underrepresents a construct and contains irrelevancies. In the current study, the survey feedback conferences were the same in both conditions, but the treatment was varied in terms of self-report data collection, which served as a source for the feedback conferences. It is entirely possible that my particular operationalisation contained irrelevancies of which I, as a researcher, was unaware. One way to control for this would be to have different facilitators conduct the feedback conferences. In this case, there was one operationalisation of the construct survey feedback but two treatments: ESM and QUEST.

Attrition. The validity threat posed by attrition is relevant to the present study as the requirement was for individuals to participate in the entire survey feedback process (completion of survey and participation in feedback conference) twice over a period of 8–15 months. In the cases where individuals chose not to participate at T2, the research design did not permit further investigation of the reasons behind such a choice. Hence, it is entirely possible that the design introduced a bias by including data from the participants who found the method useful and thus were motivated to take part in the process at T2. This *healthy worker effect* has been found in a similar intervention study regarding psychosocial work environment (Nielsen & Randall, 2012).

Nevertheless, Shadish and Ragsdale (1996) find that, compared with non-randomised experiments without attrition, randomised experiments with attrition still yield better effect size estimates than non-randomised experiments. Sometimes an alternative to severely degraded randomisation will be best, such as a strong interrupted time series with a control. But the routine rejection of degraded randomised experiments is unsatisfactory, as it requires careful study and judgement.

Reactivity to the experimental situation and experimenter expectancies. In assigning the work groups to either of the two conditions, I was cognisant that the explanation given to the participants could lead them to guess the hypotheses of the study. This could pose a threat to the construct validity if participants reacted to their perception of the experimental situation rather than to the treatment given. Further,

the participants' perceived expectancies of the researcher could influence them to give responses in line with what they thought would support the hypothesis of the study.

As I elaborate in section 3.3.1, the introduction of the research to the participants focused on the difference in measuring how employees perceive their work over time, place and activity. I did not discuss the hypothesis related to the difference in mobilising potential between the two methods, nor did I reveal my interest in examining the micro-mediating process of sensemaking. As a result, reactivity to the experimental situation or an effect of experimenter expectancies would be more likely influence the hypothesis related to hedonometrics than those related to hedonopragmatics and the change potential of the method.

3.3 Context of the study

My intention to mount an experimental field study within an organisation was predicated on gaining access to an organisation willing to trust me as a researcher, and my ability to carry out a survey feedback intervention in a number of naturally occurring work groups targeting PWE factors. I was conscious that this proposal entailed an organisational intervention that would impact the work life of a large number of people. From the view of an organisation, this project would likely be associated with a number of risks, real or perceived, that I would have to mitigate when presenting it to potential organisations. Most prominent among those was addressing the notion that such an intervention could have detrimental effects for the work groups and the organisation. Unless there was a perceived need to address issues around the PWE, I feared that a manager would be likely to view the downside as outweighing the upside of participation.⁷ With this in mind, I negotiated access to an organisation already looking for assistance and where I had a strong relationship with a key stakeholder who could vouch for my skills.

Here it is relevant to point out the qualitative difference between conducting a participatory action research project (Argyris, Putnam, & Smith, 1985) and an

⁷ This notion is based on the fact that most organisational interventions are driven by the promise of future success. Put crudely, my approach was help them identify key issues in the PWE with the view to helping them change and improve. The majority of consultancy programmes start with the end goal: what you want to achieve and how to close the gap

experimental field study. In the former there is the explicit goal of enabling change in a social system through the active involvement of the participants. The aim of the researcher is to facilitate change with the system (French & Bell, 1999), hence the original term within OD: 'change agent'. In an experimental field study, by contrast, the researcher seeks to observe an effect of a treatment. Albeit there remains a chance they will exert some influence on the field.

My aim was to situate an experimental field study within an organisation. I needed an organisation that would allow me access to approximately ten naturally occurring work groups and would grant me permission to implement two survey feedback interventions one year apart. Approaching an organisation thus required approval to intervene in organisational processes, including the perception of managerial competencies, organisational structure and job organisation. Additionally, as the research design was longitudinal, it needed a long-term commitment from the management of the organisation as well as employees, who had to commit both time and effort. My proposal thus emphasised that the organisation and the management team would gain valuable information about the psychosocial work environment, which could potentially enable them to improve employee wellbeing and related processes. Whereas the employees would gain insight their own psychosocial work environment and the opportunity to exercise influence over it.

3.3.1 Negotiating access

In the autumn of 2013, I was approached by an educational institution. The request from the organisation was that they wanted an organisational psychologist to help increase the wellbeing and health among the employees. The organisation hoped to pinpoint issues for improvement, as well as initiate and monitor changes over an extended period. Since the process had to comply with Danish legislation, which calls for the involvement of the employees in any process of monitoring and improving the PWE (Arbejdstilsynet, 2009), I suggested they adopted a survey feedback method. The systematic collection of data and the involvement of the employees in subsequent interpretation and change planning is a hallmark of the SF method and thus fit the requirements for the task. Consequently, I submitted a proposal for a piece of consulting work reflecting these recommendations. The management accepted the proposal in 2014 with the view to commencing a pilot project in the following year and scaling it up to include the entire organisation in 2016.

The initial brief from the organisation prompted me to suggest that they allow

me superimpose an experimental design onto the company-wide survey feedback intervention for my PhD research. In practice that would mean that a subset of the work groups would participate in an experimental condition, and as a consequence would receive a modified treatment from the one given to the rest of the employees. This would entail an increase in participation burden, as they would engage in the SF intervention twice within one year. In return, work that involved the participating groups was offered free of charge. The management team and the human resources department (HR) accepted the proposal contingent on approval by managers and employees in the work groups selected for participation.

Mounting an experimental field study within the broader context of a project that contained many of the same elements as the experiment was associated with several advantages that minimised validity threats. Most prominent among these was the likelihood that the participants in the research conditions would not perceive their treatment as significantly different from what the remaining organisation went through. By extension, the different experimental conditions would be less likely to generate a novelty effect (Shadish et al., 2002) and threaten the validity of the field experiment. A further advantage was that the participants would be less likely to guess the hypotheses of the research, which Orne (1959, as cited in Rosenthal & Rosnow, 2008) refers to as the 'demand characteristics of the situation', and which can lead participants to 'help' the researcher by providing results that match the hypotheses.

Under the guise of the organisational intervention, I was able to present the experiment as a version of the organisation-wide survey feedback initiative, highlighting that I wanted to study specific aspects of the use of surveys for participatory interventions. I was thus able to comply with the ethical requirements of not deceiving the participants while masking the hypothesis in a way that made it difficult for the participants to make informed guesses. In sum, the situation and organisational context allowed me to construct a frame around the experimental design that drew less attention to the experiment and thus reduced two of the most common threats to the validity of experimental field studies in organisations.

After receiving the initial approval from HR and top management, I identified ten work groups in collaboration with HR and contacted them. The groups were assigned to either of the experimental conditions before I presented the research project to them. The final agreement for participation happened after the participants had received a presentation of the research project, and the work group, as a whole, had agreed to participate. Section 3.3.4 describes how the experimental groups were identified and assigned to experimental conditions.

Presentation to the work groups. Initial contact with the ten units was made through their immediate managers. I wrote a personal email to each manager and attached a description of the research project. The managers presented the idea to employees at a meeting, asking if there was consensus for participation. The manager then arranged for me to present the project to their unit. In each of the meetings, I explained the project to the work groups using a 45-minute presentation. I used the same presentation material for all groups, disregarding the experimental condition to which they had been assigned.

I explained my research interest in methods for measuring PWE factors. I also stated that I was interested in seeing how a new quantitative method (ESM) compared to a traditional questionnaire and cited some research showing the limitation of questionnaires, concerning fluctuating phenomena like job satisfaction. I pointed out that only a few aspects of the PWE had been investigated using an ESM approach, and that it had never been used in a survey feedback context. I did not reveal the hypothesis related to the mobilising potential of the ESM to the groups or anyone at the organisation. In the week after the presentation, the unit decided if they wanted to participate in the research project and informed me via their manager. Although a general decision from the group was needed for the project to go ahead, it was made clear to the members of each group that participation was voluntary and that they could individually choose not to participate or to withdraw their participation at any time. Within one week of presenting the project, I received confirmation from all ten work groups.

3.3.2 *The organisation*

The organisation where the study was situated was University College Denmark (UCD),⁸ an institution of higher education in Denmark. The school is the result of several mergers that have taken place within the educational sector in Denmark since the mid-2000s, where smaller institutions often teaching single vocational courses were merged to offer professional (vocational) degrees at the bachelor level. The degrees offered are related to health (e.g. nurses), social sciences (e.g. counselling, administration) and education (e.g. teaching).

At the time when I entered the organisation in 2015, it had just over 700 full-time

⁸ UCD is a pseudonym, as are all names and locations mentioned.

staff in 38 units. Figure 3.2 below illustrates the organisational structure.

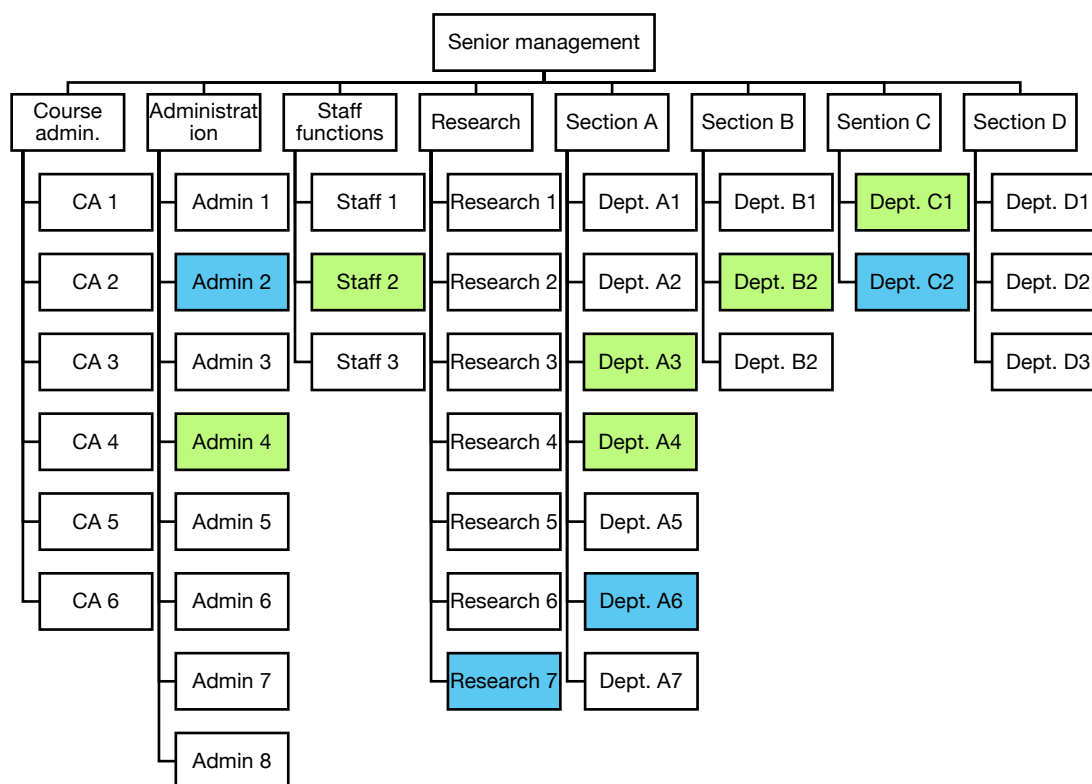


Figure 3.2 Organisational structure of UCD

Roughly one-third of the employees were in administrative and support positions spread across 17 units. The remaining employees were found in the 17 academic departments organised within four institutes and one cross-sectional research institute containing seven research groups. The number of full-time enrolled students undertaking a professional bachelor's degree was about 6,200. The academics primarily held master's degrees or the equivalent of MSc/MPhil degrees (*kandidatgrad*), and a few were trained at the PhD level. Although the institution did engage in research, it was somewhat limited compared to a research university. The majority of research was concerned with the practical application of the vocations taught through the 11 courses.

In the five years preceding my arrival, there had been frequent changes in management and the organisational structure of the university. The management team believed there was a need for an in-depth mapping of issues related to the wellbeing of employees. This included a number of specific domains: from social support in the work groups to the quality of management in the departments. All the dimensions mentioned were encompassed under the umbrella term PWE. Reports of increased levels of stress and dissatisfaction among employees were

causes of concern for the management. Yet, apart from official records of sick leave that had been reported as stress related, there was scant evidence regarding the nature or extent of the problem.

In Denmark, both public and private organisations are required by law to monitor risk factors related to the PWE every three years. The official national guidelines (Arbejdstilsynet, 2009) state that organisations can select any method they see fit for this purpose. Generally, organisations choose between unvalidated organisational development surveys (ODS) (Dollard & Gordon, 2014) and general job satisfaction surveys, or standardised tools such as the Copenhagen Psychosocial Questionnaire (Kristensen, Hannerz, Høgh, & Borg, 2005), which have been validated across different sectors in Denmark (Bjorner & Pejtersen, 2010).

In addition, the guidelines state that the organisation has to involve the employees in the identification of risk factors. These risk factors must then be documented, with action plans put in place to mitigate the risk posed to employees. The involvement of the employees in the process of identification and preparing action plans is designed to encourage organisations to incorporate participatory processes. Over the years it has created a culture across organisations where there is a high degree of employee involvement in matters related to the PWE.

3.3.3 Mounting the experiment within the organisation

The first phase of the research project took place over five months from May to December 2016, with a summer break in July and August. One of the two experimental approaches formed part of the organisation-wide survey feedback intervention. The organisation stipulated that the participating units would complete the same survey as the rest of the organisation within the same timeframe of five months. As the units in the research project completed the survey twice, I had the option of placing either the T1 or the T2 survey within the timeframe of five months. As the time between the first and the second survey was about one year, I spread the whole project out over a period of two-and-a-half years. This gave me some advantages in terms of eliminating threats to the validity associated with changes in the organisational environment that might have influenced employees' perceptions of the PWE.

Figure 3.3 illustrates how each of the ten experimental groups fit into the larger organisational survey feedback project. The first ESM and QUEST groups completed the T1 survey feedback process in August 2015 and the last group completed T2 in early March 2018. My intention was to balance the design so that half of the groups in both the ESM and QUEST condition would have their T1

completion form part of the organisation-wide survey feedback project. Figure 3.3 also depicts the time that elapsed between the feedback conferences at T1 and T2 for each of the participating work groups. The figure shows that I reached this goal for the six groups in the ESM condition, with three groups having their T2 within the organisation project period and the remaining half having their T1 within the project period. This increased the likelihood that any general effect caused by a variable in the organisational environment present at either T1 or T2 would be balanced out within the treatment condition. As the figure illustrates, the same even split was not achieved for the four groups in the QUEST condition. Here, three groups had their T1 before the project group and participated in their T2 in the organisation survey feedback project. Only one participated with their T1 intervention. Although this was not ideal in terms of obtaining a balanced design, it reflected concrete and pragmatic concerns regarding the schedules of the participating units. This increased the possibility that an organisational or environmental confounding variable could have had an unequal impact on the groups governed by the condition to which they were assigned. It can therefore not be ruled out that this may have affected the comparison between the two treatment conditions.

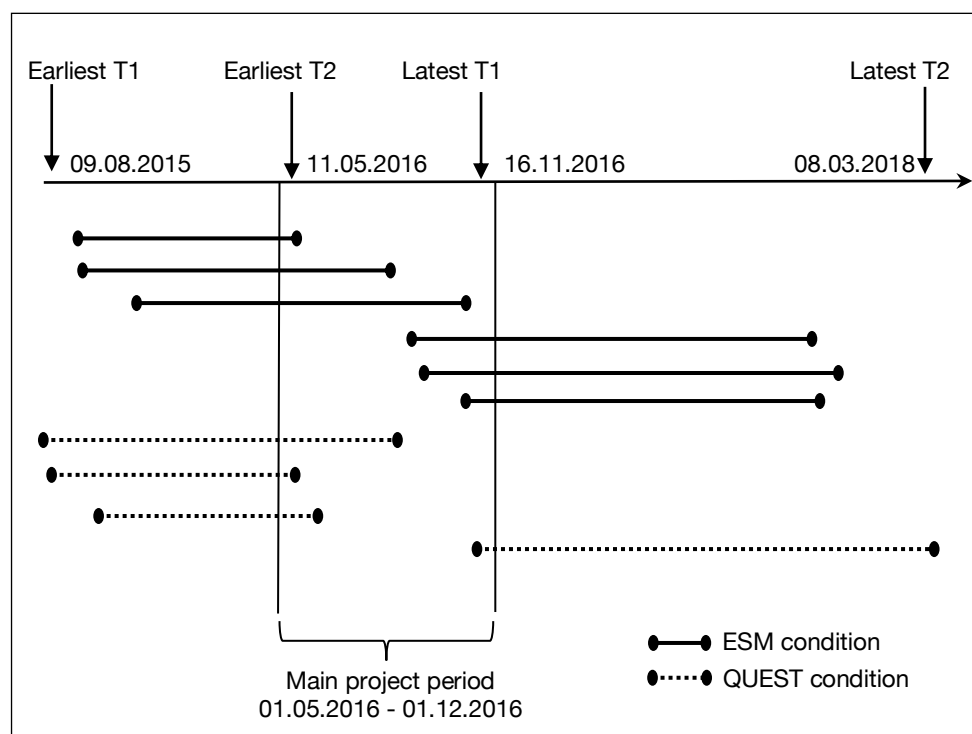


Figure 3.3 The research project within the organisational project

The average time between the feedback conference at T1 and T2 was 336 days (SD=11) range: 224–477. There was a slight difference between the ESM groups

($M=341$, $SD=67$) and QUEST ($M=329$, $SD=116$).

Justification for the research design. The observer and novelty effect meant that there was a risk that attention to the PWE factors could explain an observed effect, though the SF method remained unaffected. As mentioned in section 3.2, the number of different combinations of treatments that one would have to include to identify all possible micro-mediating processes of the change mobilising effect is vast. I therefore chose to compare two treatment conditions that were as close in nature as possible, where the only difference was the way in which the data were collected. This involved running the risk of conducting the research only to discover that there was no difference between the two conditions. In effect that would mean that any observed differences between T1 and T2 scores in either condition would not necessarily be attributed to the SF intervention, as any general maturation effect or any effect caused by an organisational cycle or changes in the environment could account for those changes. In such a case, the qualitative analysis of the feedback conferences would support the general notion that the survey feedback method is associated with mobilising change efforts.

3.3.4 Allocation of units to research conditions

Shadish et al. (2002) argue that it is vital to distinguish between the random selection of units and the random assignment of units to different conditions. The sampling in the present study was not done at random, as it was the HR manager in the organisation who approached a selection of work groups and asked if they were willing to participate in the study. Initially, I asked the manager to choose ten work groups that reflected the diversity of the organisation in terms of their position in the organisation and the nature of their work. As such, it was a case of purposive sampling.

In the process of assigning the groups to either of the two conditions, I focused on the randomness of the procedure to achieve a true experimental design. This is often less straightforward in a field experiment than in its laboratory equivalent, since the researcher has to contend with contextual factors that are likely to influence people's participation. Of particular concern is the self-selection bias that can occur if participants do not receive the treatment that they prefer and then choose not to participate (Cook & Shadish, 1994). As a consequence, a key concern thus became how the randomisation is performed.

Although I was conscious that the ESM condition appeared more desirable and novel compared to the questionnaire condition, I considered it unlikely that the participants would have strong personal preferences for either of the measurement

methods. Nevertheless, the procedure for random assignment is essential since it concerns a fundamental assumption of the randomised design: the equivalence of groups in terms of their pre-test expectations, which is presumed to carry over to post-test (Shadish et al. (2002, p. 12). The question of when participants are assigned to a treatment can, according to Riecken & Baruch (1974, cited in Cook & Shadish, 1994), be reduced to three possibilities: 1) they are allocated to a treatment before they learn of the measurement burdens and alternative treatments; 2) after they learn of the measurement burden, but before they know of alternative treatments; or 3) after they know of both the measurement burdens and alternative treatments and agree to be in whatever treatment condition the random allocation method yields.

Cook and Shadish (1994) view the third option as the least likely to cause participant refusal but expect some attrition, particularly if the randomisation does not assign participants to the treatment they prefer. The underlying question of attrition is of vital importance in field studies because attrition can rarely be assumed to be random in discussions of outcomes (Shadish et al., 2002). Although a primary concern was to curtail attrition and maintain adequate statistical power, I chose to assign the work groups to treatment conditions before I approached them with the proposal to participate. My reasoning behind adopting this strategy was that I did not want to be in a situation where a group would ask to participate in a different condition.

I performed the random assignment to either of two treatment conditions from the pool of ten departments that had been preselected and initially agreed to participate. After the assignment had taken place, I contacted the units and formally asked for their participation in the condition assigned to them. At no point in this process did the units have any influence over which condition they would be assigned. Both treatment groups received the same information about the study design and purpose, and the participants knew that they were allocated to one of two treatment conditions. They were also given a broad view of how they were different. The information given to the groups differed only with regards to the practical aspects of the treatment to which they were assigned. As an example, groups assigned to the ESM condition were shown what the ESM survey interface looked like and how many questions they were expected to answer. The exact procedure of randomisation and the information given to the participants are described in the following section.

Randomisation in the assignment of treatments. The purpose of random assignment is to reduce the plausibility of alternative explanations for observed effects (Shadish et al., 2002). As the intervention was targeting organisational units in the form of

naturally occurring work groups, the random assignment had to take place at the group level, rather than at the individual level. The first step was to identify a pool of naturally occurring work groups across the organisation from which the allocation could take place. In this process, I enlisted the assistance of the human resources department.

I met with the HR manager in the spring of 2015 and asked for help identifying ten work groups within the organisation. I specified that I would like half to come from within academic departments and the other half from administrative units. This 50/50 split did not reflect the 25/75 split between administration functions and the academic departments of the organisation. However, as part of the purpose was to explore the viability of a new approach to experience sampling, a heterogeneous sample was thought to be more appropriate as it would address the question of external validity by including different job types. Moreover, it was specified that a selection of groups from different parts of the organisation was preferable to their being drawn from within one or two sections, as a diverse selection would reduce the likelihood of treatment contagion.

The second part of the brief to the HR manager was to prioritise larger groups over smaller ones, as this would enhance the statistical power of the study. In taking this approach towards the initial selection of the participating groups, I gave away some control of the selection process and as a consequence introduced several threats to validity. This difficult to avoid in a field experiment, and it is akin to the problem discussed by Cook and Shadish (1994), which occurs when researchers leave it to others to perform the actual physical allocation of participants according to some pre-specified protocol, which they might either misunderstand or choose to ignore.

The HR manager contacted the managers of ten units and explained the research project and how it would fit within the organisation-wide survey feedback initiative to be rolled out at a later stage. Nine of the managers responded positively after having discussed the project with the staff. A new similar group was subsequently identified by HR, giving a total of ten work groups.

Participant groups were then assigned to either condition using a randomised method with the goal of achieving a 50/50 split between the number of participants in the ESM and QUEST conditions. This resulted in four groups in the QUEST condition and six groups in the ESM condition. The six groups in the ESM condition consisted of four academic departments comprised of teaching and research staff. The remaining two departments were made up of administrative and support staff. The QUEST condition had three academic departments and one department with

support staff. Figure 3.2 above shows units assigned to the ESM condition (marked green) and the question condition (marked blue).

The groups were to go through a modified version of the PWE intervention that the rest of the organisation would later complete. The differences were small modifications to the questionnaire, as well as a repeat of the process roughly 10–12 months after the first PWE intervention. Depending on when the first cycle took place, the data for either T1 or T2 would form part of UCD's PWE intervention. As elaborated above, the groups were assigned to one of two conditions *after* being selected for participation.

3.3.5 Participants

Participants (N=222) were mostly female (72%) and the average age was 48.9 (SD=9.4). On average they had worked for this organisation for 9.9 years (SD=9). They were members of one of ten naturally established work groups with group sizes ranging from 6–39 (M=22.3).

The ESM condition consisted of 122 participants across six work groups, with a mean group size of 20.5 (range 6–36). Participants in the QUEST condition (N=100) came from four work groups; the mean size of the groups was 25 (range 11–39).

Table 3.2 Participation rates in the work groups

Condition	Group name	Group size*	Survey completion (T1)	Participation in feedback conf. (T1)	Survey completion (T2)	Participation in feedback conf. (T2)
ESM	1	19	16 (84%)	17 (89%)	14 (74%)	18 (95%)
ESM	2	15	13 (87%)	13 (87%)	11 (73%)	14 (93%)
ESM	3	6	6 (100%)	6 (100%)	6 (100%)	6 (100%)
ESM	4	36 (24)	27 (75%)	29 (81%)	18 (75%)	19 (79%)
ESM	5	32 (30)	20 (63%)	26 (81%)	15 (50%)	23 (77%)
ESM	6	15 (21)	15 (100%)	15 (100%)	21 (100%)	20 (95%)
Mean ESM		20.5 (19.2)	16 (85%)	18 (90%)	14 (79%)	17 (90%)
QUEST	7	29	21 (72%)	25 (86%)	18 (62%)	17 (59%)
QUEST	8	11	11 (100%)	10 (91%)	10 (91%)	10 (91%)
QUEST	9	21	15 (71%)	20 (95%)	11 (52%)	13 (62%)
QUEST	10	39 (33)	33 (85%)	31 (79%)	30 (91%)	31 (94%)
Mean QUEST		25 (23.5)	20 (82%)	21.5 (88%)	17.3 (74%)	17.8 (76%)

*Number in brackets indicate size at T2 if different from T1.

The weighted average survey completion rate for participants in the ESM condition across work groups was 85% at T1, which fell to 79% at T2. For the QUEST condition, the T1 weighted average completion rates were 84% and 77% for

T1 and T2, respectively. Looking at table 3.2, it is clear that a few groups (5, 7 and 9) were responsible for the majority of the attrition between T1 and T2. In section 4.4.2, I discuss in greater detail the possible reason for the decrease in participation within these groups. As the decrease in participation in the remaining groups was similar, I did not investigate this issue further. As discussed in 3.2.3, attrition affects the validity in field studies to the extent that it reflects an underlying self-selection process.

3.3.6 Work groups

Group 1 (ESM). The first work group belonged within group of health professions at UCD. The work group was very homogenous, consisting of 19 academics, all of whom were women with a mean age of 50.7 (SD=9.3) among those who completed the survey at T1. Everyone in the group held the vocational (bachelor) degree, which qualified them as practitioners of the profession for which the course trains the students. In addition to this, they held master's degrees related to specialities within the profession or in fields taught as part of the course offerings (e.g. psychology, sociology or counselling). One of the participants in the group had completed a PhD within the field and had a more research-oriented role within the department. Despite the profession being overwhelmingly female, the fact that the work group only consisted of women was unusual and not representative of the profession at large.

The group was located at the largest of the campuses at UCD. Half of the members had been there for more than eight years, and the remaining half were split between those who were new to the department, with between one and two years of tenure (15%), and those who had been with the department for 3–7 years (35%).

The manager of the department had been in the role for over 15 years, during which there had been several controversies concerning the social climate within the department, and related to her role as a manager in particular. The manager openly told me about the difficulties as she had experienced them over the years and conveyed her engagement of external consultants to help the department identify and address the problems. She was very candid about the fact that this had not had an effect and that she very much saw that as partly her failing as a manager. She was motivated to identify and solve the issues and was encouraged by the potential of the survey feedback method as a direct way to uncover some of these enduring problems.

Group 2 (ESM). The group consisted of 15 academics teaching a professional vocational degree within the health profession. Fourteen of the group members were female, reflecting the gender distribution within the profession at large. The average age among the 13 individuals who completed the survey at T1 was higher than any of the other groups in the study ($M=58.9$, $SD=5.1$). The majority of the members held a bachelor's degree granting them a vocational title, as well as an additional master's degree related to either a speciality within the profession or to the profession of teacher within higher education. One person was in the process of completing a research degree related to the field of study.

At T1—the initial data collection point—the group was located on campus D. During the 13 months between T1 and T2, the group was moved from campus D to campus B. The members of the group, as well as the management structure, remained intact between T1 and T2. Yet the group were among the last to be physically relocated and integrated to campus B, which is one of two larger campuses housing a broad range of courses that span both health and social sciences.

Group 3 (ESM). Originally created as an ad-hoc group for a period of two years, with the purpose of providing students with academic support and improving their wellbeing, the unit was four years old at T1. The group consisted of six members, of which two were men, with the lowest mean age (44.8 , $SD=8.1$) among the participating groups. There were six full-time staff at T1 and T2, albeit only five participated at both T1 and T2. In the interim period of 12 months, one role within the work group was changed, which meant that the temporary contract of one employee was not extended and that another person with complementary skills was brought in to fill the position. Four of the group members held a master's degree within the mathematical, health or social sciences fields, and the remaining employees had vocational training with qualifications related to administrative functions.

Group 4 (ESM). This group belonged within the section of social sciences at UCD and was among the largest at T1, consisting of 36 employees, of which the majority (21) were women. The mean age of the employees completing the survey at T1 ($N=27$) was 54.6 ($SD=9$). The group was located at campus E, which is the smallest of the campuses and houses only the group in question.

The manager-once-removed was present at the feedback conferences at T1 and T2. Yet, the organisational level which they represented by overseeing several units within the same section of the organisation was not recognised by the employees,

who saw them as performing many of the same managerial tasks that in principle should fall to the immediate manager. The fact that the manager-once-removed had at one point, prior to the mergers leading to the creation of UCD, had a role as immediate manager for several of the employees at the same location, seemingly led the group members to perceive them as part of the local management. This was somewhat puzzling, considering the fact that the manager-once-removed was rarely present on campus and did not have their own office.

Group 5 (ESM). Located on campus C, the unit belonged to the teaching and pedagogy section and consisted of 32 employees at T1. The gender distribution was reflective of the profession for which they trained students, as a little over half (18) were women. At T1, 20 completed the survey and the average age of the participants was 53.1 (SD=8.7). All members of the group held degrees at the master's level related to the particular subject that they taught. The group had the lowest survey response rate (63% at T1), which dropped to 50% at T2. Although the participation in the feedback conferences was higher—81% and 73% at T1 and T2, respectively—it was among the lowest in the study. The fact that fewer people participated in the feedback conference at T2 could also be a reflection of the fact that the meeting was placed in the afternoon between 16:00 and 18:00. Some of the group members were unable to reconcile family obligations with participation in the feedback conference.

More so than in any other group, the participant voiced concerns regarding how the method did not fit very well with their responsibilities and daily activities. At the feedback conference at T1, the three daily interruptions presented by the experience sampling schedule were described as a disruption. Many found it difficult to fit them into the teaching schedule and were in doubt as to the extent to which they should change their activities to accommodate the method. One individual noted that they felt obliged to interrupt their teaching in order to be able to respond to the measurement occasion. This could be termed a general dissatisfaction with the top management and organisation of UCD, which contributed to a more sceptical and sometimes confrontational tone in the feedback conferences.

Group 6 (ESM). The unit was made up of staff members performing administrative tasks relevant to the whole organisation. The group differed from most of the others in the study by being comprised by employees with a narrow speciality and a job where the range of tasks was rather limited. The employees spent the majority of their time in their office performing administrative tasks using specialised software on their own PCs.

This was one of two administrative units participating in the ESM condition. Similar to the other administrative group, the survey response rate and the participation rate in the feedback conferences was 100%. The only non-response at T1 was due to an employee on long-term sick leave. Three employees explicitly expressed that they saw the high participation rate as evidence of the dedication and loyalty they all showed to their job and the organisation on a daily basis, which in their view included participating in a project about improving the psychosocial work environment if asked by the management.

At T1 the group consisted of 15 members, of which 12 were women. The mean age was 49 (SD=9.5). Shortly after the work group had completed the tasks at T1, it was merged with another group within the administration, adding five people (all women) and taking the group to a total of 20 with a mean age of 51.6 (SD=10.2). Six of the 20 held academic degrees at the master's level, and the remaining members had vocational training related to the administrative functions performed. At T1, the employees were physically located at either campus A or C. At T2, the work patterns had changed so about half of the employees would spend time on the other campus if their particular project or task required them to do so. This was in part a result of the survey feedback intervention, where the topic of collaboration across physical distances was discussed.

Like the employees in group 3, the group members expressed enthusiasm for the experience sampling method, which they found to be well-suited to their workflow. Several expressed the opinion that it was preferable to a traditional questionnaire, as it allowed them to increase the focus on their work conditions over a period of time. Moreover, they perceived the participation burden as smaller.

Group 7 (QUEST). Situated within the same section as group 5—and with a similar course and structure—this group shared many similarities in the topics they deemed important at the feedback conferences. Moreover, the two groups were similar in adapting a more sceptical stance towards the process. As a consequence, the survey completion rate was below the average of the QUEST and the ESM conditions. At T1, 72% completed the survey, and at T2, the rate dropped to 62%. Similarly, the participation at the feedback conference at T1 and T2—86% and 59%, respectively—were lower than the average for the groups assigned to the QUEST condition.

The group consisted of 29 people with an almost equal split between 15 men and 14 women. All held advanced (non-research) degrees in the subject that they taught. The average age of the 21 participants at T1 was 50.5 (SD=11.1).

Group 8 (QUEST). The group consisted of 11 employees, of which one was a woman. The work group was scattered across four of the five campuses at UCD and members had different roles related to various forms of service and maintenance on the campuses. At T1, there was one employee at campus B, four at campus C, two at campus D and four at campus E. The restructuring between T1 and T2 meant two employees at campus D were relocated to campus B. Eight of the participants had received vocational training as part of their qualification for the job and had no further qualification beyond primary school. The average age at T1 was 53.5 (SD=10).

Compared to the other units in the study, the work group was characterised by being less accustomed to discussing their work situation and the factors impacting them. Moreover, some of the employees had taken a long time to complete the questionnaire, which they found to be abstract in places. Adding to this, it proved to be a challenge to get participants to fully understand and engage with survey data. Naturally, these are prerequisites of participants being able to benefit from the survey feedback method. As a consequence, it was difficult to facilitate the dialogue in a way that moved it beyond the concrete and factual level, where the group members would state issues that they perceived as either beneficial or detrimental to their psychosocial work environment. Being able to generate ideas about possible changes and extending or elaborating on the topics raised proved difficult.

The manager of the group had joined the organisation eight months prior to the survey feedback process at T1. This supervisor came from a managerial position within the private sector and had made several changes to the way things were run in the work group.

Group 9 (QUEST). Situated within the health section, the group comprised 21 teachers and a little under half (9) of the group members held advanced degrees at the MPhil or master's level. The remaining group members held a bachelor's degree granting them access to the profession. The group differed from the other groups in the study as one-third held part-time positions. For the other groups the percentage of part-time employees was under ten. The average age at T1 was 47 (SD=10.1). The group was located at campus A and C, with the majority (15) located at campus A—the main campus of UCD, where the manager also resided.

At T1, 15 of the group members completed the survey and almost all (95%) participated in the feedback conference. This figure dropped significantly at T2, with a survey completion rate of 52% and participation in the feedback conference of 62%. This represented the lowest and second-lowest survey completion rate at T1 and T2, respectively, across all the conditions.

Group 10 (QUEST). This unit was an amalgamation of different functions at UCD. It was geographically spread out over three locations and comprised fields related to providing primary educational institutions with teaching materials and methods, with an additional section that was concerned with providing students with counselling services. It was the most heterogenous work group in the study, as it included employees with jobs related to the logistics of maintaining and distributing teaching materials from a warehouse (19), consultants (14) specialised in advanced teaching methods and employees (6) providing counselling services to students. The two last groups, totalling 20 employees, held postgraduate degrees as well as specialist training related to their field. The group with responsibility for the logistics of teaching materials consisted of individuals with vocational training related to various administrative functions as well as practical on-the-job-training in carrying out logistical tasks related to storage and distribution.

The management structure of the unit reflected the diverse nature of tasks. The six counsellors reported directly to the manager, who was also head of the unit. The remaining two groups reported to three different managers according to their geographical locations, with the unit manager as their 'top management' (manager-once-removed). This structure somewhat went against the brief given to the UCD when the groups were selected for participation in the project. Here it was specified that it was desirable that the participating groups were diverse in their functions as well as representing a diversity in the background of the employees. It transpired during the project that the senior management and HR department were largely unaware of the actual managerial structure of group 10. It was thus decided that the group would participate and that the feedback conference would take into account the four different managerial structures in separate reports. Nevertheless, this increased the complexity of the data set. Moreover, the sheer size of the unit presented a challenge in terms of facilitating a feedback conference.

At T1, there were 39 participants. Ten were located at campus A, 19 at campus C and ten at an external warehouse. The average age was 47.9 (SD=8.9) and 26 of the participants were women. The survey response rate and the participation in the feedback conference at T1 were 85% and 79%, respectively. Contrary to the trend of the rest of the participating work groups, the participation rates for both survey completion and the feedback conferences rose from T1 to T2. The survey completion rate at T2 was 91%, and 94% participated in the feedback conference at T2.

Part of the reason for the increased participation rate was likely due to a restructuring of the unit, which took place between the two interventions. The six employees of the work group responsible for providing counselling services to the

students were moved from group 10 to another unit within the organisation. As such, one challenge related to finding a time slot that could accommodate all 39 employees from three different locations, seeing as they had many commitments external to the organisation. Due to the restructuring process, participation constraints to a feedback conference were somewhat reduced at T2.

In the two years prior to the first survey feedback intervention (T1), the work group had undergone several changes both in connection with organisational changes at UCD and in order to meet the shifting demands of external stakeholders. The general view among the employees was that those changes had been handled well and that the current period was one of greater stability, which allowed them to focus more on their jobs and less on adapting to new roles and organisational changes.

3.3.7 My role as researcher

My role as a researcher should be seen in the light of my other role in the organisation: an external consultant tasked with leading an intervention directly related to the topic of the research. The initial contact with the HR manager, who helped me identify and negotiate access to the work groups in the study, was facilitated by the top management, who strongly endorsed the idea behind the research project. The backing of top management meant that I quickly was able to speak directly to the relevant gatekeepers at the organisation who would be able to grant me access to the work groups. This direct access to key decision-makers was a tangible advantage, as the negotiation of access step was brief and unproblematic.

This direct contact from the very top of the organisation contained a clear signal about the strong endorsement of the project by the senior management. At the same time, it was characteristic of the organisation that there was a close relationship between the immediate managers and their work groups. Thus, it was inevitable that the senior management's endorsement of the project would be known among the employees in the different units. Yet, the likelihood that the employees perceived me as having a close connection with top management was not unproblematic in terms of how the work groups viewed the project and my role as a researcher.

During the presentations to the units, I clearly stated that participation in the project was voluntary. Nevertheless, employees could have perceived the senior management's endorsement of me and the research project as an expectation to participate. It is of course not possible to obtain extensive insight into this matter. During the project, I believed the participating work groups would take into

consideration my association with senior management. The perception of my close association with management was corroborated in several of the presentations I conducted for the work groups, where issues related to the agenda for the research was brought up.

In two units in particular, employees asked several questions that sought to expose any potential hidden agendas from senior management in launching this particular research project. One person asked directly about the funding of the research and the fees associated with the PhD programme, demanding knowledge of my PhD sponsorship—specifically, if UCD contributed in any way. In both work groups, there were questions raised related to the selection process and participants wanted to know if they had been selected because they had previously been vocal in their resistance to organisational change initiatives. Both these questions were covered in the informational materials I had given to the work groups, and I emphasised in the meetings with employees that the project was driven by an academic interest in the subject of using the SF method in organisations.

Scepticism towards the project as well as my research role from groupings within these two work groups remained evident. It was only during the feedback conference for groups at T1 that I learned that there were current conflicts between the employees and two managerial levels. Moreover, at T2, the staff in one unit had been reduced by 15% due to general cutbacks. Although the group's general scepticism did not affect the response rate between T1 and T2, the feedback conferences were characterised by an atmosphere of general mistrust in management and frustration with various organisational decisions including the initiation of the present research project.

These episodes serve to illustrate that, while a researcher is expected to uphold a position as a neutral observer, in the field it was difficult to remain apart from the organisational structure and its internal politics. However, obtaining legitimacy as a researcher and building trust with the participants was predicated on being able to remain as neutral as possible. Being neutral meant entering the survey feedback intervention with as little preconceived knowledge as possible about the inner workings of the work groups and current and future organisational decisions that might affect them. This quest for a neutral position also meant that I was mindful of maintaining distance from the organisation's management at key points in time. I intentionally minimised my interactions with senior management, which could otherwise have given me privileged access to organisational information about changes in the structures or the work groups. As I elaborate in section 3.4.6, facilitators adopting a process consultation strategy need to go beyond merely

espousing the importance of neutrality and actively protect themselves from exposure to information from the client system.

3.4 Instruments, procedure and analysis

This section consists of three parts. In the first section, I discuss the different data streams in relation the aim of the research. What follows is the rationale for the choice of survey instruments and statistical analysis in relation to the research question. Lastly, I discuss the design and implementation of the feedback conferences as well as the action plans prepared by the work groups.

3.4.1 Data streams and the research project

Survey responses, observations from feedback conferences and documents related to action plans were collected between August 2015 and March 2018. I examined the research questions in relation to all three data sources. To achieve this aim, I used triangulation, where multiple independent vantage points are used to fixate on a 'real effect' in a way that a single measure does not permit (Rosenthal & Rosnow, 2008).

However, in the present study the data sources were not independent. This is because the self-report data provided was the point of departure for observational data from the feedback conferences and the action plans. Moreover, the self-report survey data was presented to the participants at the individual level, through interactive reports, and the aggregated group level, in the feedback conferences. As Podsakoff et al. (2003) point out, common method biases can be reduced if the researcher employs the temporal, proximal, psychological or methodological separation of measurements. Thus, the present study adhered to two of these recommended methods since the data from each source were collected in different contexts.

The three data sources each made a unique contribution the study. The research question concerning the semantic equivalence between the ESM and the QUEST implementation of the PWE and job satisfaction (JobSat) measures was addressed using the survey responses at T1 and T2. Sensemaking, thought to be a micro-mediating process associated with the mobilising of collective change efforts, was investigated through the observational data from the feedback conferences at T1 and T2. The mobilising effect was investigated by comparing survey responses from T1 and T2 as well as the action plans prepared at T1, the presence of sensemaking at T1 and evidence of changes in the feedback conferences at T2. Table 3.3 outlines the

connections between data sources and the focal variables.

Table 3.3 Data sources and focal variables in the study

Data source \ focal variable	Measurement equivalence of methods	Process—sensemaking	Mobilising effect
Survey responses T1 / T2	1	0	1
Feedback conference T1	0	1	0
Action plan T1	0	0	1
Feedback conference T2	0	1	1

3.4.2 Choosing a measure for the psychosocial work environment

The instrument used to measure the psychosocial work environment was the PULS Human Resource Profile (HRP). The questionnaire was first developed in Denmark between 1995–1997. It ties into a Scandinavian tradition where legislation demands that organisations monitor and document initiatives related to the psychosocial work environment. The instrument is similar in content and design to several other Scandinavian instruments: the Copenhagen Psychosocial Questionnaire (CPQ) (Kristensen et al., 2005; Pejtersen et al., 2010), the General Nordic Questionnaire for psychological and social factors at work (Dallner, 2000) and the Stress Profile (Setterlind & Larsson, 1995). Like the latter, PULS HRP is a commercial product, whereas the two other questionnaires were developed by governmental bodies, and are available in the public domain and consequently free to use.

PULS HRP has been widely used in Denmark since the late 1990s, and validity tests include a criterion validation study with the Stress Profile (Jensen, 1997). The questionnaire consists of 107 questions that load onto 32 primary variables and four higher-order (grouping) variables. The grouping variables are: 1) Top management, the organisation and its culture; 2) social relations and support from colleagues; 3) supervision and support from immediate management; and 4) intrinsic job characteristics. A complete list of the 32 primary variables can be found in appendix 1. The PULS HRP contains a further 39 primary variables contained within six higher-order secondary variables. These contain topics about the physical work environment, life events, coping behaviours, subjective wellbeing, core self-beliefs, health and lifestyle behaviours, and stress reactions.

I considered using the CPQ, since it is the most widely-used approach and has been shown to have sound psychometric properties across countries and sectors (Pejtersen et al., 2010). Moreover, the questionnaire contains nuanced and theory-

driven questions regarding job design that ties into a long research tradition where hazards in the PWE are identified by asking respondents about their perceptions, attitudes or descriptions of a specific aspect of their job. The PULS HRP does not contain any attitudinal measures but is otherwise very similar to the CPQ in its coverage and approach to mapping important areas within the PWE. As Kristensen (2010) has pointed out, a questionnaire used for this purpose—like the CPQ—is ‘more than a questionnaire’, in that it provides a framework that people use to understand a topic like the PWE and has the potential to influence the general discourse surrounding a topic, as well as affect policy.

However, compared to the CPQ, PULS HRP is characterised by a higher level of granularity as well as containing common frameworks for managerial skills and co-worker relations. An example of this is the difference between a global scale concerning social support in the work group and a conceptual framework with several dimensions concerned with the social relations between co-workers. The PULS HRP is likely to provide a stronger support scaffold for anyone who wants to understand the processes underlying social support in the work group. These characteristics made the questionnaire particularly well-suited for the present study, as its ability to address the processes underpinning the PWE was thought to be vital to mobilising change efforts.

Moreover, the Copenhagen Psychosocial Questionnaire has several problems associated with it, as it contains some items that do not adhere to a distinction between a measure of job attitudes and evaluations or descriptions of the psychosocial work environment. Instead, the PULS HRP requires respondents to evaluate or describe an aspect of their job: ‘How often do you not have time to complete all your work tasks?’ This is in line with the tradition of assessing hazards in the work environment found in most PWE research. Thus questions that do not request that respondents evaluate how it relates to personal values or preferences are not effective when describing a job attitude (Judge & Kammeyer-Mueller, 2012).

Furthermore, questions in the Copenhagen Psychosocial Questionnaire regarding the relationships among co-workers and management are more global and evaluative and contain an element of appraisal or evaluation of the object concerning personal preferences or values. For example: ‘To what extent would you say that your immediate superior gives high priority to job satisfaction?’ This invites global evaluations of the manager and is thus similar to the definition of a job attitude, requiring respondents to evaluate particular aspects of their job with some degree of favour or disfavour. As the present study sought to investigate how participants’ perception of the various psychosocial job factors fluctuated over time

and space, measures needed to be as free from the attitudinal evaluative element as possible.

It was critical that the questionnaire data expressed experiences rather than attitudes. This was because a requisite of the survey feedback method is that participants engage in a nuanced interpretation of data, consisting of aggregated data representing the work groups' experiences as a whole. Henceforth, the questionnaire instrument needed to consist of experiential and descriptive elements rather than attitudinal measures. The items in PULS HRP concern employees' experiences of the work environment, the job and workplace relations. To the extent that the items contain a judgement related to the respondents' standards or preferences, this connects with a specific behavioural element or aspect of the job.

A further practical reason for the use of the tool was that I had access to in-depth psychometric data on the scales through a database containing over 13,000 completed questionnaires. This meant that it would be possible to perform an analysis of fit for the scales as they were deployed in the QUEST and ESM conditions in the research design. This was a crucial element that would allow me to answer the research question. A complete overview of the questions, scales and answer options in PULS HRP can be found in appendix J.

3.4.3 Choosing a measure for job satisfaction

Job satisfaction was included in the study as an attitudinal measure, acting as a 'quasi-proxy' measure for the PWE. Following the advice of Shadish et al. (2002), a proxy measure can be used in lieu of a pre-test when such is not available. Although the job satisfaction scale was deployed as part of the survey conditions and thus not a pre-test, it is a global attitude not targeted in the feedback conferences, nor was the data made available to the participants.

Overall job satisfaction was measured using the abridged job in general (AJIG) scale (Russell et al., 2004). The scale addresses overall job satisfaction and stresses its affective component. The scale has been shown to have a high internal consistency (van Saane, 2003) and was short enough to lend itself to the ESM setup. Since no official scale translation of the scale exists in Danish, I translated it myself and a second reviewer performed the reverse-translation into English. All items were exact matches. The English language version of the scale has eight items, one of which turned out to be problematic.

I trialled a draft version of the questionnaire on a sample of four participants in job functions similar to the participants in the study. The feedback from the participants indicated that one item in the Danish questionnaire ('My job is

disagreeable') was not meaningful. I was not able to produce a translation of the item that had the same meaning as the English version, while at the same time being different from the item 'My job is poor'. Since participation rates in experience sampling studies to a large extent hinge on participants finding the method meaningful and something that they can adapt to their daily work, I decided that the item should be left out, leaving a scale with seven items.

The original version of the AJIG uses a binary scale of 'Yes'/'No'. For the present study, I decided to use a five-point Likert scale. This choice was both methodological and pragmatic. Methodologically, it was important that the batch of questions that the participants were to answer at each MOCC were perceived as relatively uniform. This would reduce the likeliness that the participants would discern the variation between the different scales, something that would have been more obvious if the response format changed across scales.

Regarding the pragmatic element, it was important to minimise the friction that inevitably follows from being interrupted several times during the workday to provide answers about experiences and emotional states. One way to ensure this was to create a user interface that was as clear and consistent as possible, allowing the participants to focus on the question and spend fewer cognitive resources on adapting to the answer format. In the feedback from the pilot study involving four people, the predictable and uniform design of the questions was shown to be important in how the method fit into their daily routines. The participants in the pilot study reported that after the first couple of days they had begun to anticipate the question order and were familiar with both the answer format and the length of the questionnaire. This meant that the initial friction associated with the method and the technology was reduced.

3.4.4 Job satisfaction

Job satisfaction has been conceptualised from both a 'facet' approach and a 'global' approach. Both definitions contain variations related to the instruments used to measure the construct. The construct is henceforth perceived as deceptively complex for something that is part of everyday language (Judge & Kammeyer-Mueller, 2012). Nevertheless, it has much appeal, as is signified by the prevalent practice of measuring job satisfaction using a single-item questionnaire.

While the debate surrounding construct validity (Cronbach & Meehl, 1955) goes beyond the scope of the present thesis, it is relevant to note that there are circumstances where situational constraints prevent the use of scales (Wanous, Reichers, & Hudy, 1997) and the reliability of the global single-item measures of job

satisfaction is perceived as low (Loo & Kelts, 1998). Nevertheless, Roznowski and Hulin (1992, cited in Weiss, 2002) argue that an assessment of an employee's job satisfaction is the most useful piece of information an organisation can have for predicting outcomes of relevance to the functioning of that organisation. Suggesting they perceive a measure of job satisfaction is useful to understand the impact of the job on the employee.

While the causality between job satisfaction and performance does exist by a meta-review (Fisher, 2003; Judge, Thoresen, Bono, & Patton, 2001) and has widespread acceptance among lay people (Fisher, 2003), the same literature suggest that causality opposes the 'happy worker hypothesis'. In other words, providing the circumstances (structure, guidance, etc.) for employees to be productive and recognise their contribution raises their job satisfaction. It thus seems as if the construct of job satisfaction is an emergent property of the job. The direction of this causal relationship suggests that to improve productivity the focus needs to be improving aspects of the psychosocial work environment rather than addressing the attitude of job satisfaction.

Hence, job satisfaction was included in the study design for two reasons. Firstly, as I discuss in section 3.5.4, I adopted an item sampling approach, which meant that I needed one measure that was present throughout the 36 measurement occasions (MOCCs). The nature of the sampling procedure, concerning the PWE questionnaire, meant that the measures of the various domains of the PWE would not be uninterrupted time-series. This would prevent visibility of the fluctuations of the evaluations made by the participants at each of the 36 MOCCs across the survey period of 12 days. In the case of a PWE scale with four questions, one would only find questions regarding that scale in four out of the 36 MOCCs (1/9 of the MOCCs). Therefore, I included the measure 'impact on the employee', that was consistent throughout MOCCs.

Secondly, I wanted to complement the domain-specific evaluative and experiential measures of the PWE scales with a global attitude measure that contained an affective focus. I decided that an appropriate scale would be one that was concerned with global job satisfaction and focused predominantly on the affective aspect. A systematic review by (van Saane, 2003) identified 29 instruments, of which seven satisfied the criteria for adequate psychometric properties. These fell into three categories: 1) multidimensional instruments for jobs in general; 2) multidimensional instruments for specific jobs; and 3) global multi-item job satisfaction instruments. As the purpose of the present research was to identify a reliable measure of global job satisfaction, I decided to include the *job in general* (JIG)

scale, which had the highest internal reliability and convergent validity of the reviewed scales. Appendix K contains the job satisfaction questionnaire including the instructions shown to the participants.

3.4.5 Analysis of survey responses

PWE scales. The initial intention was to examine the changes between T1 and T2 using a multi-level model (Sliwinski, Almeida, Smyth, & Stawski, 2009), taking into account the nested design where MOCCs are nested within participants which are nested within work groups which are again nested within a treatment condition. However, the low completion rates of MOCCs in the ESM condition resulted in a high level of absent data. This meant that I was not able to specify a model, using a confirmatory factor analysis, that resembled the structure of the PWE scales in the instrument.

I therefore adopted a data reduction approach to arrive at a smaller number of factors which would allow me to compare the work groups within the two experimental conditions at T1 and T2. The first step was to perform an exploratory factor analysis (EFA) on the whole data set (ESM and QUEST) using the 'psych' package in R (Revelle, 2012) with oblimin rotation. The pattern matrix from the EFA was used to specify a model with four factors which largely resembled the existing categorising factors of the PWE scales (top management and organisation, co-worker relations, immediate manager and intrinsic job factors). A CFA was conducted on the proposed model using the CFA function in the 'lavaan package' in R (Rosseel, 2011) specifying four factors (D1, D2, D3, D4). Appendix A contains the specification of factors.

The model yielded a $\chi^2=8395.486$; $df=3648$ ($N=358$); $TLI=.643$; $CFI=.651$; $SRMR=.099$; and $RMSEA=.06$. Using the cut-off suggested by Marsh, Hau and Wen (2004), the $RMSEA=0.06$ (90% CI .059–.062); $SRMR (\leq 0.08)$; $CFI (\geq 0.95)$; and $TLI (\geq 0.95)$ indicated a less than ideal fit of the model. However, the model was within the suggested cut-off for $RMSEA \leq 0.06$ (90% CI ≤ 0.06) as well as the chi-square/df ratio ≤ 3 rule. Despite the less than ideal fit, I decided to retain the model as it represented the best way to retain common factors across time for the work groups.

The U-index. Following the procedure outlined by Kahneman and Krueger (2006), I calculated the unpleasant-index (U-index) for all MOCCs for each participant. Like Kahneman and Krueger, I classified a MOCC as *unpleasant* if the most intense feeling at that MOCC was negative, ignoring occasions where there was a tie between negative (stressed, worried) and positive feelings (relaxed, content).

Kahneman and Krueger highlight that one benefit of the U-index is that it relies on the ordinal ranking of participant feelings within each MOCC. It thus circumvents the problem that various people might use the scale answer options differently.

The purpose of developing the U-index score was to investigate any changes between T1 and T2. Presumably, an improvement in the PWE would manifest itself at the individual level as both higher job satisfaction and a lower proportion of time where the dominant emotional state is negative. I classified a measurement occasion as unpleasant if the most intense feeling reported appeared in a negative dimension. This method differs from comparing scores on Likert scales, where response categories are tied to words assumed to have a shared meaning across respondents. In the U-index, the relative difference between scales is of interest. Hence the purpose is to identify the highest rating on any of the negative effect scales and to determine whether it is greater than the maximum rating within the positive affect dimensions. It is thus a question of ordinal ranking rather than the use of a scale measure.

3.4.6 Feedback conferences

There are numerous approaches to the survey feedback method. Edgar Schein's process consultation (1995) method, for example, relies on a highly-skilled process consultant and differs from a survey feedback process in which the immediate manager facilitates a dialogue with the employees about the survey data (Jöns, 2000). The key difference is perceived as a matter of construct validity as discussed in 3.2.2.

Generally, feedback conferences consist of participants meeting to discuss the aggregated results of a survey they have completed. It is a key part of the survey feedback intervention, but rarely is it very well-described. It would appear, moreover, that studies' specific implementations of the method differ substantially. In general, it focuses on the client defining the problems to be addressed, as well as deciding on possible solutions. It thus mirrors many clinical psychological schools (see for example Beck, 1979; Watzlawick, Weakland, & Fisch, 1974). This approach brings with it the danger that the intervention becomes 'based on superficial data gathered from reluctant "subjects"' (Schein, 1995, p. 18). However, theories from action research and action science help to describe how some implementations can be driven by a client system (Argyris & Schon, 1989).

The earliest recorded survey feedback intervention was a situated and 'expert free' method to aid organisational development (Mann, 1957). Mann compares the method to a non-situated and expert-driven 'classroom human relations training' of

managers. The survey feedback intervention in Mann's study did not rely on an external change agent but instead placed the immediate manager in the role of facilitator of the feedback meetings with the employees. The manager was not responsible for the survey feedback process alone, as he received extensive guidance from an outside expert both before and after the feedback meetings. Further, the intervention took place within an organisational environment where all managers had received considerable training in subjects that allowed them to facilitate the feedback conferences effectively.

Since the 1960s, practitioners and researchers have applied both the manager and the expert-led approach to survey feedback. Overall, the manager-led survey feedback has performed better in both mobilising change efforts and improving the participants' experience of the process. However, it is unclear what processes within the survey feedback approach contribute to its effectiveness. Within the current research, a primary concern was to adopt an approach which would allow for the consistency of the treatments within and across experimental conditions. Thus, I decided to implement a survey feedback process where I would act as the process consultant (facilitator). At the same time, I sought to employ a process that involved the management team as much as possible in providing guidance and input through the feedback conferences.

Role of facilitator. I approached the feedback conferences in a similar way to that described in Schein (1995), where a clinical inquiry or process consultation approach was adopted in the feedback conferences. The process consultation approach seeks to stimulate real openness on the part of the client system to reveal a set of variables and phenomena that will enable action (ibid.). Yet space does not allow for a full theoretical description of the process consultation.

It is notoriously difficult for people to account for their theory-in-use, which means that my approach in the feedback sessions might have differed from my intentions (Argyris, 1983). However, as a guide I used Argyris 'ladder of inference' (1985), which overlaps with Schein's process consultation and clinical inquiry approach, in order to move between the levels of observable (raw) data, meanings imposed by the participants—including their theories-in-use—and meanings I imposed. I discerned between the levels of inference, which was vital to the feedback conferences, where the raw data is both the quantitative data from the surveys and the actions of the participants in the feedback conferences.

Schein's overview of the different classes of intervention strategies used in process consultation provided a good summary of the lines of inquiry. These are: 1) pure inquiry, which seeks to let participants tell a story in their own way with

minimal interference; 2) diagnostic inquiry, where the focus is to guide the client's thought process and inquire further about feelings and reactions and, in doing so, encourage the client to think about reasons and causal linkages; 3) action-oriented inquiry, where the facilitator guides the thought process towards future action; and 4) confrontational inquiry, where the facilitator interferes with the content of the client's thoughts by introducing new concepts that the client may never before have considered. There is a clear link between this version of process consultation and a line of inquiry that therapists use within a cognitive behavioural therapy paradigm (Beck, 1979).

The role of the manager. The literature suggests there are positive effects associated with management's involvement, as discussed in section 2.2.4. These effects are twofold. First, they retain the ethos of the early survey feedback interventions, serving as a forum for employees in their work groups to interpret data, share knowledge and develop actions for improvement. Furthermore, they adhere to the principles of the OD tradition, where there is a consensus that interventions are collaborations between management and employees, but that these are initiated and led by top management (French & Bell, 1999). These efforts are considered to require long-term organisational support and commitment.

Ensuring a long-term commitment means anchoring the change initiative within the organisational decision structure. To achieve this aim, I gave managers the responsibility for ensuring that the action plans were prepared in collaboration with employees, as a concrete outcome from the feedback conferences. Moreover, I also asked members of the management at the level above immediate managers (top-management) to participate in the feedback conferences. As the work group answered questions related to this level and above, I saw it as an opportunity to involve managers in the process as well as facilitating the knowledge flow between management levels.

The managers were also asked to take an inquisitive role in the feedback sessions. They were briefed before the feedback conferences, where they were told that they should ask probing questions and follow up on what the employees chose to share. They were also asked to avoid giving elaborate explanations for the status quo as this would risk the feedback session turning into a management-centred feeding back of information. Instead, their role was to listen to employees' views on the current state of affairs and to ask the members of the work group to elaborate on a theme if certain aspects were unclear.

Conference length. The feedback conferences were scheduled for a length of two

hours and fifteen minutes, with a ten-minute break halfway through. In practice, I found that it was not always possible to adhere to this design. In two of the units, coordination issues with the managers meant that it was not possible to set aside two-and-a-half hours. In one case, I accepted the proposal of a manager who asked for the duration to be reduced to one-and-a-half hours since the group was small, consisting of only six employees. In the other case, the conference was reduced to two hours. I held a short 45-minute meeting with the immediate and top managers immediately after each feedback conference. The purpose was to assist the management team in reflecting on the themes that were brought up in the conference and to answer any questions they might have about the method or actions to take.

3.4.7 Analysis of feedback conferences

All feedback conferences at T1 and T2 were recorded. I used two digital recorders, placing each recorder in a different part of the room where the meeting took place. As some of the units had up to 39 members, and the feedback conferences took place in different meeting rooms with unfamiliar acoustics, it was a concern that all participants would be audible on the recordings. It also provided redundancy in case of equipment malfunction.

All feedback conferences took place in Danish and were transcribed verbatim. The total word count for all feedback conferences (T1 and T2) was 281,933 words, which corresponds to 720 single-spaced pages of transcriptions. The average word count for the T1 conferences was 16,397 (SD=4,115). In comparison, the word count for T2 was lower (M=11,796; SD=3,326). The QUEST and ESM conditions differed with regard to the length of feedback conferences. At T1, the ESM groups averaged 17,035 words (SD=4,860), compared to 15,440 words (SD=2,691) for the QUEST groups. This difference was reversed at T2: M=11,328 (SD=3,694) for the ESM groups and M=12,499 (SD=3,060) for the groups in the QUEST condition. Appendix I contains a table illustrating the word counts and lengths of feedback conferences.

I used a thematic approach to analyse the data from the feedback conferences. The objective was to identify the main themes that the participants in the units discussed, and subsequently to be able to 'pin' a given theme or topic to a structure that would allow me to see if a theme identified at T1 could be retraced at T2. Tracking a theme over time was central to the main research question concerning the mobilising effect of the survey feedback method in the two guises. Although I expected to find common themes across the different groups, it was a particular priority to capture the specifics of how the theme played out in each. For this

purpose, I used a two-step strategy for the coding of the data, a thematic analysis of the whole data set and, subsequently, a detailed group-by-group description of the main themes for each of the ten units.

The vertical view—identifying common themes across the data set. I carried out the initial thematic analysis using the NVivo software package ("NVivo 12," 2019). A key feature of the NVivo software is the ability to create hierarchies of codes (nodes) within a text. I used the overall organising categories of the PWE instrument to create a top-level parent node that would contain the 'child' nodes. These were created as themes were discovered and assigned to sections of the text. The organising codes included: organisational level/top management, co-worker relations, immediate manager and intrinsic job factors. Having a preliminary overarching structure and not having to resolve initial overlaps in the first coding session allowed me to move through the vast amount of text at a quick pace, documenting and placing each theme in an 'organising bucket'. Initially, that meant accepting that the themes occasionally were delineated by 'fuzzy' boundaries, to which I later returned.

The coding frame was developed through a series of iterative steps where each new theme encountered was assigned a node that was defined in the 'description field' in NVivo. As the coding progressed and similar themes surfaced, they were assigned to existing codes if they complied with the existing definition. In cases where the theme was judged to be similar but different from an existing node, a choice was made to either create a new node or to add to the definition of the existing node. In this process, I erred on the side of caution and created a new node when there was a risk that assigning a new theme to an existing node would erode the precision of the theme already captured.

In the first coding of the transcripts, I prioritised retaining the granularity of the data over a shorter more manageable coding frame. Once all the text was coded using this approach, I went over all the nodes for each of the transcripts and carefully considered those that covered similar themes. I then assessed which ones could be merged and still retain a coherent and informative thematic structure. In the cases where nodes were similar but conveyed important differences in meaning, I chose to keep both. As the coding progressed, I decided to exclude valence from the thematic codes, as the turn-taking and multiple perspectives made it difficult to place specific utterances. As a consequence, I decided to include the valence related to a theme in the description within the summaries of the groups. Nevertheless, some of the codes used implicitly had an element of valence in the description. The final coding frame contained nodes in a structure of two levels. The complete

unabbreviated coding frame for the thematic analysis can be found in appendix D.

Coding for sensemaking. Alongside the thematic coding process described above, I coded the transcripts for markers at the process level. The intention was to identify evidence of *sensemaking* in the feedback conferences. As outlined in section 2.7, I used the concept of sensemaking to investigate how the survey feedback method mobilises action. Along with Weick et al. (2005), I considered sensemaking to be a predominantly social process characterised by members of a community of practice engaging in a dialogue to make sense of complex situations in a way that enables them to act.

In coding the transcription for occurrences of sensemaking, I applied the view that sensemaking happens through a specific process of creation, interpretation and enactment, as outlined by Sandberg and Tsoukas (2015). These three phases should not be seen as clearly distinct categories to which a given action can be assigned, nor should the phases be seen as necessarily following a linear progression. Instead, the sensemaking process will likely appear in a cyclical manner. It is thus probable that one will see loops where enactment leads to the creation of a topic, which is then elaborated in a way that is characteristic of the interpretation phase. It is typical of the sensemaking process that the participants move from having an incomplete understanding of a situation or a topic, to enhancing that understanding and, finally, to then move towards outlining possibilities for actions (Sandberg & Tsoukas, 2015).

In the context of the survey feedback conference, it was relevant to use the description of sensemaking offered by Rutledge (2009) in relation to meetings and other communicative exchanges between members of a community of practice. In the paper, which is directed at OD practitioners, the author outlines how the communicative exchange between group members often starts with someone offering a perspective (frame) on a situation or topic. This perspective is most likely to be shared in a trying or tentative manner rather than as a definitive description, and the act of proposing this frame often invites other group members to comment on, complete or extend it. This is first step of bracketing part of a situation or a topic, similar to what Sandberg and Tsoukas (2015) classify as *noticing*.

Following the initial proposal, other members of the group will elaborate or comment on it, resulting in a dialogue where others in the group will often contribute by adding or subtracting to the construct that is being built, resulting in the field or problem being enriched. As a result of this process of elaboration, the problem discussed will often transform as a result of the dialogue. This is either because the exchange between members has brought with it a deeper

understanding of what was hitherto an issue or problem, or that a vague and complex issue is clarified or simplified. In both cases, the ambiguity has been one of the obstacles that has prevented the group from moving forward towards action. This is similar to what Sandberg and Tsoukas (2015) term *interpretation*.

Although an instance of sensemaking does not necessarily mean that people will develop clear solutions to the issues raised or prepare certain actions, it contains an element of *enactment*. Enactment should be understood as the propensity for action—either by applying the ‘frame’ which has been created to understand other related issues or by engaging in entertaining the possible options and related consequences of acting using the frame. In some instances, the sensemaking process leads to the outlining of concrete actions.

The rather complex nature of the sensemaking perspective as well as the nature of the feedback conferences—characterised by dealing with more than one topic asynchronously—meant that they were difficult to identify in the transcriptions. For the analysis to be valid, it was important that instances of sensemaking be distinguished from occurrences of sole *interpretations* or *noticing*. As an aid in the process, I developed a coding scheme that alerted me to characteristics of sensemaking, which in turn allowed me to break the communicative exchange into chunks. This made it possible to follow the dialogue about a topic over the course of the whole feedback conference, such that a topic raised at one point, but which did not initially get much uptake and then was brought up again and elaborated at a later stage, could be analysed as a whole.

Ascertaining the occurrence of sensemaking thus required particular attention to the communicative interactions between participants. I created three nodes related to a *process*, which might qualify for the label ‘sensemaking’. As the purpose of the coding in relation to identifying sensemaking first of all was to break the exchanges in the feedback conferences down into smaller but still meaningful chunks, I decided not to adhere strictly to the process definition discussed above. Rather, I used broader and more encompassing codes designed to aid my understanding of the dialogue between participants. The nodes created were ‘employee reflection’, ‘problem formulation’ and ‘employee solution’. In addition to these, I created two additional nodes to include the process level for management’s involvement: ‘management reflection’ and ‘management solution’. The code denoting ‘reflection’ was used in the cases where participants went beyond stating an issue but included references to their own or a collective ‘frame’ when stating an observation related to the PWE. In doing so, the participant would entertain the possibility that their perception was influenced by the particular frame used to look at the issue.

I used the code 'problem formulation' for passages where participants did not merely state a view or an issue to be considered, but either summarised several perspectives in a novel conclusion or introduced a new frame on an issue. In both cases, the problem formulation contained an invitation for others to comment on the perspective presented. Finally, the 'employee solution' code was used to denote passages where employees suggested a particular action as a consequence of the communicative exchange within the group. After having applied the three-process codes to all the transcripts, I went over the coding looking for a combination of the three codes as flags indicating if sensemaking took place.

In each instance, I sought the presence of each of the three codes in relation to a given topic before applying a judgement as to whether *noticing*, *interpretation* and *enactment* were indeed present in the communicative exchange. I found that the 'employee reflection' code was present in all the instances where I subsequently concluded that sensemaking had taken place. The same was not the case for the codes 'problem formulation' and 'employee solution' as there were instances where an issue had been bracketed and raised (*noticed*) through the employees interpreting survey data but without it having the character of a clear formulation of an issue to be approached. The coding scheme in these cases thus initially missed the *noticing* aspect of the sensemaking process. However, as I went through all three codes in relation to the topics discussed, I was able to verify whether the particular instance did in fact contain the three sensemaking characteristics of *noticing*, *interpretation* and *enactment* at close scrutiny.

In total, about one-third of the occasions where I applied the code 'employee reflection' formed part of exchanges where I ended up using the 'sensemaking' code for the entire exchange. This was due to many exchanges containing the core characteristic of sensemaking, where an employee offers a reflection on a situation or state of affairs, which causes others to offer their perspectives and leads them to modify their description. Yet, in some of these cases of participants adding to, or subtracting from, a shared representation of an issue, the clarity increased but the propensity for action did not seem to change. Thus, the enactment aspect of sensemaking seemed to be missing and the mobilising potential of the exchange diminished.

The horizontal view—following a theme over time. I created a case description for each of the ten work groups based on the thematic analysis and the transcripts. I focused on documenting the main themes in a description that was rich enough for an understanding of the context of the theme and the main challenges that the work group found around it. This would allow me to track the theme from T1 to T2

looking for evidence of the theme at both points and thereby document any changes.

For each group I created a summary structure that allowed me to trace a theme from the feedback conference at T1 to the measurement occasion at T2. The first step in this process was to create a summary in English of both the T1 and the T2 feedback conferences for each of the work groups. The summaries were carried out for all the feedback conferences at T1 and then for the conferences at T2. This was done to minimise the risk of a spill-over effect, which could prevent me from treating the two data sets as separate.

The summaries followed the transcripts in chronological order and each main theme was documented as a descriptive paragraph, each of which were labelled with a '¶' followed by a running number. The first step in the process of devising a summary allowed me to document the themes heeded by the participants in the feedback conferences and the extent to which solutions were generated as part of the dialogue.

In the next step, I created a separate section where I noted all themes around which I found evidence of sensemaking (at T1 and T2) and provided a description of the sensemaking process as evidence in the transcripts, prefaced with a '§' followed by a running number. This led to a complete summary of both themes and instances of sensemaking, which enabled me to track a theme from T1 to T2 and match the theme with the occurrences of sensemaking. The final step in the summary was to include the main themes and to highlight the concrete actions noted in the action plans. I used a '#' followed by a running number as a tag for the concrete actions noted in the action plans. The summaries of all the work groups ran to 41,179 words with a coding structure outlined in table 3.4 below.

Table 3.4 Categories used to summarise themes from feedback conferences

Category	Content in table rows
Theme at T1	¶<description of theme>
Sensemaking (T1)	§<sensemaking description in summary>
Theme at T2	¶<paragraph number in summary at T2>
Sensemaking (T2)	§<sensemaking description in summary>
Action plan	#<summary of the concrete action noted in the action plan>

The summaries were too unwieldy to allow me to perform an analysis of the mobilising effects in a way that was transparent at every step. As a consequence, I performed yet another data reduction step by creating a summary table for each work group. The summary table matched similar themes at T1 and T2 and included

the relevant PWE scale next to each theme including the changes in responses from T1 to T2. The summary table 3.5 below contains the structure of the table, which can be found in full in appendix B.

Table 3.5 Categories used for summary tables for each work group

Category	Content in table rows
Theme	<description of theme as it appeared at T1>
Discussed at T1	¶<paragraph number in summary at T1>
Sensemaking (T1)	§<paragraph with sensemaking description in summary>
Sensemaking (T2)	§<paragraph with sensemaking description in summary>
Comment at T2	¶<paragraph number and short summary of theme as it was discussed at T2>
Action plan	#<summary of the concrete action noted in the action plan>
Survey scale	<the PWE scale relevant to the theme>
Change	<difference in PWE scale score T1-T2 >

The data reduction strategy employed achieved a balance between adequate granularity and the ability to gain an overview of the data set. At the same time, it allowed me to ‘pin’ a theme mentioned at T1 and follow it over time to see how it appeared at T2 while identifying indications of its mobilising potential along the way. As figure 3.4 shows, the data reduction from steps 1–4 represents a data reduction of 1/26. Moreover, the stepwise reduction approach allowed me to ‘go up one level’ and consult a richer and more granular data set in the cases where an inference was unclear. This had a positive impact on the quality of the analysis as well as providing transparency in the analysis process.

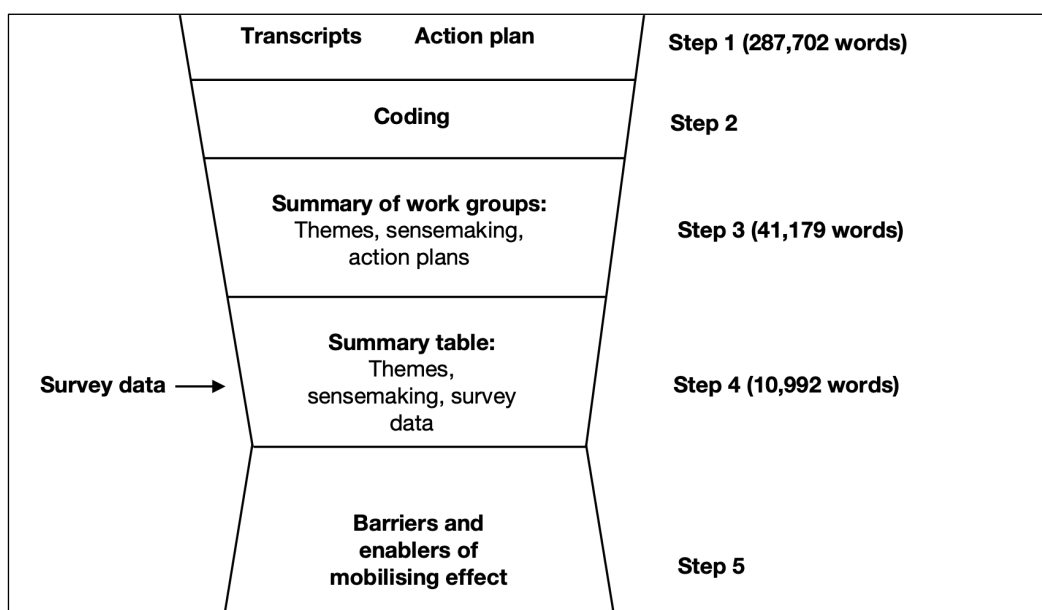


Figure 3.4 Data reduction procedure

3.4.8 Design and analysis of action plans

Danish legislation requires organisations to monitor and document the PWE in part by the preparation of action plans for organisational units. It was therefore natural to include the action plans in the study design. Moreover, the literature suggests that the mobilising effect of the survey feedback method is enhanced by the inclusion of action plans.

The action plans were prepared collaboratively by the work group and management team after the feedback conference at T1. The template all managers were given before the feedback conference at T1 was a Microsoft Word template with pre-specified but expandable text fields. The template retained the main 'management and organisation; co-worker relations; immediate manager; intrinsic job factors' sequence of the grouping variables in the PWE questionnaire. For each grouping variable, the template consisted of a section where the work group could note the main themes and points discussed in the feedback conference. Each of these four sections contained a separate section where the manager was asked to note if there were *concrete actions* agreed upon in the feedback session or afterwards, and if so, what was to be done and by whom. The managers were asked to return the completed action plan within two weeks.

I received all action plans in a soft copy as either a Microsoft Word document or as a PDF file. I imported the action plans into the NVivo application and used the same coding frame I developed for the feedback conferences to capture the themes, with the omission of the codes related to the process level. To document the number and nature of concrete actions agreed upon, I created separate codes for 'management action', 'employee action' and 'joint action'. I carried out a thematic analysis of the action plans using a similar approach to the one I used for the feedback conferences. Moreover, I conducted a content analysis based on the number of concrete actions noted for each of the three 'action codes' with each work group. The coding frame can be found in appendix D.

The process around the action plans was left open to enable the units to decide how to handle their approach appropriately. The brief was that the immediate manager should be responsible for making sure that the action plan was prepared within two weeks of the feedback conferences and that it should be the result of a collective effort within the work group. To make sure that there was a record of the meeting, the immediate manager was tasked with taking minutes. Although it was up to the work group to decide how they wanted to prepare the document in practice, it was stressed that it was to be a collaborative document that was shared within the work group before its official submission as an action plan.

3.4.9 *A framework for assessing the mobilising effect of survey feedback*

When choosing a design for the present study, I wanted to address some of the problems associated with intervention studies, which focus on changes in outcome variables as evidence of an intervention effect. This was achieved by investigating the micro-mediating process of ‘sensemaking’ thought to be associated with the effect of the survey feedback method, as well as by including the multiple data sources of survey responses, action plans and the observations from the feedback conferences. The amalgamation of data sources was done by using the summary table, since it included all the data collected.

Changes in themes observed at the feedback conferences were inferred either from the participants mentioning a change at T2 or from the fact that a topic perceived as problematic at T1 was no longer expressed at T2. I only coded the latter as a change if the participants mentioned the issue in a way that was different from T1, or if they dismissed it as an issue at the T2 feedback conference. In cases where an issue flagged as problematic at T1 was not mentioned at T2, I did not code it as an instance of change.

Changes in survey responses from T1 to T2 were identified by using changes in averages, as well as in the dispersion of scores. Although I applied a statistical analysis (discussed in section 3.4), I went beyond looking at the statistical significance of the effect size, since some of the work groups were very small. The research design did therefore not have the statistical power to detect changes within all work groups. Nevertheless, the changes in the averages of survey responses as well as in their dispersion would—in combination with the other data sources—provide an indication of change. I did not apply a formal criterion for what constituted a ‘survey change score’ but examined each change, considering a change in the average response on a given scale as well as the dispersion of scores. In several work groups, extreme responses on a given scale were an indication that some of the members experienced a problematic issue, even if this perception was not shared by everyone in the group. Hence, a change in the number of such outliers or extreme scores could be taken to be an indication of change. The survey responses were thus a supplement to the qualitative analysis of observed change in the feedback conferences.

By using the two change scores as well as information from the summary tables outlined in section 3.4.7, I developed a framework to assess the mobilising effect of the interventions. I used a binary outcome format for each of the categories indicating the presence or absence of the focal variables and arrived at six sources of data which are presented in table 3.6 below.

Table 3.6 Data sources for assessing mobilising effect

T1			T2		
Theme/issue raised (T1)	Sensemaking	Action plans	Changes feedback conference	Sensemaking	Changes survey responses
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

In the process of identifying the mobilising effect of the survey feedback intervention applied either in an ESM or a questionnaire setup, I distinguished between the observed mobilising potential and the observed mobilising effect. This distinction is important since the 'effect' of the survey intervention depends on several factors within and around the work group where the intervention takes place. The organisational context, the external environment and the boundaries between them and the work group all play a vital part in the functioning of a work group (Sundstrom, De Meuse, & Futrell, 1990). These factors will both act as enablers and inhibitors of change efforts, and some of the structures addressed as a result of the intervention might not be immediately changeable. Indeed, changing the structures might be best understood as instances of structuration, where change is a complex interplay between structure and actors that form new patterns over time (Barley, 1986; Orlikowski, 1996). It is thus possible that the method mobilises a change effort, but that the effort does not result in a change.

The research design allows for inferring the mobilising potential of the intervention by looking at the extent to which the participants brought forth an issue, engaged in a dialogue that included sensemaking activities while discussing the issue and, as a result, engaged in intended actions. These actions, as outlined in the action plan, might have been seen by the work group and the management as likely to bring about the desired change. Nevertheless, they could have been hampered by a number of structural constraints. Moreover, it may have been the case that the action plan was never implemented, which would detract from the potential outlined at the feedback conference. Hence, when estimating the mobilising effect of the survey feedback method, the goal was to obtain information about the barriers the change efforts encountered.

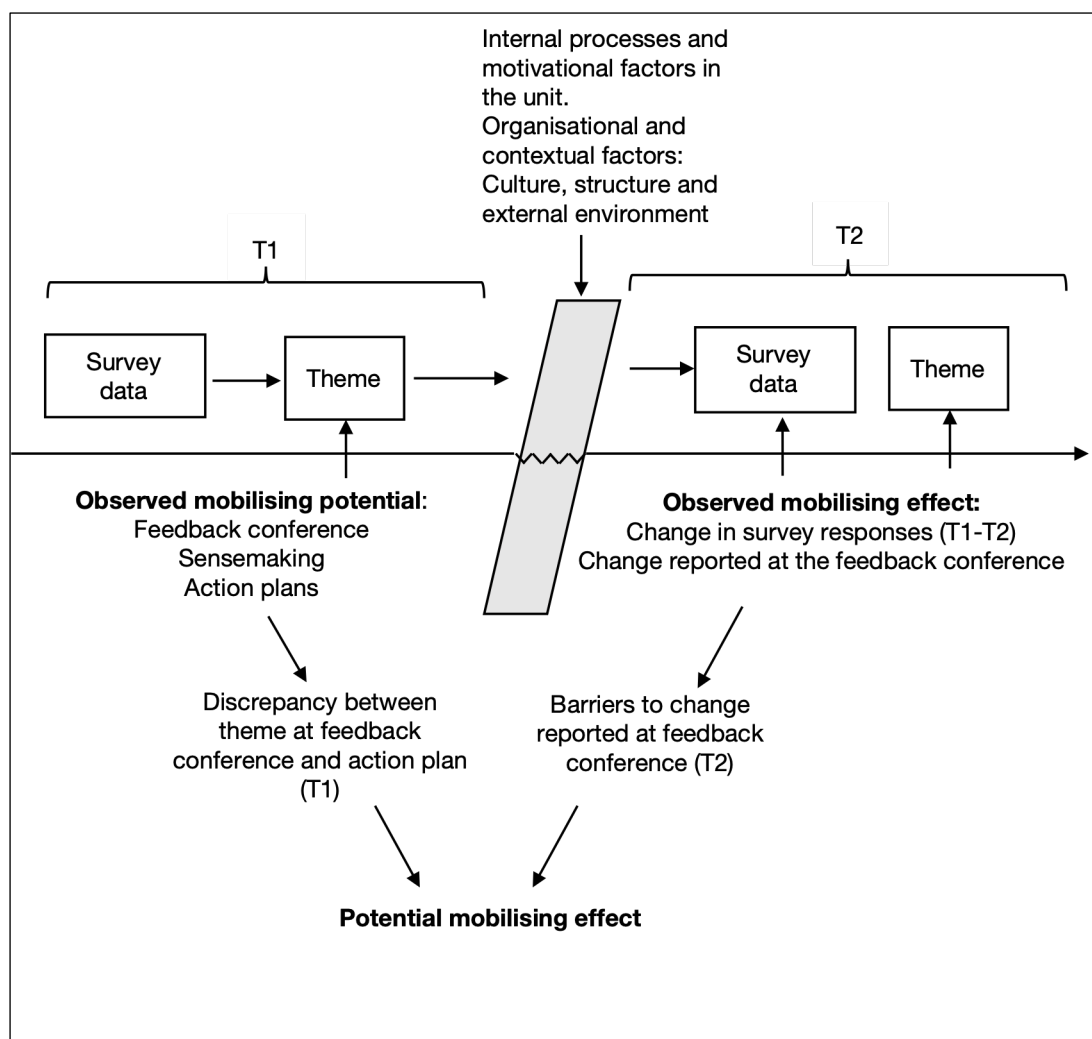


Figure 3.5 Mobilising potential and effect

Figure 3.5 contains a graphical representation of the difference between the *observed mobilising potential* at T1 and the *observed mobilising effect* at T2.

A framework for assessing the mobilising effect. To determine the mobilising effect of survey feedback method, I used the data points outlined in table 3.4 above and applied it to the framework outlined in table 3.6. For each theme identified within the work group, I created a binary code for the presence or absence of the two variables observed at T1 and two variables at T2. The T1 variables were the occurrence of sensemaking and the existence of concrete actions, which were both indicators of the mobilising potential associated with the way the theme was discussed. From the T2 data, I similarly coded for the absence or presence of a change observed in the theme in the feedback conferences and change in the survey responses related to the theme. The framework (table 3.6) thus contained four variables, each with a binary yes/no option yielding six possible combinations.

Table 3.7 Framework for determining mobilising effect

	T1		T2	
Theme/issue raised (T1)	Sensemaking	Action plans	Change feedback conference	Changes survey responses
	Yes/No	Yes/No	Yes/No	Yes/No

Inferring a potential mobilising effect was determined in two ways. First, by observation if participants at T1 introduced a theme, and the survey feedback intervention involved a discussion that showed evidence of sensemaking or resulted in a concrete action being noted in the action plan with direct relation to the theme discussed. Second, by observing a change in responses between T1 and T2 on the scales related to the theme or that the observations of the theme in the survey feedback conference showed signs of change.

From this framework, I created a weak and a strong version of the mobilising potential thesis. In the weak version, I would accept the presence of either of the variables (sensemaking or action plan), which would be taken to signify a mobilising potential at T1 and could be combined with either of the variables. This would indicate a mobilising effect at T2 (survey change or feedback conference change) supporting the notion of a potential mobilising effect. In the strong version of the thesis, an indication of a potential mobilising effect would only be inferred in the case where all four variables were present. As such, the weak thesis was: Sensemaking **or** Action plan **and** Survey change **or** Feedback conference change. While the strong thesis was: Sensemaking **and** Action plan **and** Survey change **and** Feedback conference change.

3.5 Development of the Experience Sampling Method

In this section, I describe the development of a specific version of the ESM to measure PWE and job satisfaction by using an approach where questions are sampled at each measurement occasion. I then provide the rationale for adopting the sampling approach. I conclude the chapter by outlining the particular implementation and the design of data feedback at the individual and work group levels.

3.5.1 *The rationale for sampling experiences and feeding back data*

Although the ESM was first proposed in the early 1980s (Larson & Csikszentmihalyi, 1983), it was the technological developments at the turn of the century that allowed for the wider adoption of the method (Hofmann & Patel, 2015). ESM projects that were both expensive to design and required customised equipment became cheaper, and researchers with limited technical expertise could design and launch ESM projects with ease. This led to a sharp increase in published research using intensive longitudinal methods as traditional questionnaires were replaced with ESM. Yet ESM has not enjoyed the same level of impact in the applied world of organisations (Beal, 2015).

Although the method shows promise in making it possible to study dynamic individual and social phenomena *in vivo*, it is also apparent that it has drawbacks in terms of the demands it places on participants' time and attention (Beal, 2015). One could argue, therefore, that where the friction related to ESM research was previously a burden that fell jointly on the researcher and the participants, it has today become primarily an issue for participants.⁹ One solution to this problem is to keep the MOCCs short. This means research constructs should be narrow in focus (Daniels, 2011; Shrout & Lane, 2012). While this meant ESM mitigated one of the key methodological problems, it also made it unsuitable to investigate broader constructs, like PWE in organisations, or phenomena where change takes place over a longer period of time (Beal, 2015).

It would appear that the ESM literature is biased in favour of concerns surrounding its ability to measure hedonic tone (Kahneman, 1999). Yet few studies have looked at how providing self-report data and receiving feedback regarding hedonic tone affect participants. Although two recent papers by Bakker, Burger, VanHaren, Oerlemans, and Veenhoven (2017) and Ludwigs et al. (2017) suggest that self-reporting and the subsequent receipt of feedback on one's level of subjective wellbeing (SWB) over time might lead to a higher level of reported SWB. It is possible that a similar effect of increased awareness could lead to improvements in relation to the PWE if employees gain a deeper understanding of how the job and relations at work affect their wellbeing. In the same way that Bakker et al. (2017)

⁹ In this way it resembles the development in traditional survey methods where online tools have made it increasingly easier to design and implement surveys. As a result, there is an increase in survey fatigue in organisations (Mellor et al., 2011).

propose that the effect of monitoring happiness levels allows participants to find a more optimal lifestyle, which increases the level of happiness, it is possible that a greater understanding of the dynamics of the PWE allows employees to improve on it. Indeed, an experience sampling study by Daniels et al. (2013) shows the dynamic nature of the PWE, finding that enacting social support and job control during work enables effective problem solving and enhances wellbeing.

The view taken in this research is that the introduction of what I will in the following describe as a measurement-burst design improves the ability of the ESM to pick up on within-individual variation over the short term, and makes it well-suited to reliably measure substantial and longitudinal changes. Thus, while ESM studies necessitate additional technical and statistical sophistication, what it offers by way of return is more valid measures with fewer biases. Relatedly, one of the aims of the current research was to explore whether experience sampling has the potential to be more useful in 'real-world' settings than traditional questionnaires. This involved investigating one of the several possible ways a flexible ESM design could deal with the problem of participant burden in an organisational setting. Therein are three interrelated aspects: experience sampling of factors related to the psychosocial work environment, providing extensive data feedback at the individual level and making data available for qualification by participants at the group level. As such, a custom method was designed, which allowed for the incorporation of the PWE construct in an ESM setup and enabled the delivery of survey data at the individual and group levels.

The development of the method happened in this sequence. First, it required the conceptualisation of an ESM approach, which addresses the problems of complexity and participant burden. Secondly, it needed to meet validity standards for the measurement of the variable(s) of interest. Finally, it needed to show that the method was useful for purposes deemed relevant by organisations. All three parts were viewed in relation to the PWE. At the conceptual level, it looked at how a sampling approach can be used to reduce the participant burden and widen the scope of the method. Then, it addressed how technology could be used to generate results from ESM data that is readily usable for feedback. Finally, it investigated the validity of the method using a traditional questionnaire as the benchmark before observing how the method might be useful in addressing a real-world organisational need to mobilise change efforts. At each stage of the development, the overarching focus was to investigate if the newly designed alternative ESM approach could add both validity and applicability to the investigation of an organisational psychological phenomenon like the psychosocial work environment.

3.5.2 *The pragmatic case for sampling*

The constitution of a 'real experience' involves the bracketing of an experience that takes place within a system of continuous relations to others, within a context. This is somewhat analogous to the problem of punctuating communicational interactions in interpersonal relations (Watzlawick et al., 1967), and Lewin's (1943) observation that a choice underlies a given size of a behavioural unit as well as what constitutes a situation. We might therefore ask, is it the emotional trace of the stressful interaction with a manager that can be captured shortly after the event? Or is it the global evaluation of the manager in a particular domain that is of interest? Is it even possible to distinguish between the two, since the first is unlikely to be unrelated to the second, as the emotional response to a situation will most likely be influenced by the 'mental representation' that the employee has of the manager and will be appraised within this frame, over time affecting the frame itself. Some scholars using the intensive longitudinal method (ILM) have advocated that the sampling period, as well as intensity, is governed by theoretical considerations that reflect the fluctuations and dynamics characteristics of the phenomenon studied (Hektner et al., 2007). This position complicates matters further, as there is little doubt that many of the phenomena that are studied in relation to employee wellbeing fluctuate and exhibit dependencies on situational, social and temporal factors. The elusive nature of many of the phenomena within the PWE therefore make it inherently difficult to settle on an appropriate sampling schedule.

The distinction between the evaluative judgements people make about their jobs and their affective experiences at work is a core component in affective event theory (AET) (Weiss & Cropanzano, 1996). The authors who developed AET argue that although features of the work environment can directly affect the judgement people make about their jobs, an additional focus on events as proximal causes of affective reactions is needed. We cannot, therefore, focus singlehandedly on the micro-fluctuations in people's emotional reactions to events. It is unlikely that employees' emotional reactions to experiences on the job, when it comes to changing social structures ranging from their social interactions at work to the design of a job or the relationship with their manager, randomly fluctuate. Instead, they exhibit a pattern characterised by some as stable over time but changeable. This is because they are under constant negotiation and reconstruction, as the agents act within an existing structure. In other words, they maintain it while having the discretion to change the structure subtly. This duality of agency-structure is found in several theories from Giddens (1984), Juarrero (1999) and Lahlou (2017), which leads me to suggest, no matter how often you sample, or what the time span between bursts are, you are bracketing the participants' experiences. It is thus not possible to talk about

experience sampling as an absolute or stable entity. There is no equivalent to the *mètre des archives* when it comes to people's experiences. However, sampling more regularly is likely to provide a better view of the dynamics that people experience in a given arena.

3.5.3 The burst design

The measurement-burst approach to investigating developmental phenomena in psychology was first proposed in relation to ESM by Sliwinski (2008), but is based on ideas introduced by Nesselroade (1991). Sliwinski et al. (2009) have used this method to look at the longitudinal ageing-related changes in emotional responses to negative events, while taking into account the susceptibility of single measuring points of stress and negative affect to environmental factors and natural fluctuations in individuals' moods.

The benefits of the burst design include its ability to allow for greater precision and statistical power when estimating change over a longer timeframe (Sliwinski, 2008). As such, it remediates the issue of being unable to distinguish between within-person variability and 'change'. As Sliwinski points out, it is possible to measure change between two measurement bursts reliably. However, Rogosa et al. (1982) perceive that to make reliable estimates of change, three or more measuring points ought to be collected in time. Only then is it possible to estimate change using growth curves.

Henceforth, nesting the ESM sampling within an experimental design meant the ESM group was equivalent to a 'measurement-burst design'. For several instances of experience sampling, measures are administered within a space of time, forming a burst. As the focus of the present study was change between two measurement points (T1 and T2) in the ESM condition, these measurement points were the result of a measurement-burst in the form of the 36 MOCCs at both T1 and T2.

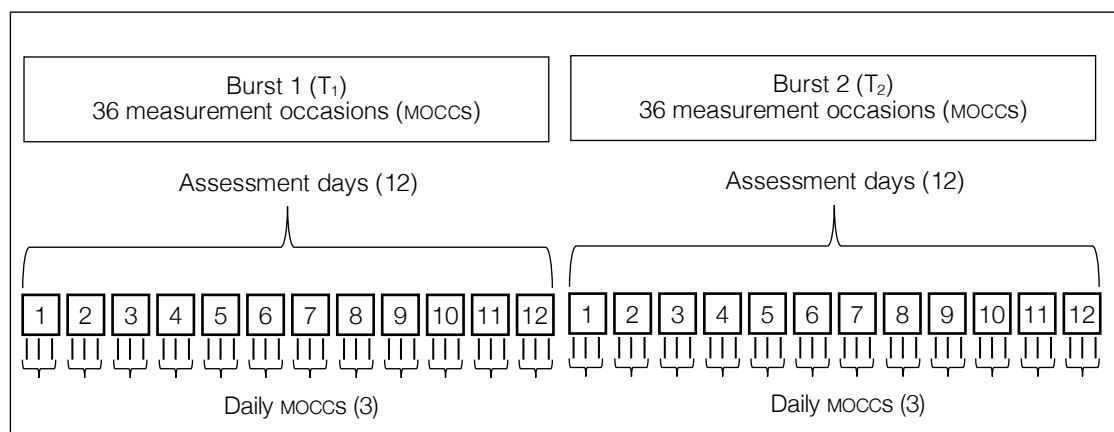


Table 3.8 *The measurement-burst design*

3.5.4 Sampling approach

When it comes to job attitudes, researchers are interested in employees' evaluations of their jobs, which involve the feelings expressed towards, beliefs about and attachment to their work (Judge & Kammeyer-Mueller, 2012). There is, nevertheless, considerable evidence that these feelings and beliefs change over time and likely across situations and activities (Beal, 2012). This variation does not mean that the structure of the psychometric construct that makes up the attitude is different, but that it varies across time and space. In other words, the scale used to measure an attitude in a traditional questionnaire might be as relevant and valid when deployed as an experience sampling study, but the number of questions on the scale makes it difficult to apply in an ESM context.

When researchers sample people's experiences using an ESM approach, they are asking participants to monitor and report their own feelings, experiences and attitudes over time. This self-monitoring requires considerable investment in terms of time and effort on the participants' behalf, which makes the approach fundamentally different from the completion of questionnaires. Indeed, it is possible to view the change from using a questionnaire to an ESM design as something that radically alters the participants' experience of engagement. The time required and the effort and devotion needed to complete ESM questionnaires numerous times over a period of time, even years, leads to a shift in the way the participants experience the process.

Schwarz (2012) makes the important observation that even though global and retrospective self-report processes are prone to a number of biases, they are generally found to be better predictors of people's behaviour than experience sampling measures. However, he goes on to argue that the ambition of behavioural scientists should extend beyond an observer's desire to predict others' behaviour. As such, a psychological perspective on understanding the human experience requires sympathy with and sometimes privileging of the individual perspective. Real-time in situ measurement methods such as ESM can allow for insight into the dynamics of various experiences from the perspective of individuals. Although ESM brings new exciting possibilities to questionnaire research (Miller, 2012), it has the inherent problem associated with it that brevity and comprehensiveness are often mutually exclusive.

Single- or multiple-item constructs. A questionnaire approach to measuring attitudes will either ask a single question or a collection of questions that make up the construct of interest. In classical test theory, a construct is measured using several items (Novick, 1966). Multiple-item scales are thought to provide more

stable and valid measures of an attitude like job satisfaction (Loo & Kelts, 1998). Moreover, using a single item to cover a construct goes against the central axiom of classical test theory (Novick, 1966). Consequently, ESM research is faced with a practical and theoretical dilemma if one imports a questionnaire to an ESM context 1:1. A typical prerequisite for using the method is that each measurement occasion is short, not intrusive yet consistent over time, so that experiences are sampled using the same measure.

The question of whether job satisfaction or job attitude can be measured using a single item is unclear. A meta-analysis published by Wanous et al. (1997) advocates for the use of single items, citing a reliability estimate of overall job satisfaction of .63. Yet, it is contested whether complex constructs, such as the quality of work-life, can be reduced to single-item measures (Loo & Kelts, 1998). For example, Loo and Kelts (1998) find that test-retest reliabilities on overall job satisfaction measured around .45, which indicates that the participants' true score can explain only about 20% of the observed variance on a single-item scale of job satisfaction. Relatedly, most of the constructs concerned with the PWE and job satisfaction are characterised by being both complex and changing in nature. As a consequence, it seems unwarranted to rely on a few single items to capture this multidimensionality and complexity.

Use of ESM in organisational psychology. It appears to be well established that ESM MOCCs need to be brief (Hektner et al., 2007). This requirement does not pose a problem in the case of academic research with a narrow and well-defined subject area. For example, Daniels, Boocock, Glover, Hartley, and Holland (2009) use 11 questions in an experience sampling design to investigate the active learning hypothesis in the demands-control-support model. However, if we want to obtain data about a wider area, we are confronted with a dilemma of either going too long or having to reduce complex concepts to fit the ESM format.

Hence a key consideration for the ESM researcher is the choice between a single question design, with the problems that this entails concerning the reactivity of the participants, and deploying a larger battery of questions, using an approach where multiple questions measure a latent variable. The latter poses several issues, as the format does not lend itself very well to the ESM approach, which relies on the ability of the method to fit into participants' daily lives by being both quick and associated with low cognitive effort. This means that it should be manageable for participants to answer a questionnaire either during an activity or with a short pause in the activity (Hektner et al., 2007). If the questionnaire is too long, it is likely to interrupt the participants' activity, which can affect response rates. Moreover, it

can break the underlying assumption that when one asks the respondent at a specific moment, they will be able report on attitudes, experiences, emotions and activities characteristic of that moment in time. As discussed in section 2.3, the challenge associated with introspection is that an individual can only reliably relate what is held in their short-term memory (Ericsson & Simon, 1980). Sensations, emotions and evaluations could therefore well have faded by the time the individual arrives at the end of a lengthy questionnaire.

Making the MOCCs brief and an event that could fit into the daily life of the participants involves a number of conceptual choices in the design of the ESM measures. As pointed out by Klumb, Elfering, and Herre (2009), the use of ESM in organisational psychology brings to the fore the issue of the use of shortened scales. These shorter scales are often single-item measures of a psychological construct, as it is not feasible to ask all the questions in a construct at each MOCC. This would render it unable to measure what people think, feel or believe at a particular moment in time. As a result, the majority of ESM studies use shortened scales and single-item measures. This allows for a measurement occasion (MOCC) that poses as little interruption as possible to the participant during their daily activities, from when the signal is received to when the MOCC is completed.

Real-world application of ESM. If the full potential of ESM is to be realised in organisational practice as well as research, it needs to be applicable to ‘real-life situations’. For this to happen, it must bring insight into the organisations and provide meaning to the employees using the method. Within the domain of clinical psychology, it has been argued that a key strength of ESM is its ecological validity. Since ESM data is collected in real-world environments as people go about their daily lives, it is possible to generalise from the data to the participants’ real lives. Shiffman et al. (2008) stress that this constitutes a very important argument for ecological validity.

The rise in the use of ESM designs within psychology during the last decade has provided significant evidence that ESM is a useful method that overcomes some of the problems of large-sample approaches that have been prevalent in psychology (Hamaker, 2012), and perhaps even more so in organisational psychology. However, it is also a very intensive method characterised by yielding high validity and reliability about very narrow subject areas. While this is important for the development and validation of theories, there is a risk that the knowledge generated by ESM research is not carried over from research to practitioners and interventions in organisations.

When it comes to employees’ attitudes, beliefs or perceptions regarding their

jobs or the organisations where they work, an organisational survey will often be designed to gather information on a range of issues deemed important. ESM designs as they have been applied in this domain typically only investigate a narrow subset. Organisations, however, are unlikely to be content with gathering valid data on a small aspect of employees' experience of the job or the organisation. Consequently, the potential of ESM as a method to provide better measures of employees' experiences in organisations has yet to be realised. Part of being a realistic substitute to the traditional survey entails that the method provides information about a broader range of factors and that the participating employees do not see the process as overly burdensome.

*The item-sampling approach—ESM**. The present study investigated the viability of a new ESM design, where a selection of questions were asked at each MOCC. This design, hereupon referred to as ESM*, neither reduced the measurement of the PWE to a few single-item measures nor included every dimension of the construct in each MOCC. Instead, one item (question) of a construct was asked at each test MOCC. This item sampling approach allowed the MOCCs to be brief without oversimplifying the construct investigated.

The ESM* schedule was designed in such a way that a multiple-item construct, as it has been defined in the literature and used in traditional questionnaires, remained intact. After participants completed the ESM* survey period, they had answered all the questions in the construct. Yet each MOCC was different since it was comprised of different questions. This had the added benefit of making it more difficult for the participants to speculate about the hypotheses and 'gift' answers to please the researcher. If, for example, a respondent was to answer three related items on a small smartphone screen, he or she was likely to understand that the answer should be consistent. Thus, the items were separated in the protocol so as to be answered independently. Similarly, the same questions did not appear at each test occasion, since it is very likely that participants would remember what they answered on the previous screen.

This design represents a departure from the intensive longitudinal nature of conventional ESM studies. Since a smaller subset of questions was sampled at each MOCC, it was not possible to investigate changes between each MOCC. The design thus comprised a sampling of experiences that sacrificed intensity in exchange for a broader scope. A key step towards establishing the validity of this approach was, therefore, to investigate whether the ESM* could indeed provide a valid measure for the constructs of PWE and job satisfaction. An important step in this process would be to establish if these constructs are semantically equivalent when measured by the

proposed ESM* and a traditional questionnaire.

3.5.5 The technological component

The technological component of the ESM affects how it integrates into participants' daily lives and what can be studied. Historically, a significant obstacle to the wider use of ESM has been the expense of providing participants with digital devices that enable a sampling schedule (Hektner et al., 2007). An early attempt to circumvent this problem found significant variations in job satisfaction over time by sending email messages to participants at different points in time (Ilies & Judge, 2002). However, such an approach violates a key assumption underlying the majority of signal-dependent ESM designs, that the signal is received and noticed by the participants across shifting locations, situations and with different social companionship factors (Hektner et al., 2007). Thus, it does not allow the participants to complete questions about current experiences and emotions in situ, only when they are in front of their computers. Nevertheless, Ilies and Judge (2002) show that it is possible to obtain sampling data using tools that are already in the hands of the participants.

The technological advances that have come about with the proliferation of smartphones have made it possible to rely on the assumption that every participant carries a smartphone that can be used for sampling. The latest official EU statistics available from 2017 (EU, 2019) show that 69% of the Danish population access the Internet via a smartphone and that 94% of organisations supply their workforce with a mobile device. At many organisations, personal smartphones have replaced the employees' traditional desk telephone. For ESM researchers, this opens up the possibility of conducting ESM research without having to rely on buying or leasing equipment to hand out to participants.

Notwithstanding the ubiquity of smartphones, there are still technological hurdles to be overcome, and design decisions to be made, in any experience sampling study. These are often far from trivial and require substantial research and preparation on behalf of the researcher. Among the most important is how the ESM questionnaires will be deployed to participants' smartphones. Deployment can happen either through a stand-alone application for the smartphone that the participants will have to install, or as a questionnaire in a web browser accessed via a web-link. The former will require the development of an application for the smartphone platform. Moreover, it will mean that the participants will need to grant the application access to notification protocols on the smartphone during the installation process. Only when the permissions have been granted, will the

signalling be able to take place through the phone's notification system. If, on the other hand, the web-link approach is used, signalling will need to take place through a messaging service on the phone that notifies the participant. In practice, this is most often accomplished via short message service (SMS). There are several pros and cons to both approaches, which are discussed at length by Hofmann and Patel (2015).

The present study used the web-link approach combined with signalling via SMS. The principal reason for this methodology was that the employees at the organisation were using smartphones from two different platforms, which would have required the development of two separate applications. An ESM approach that relied on a web-link sent to the participants at each MOCC would, on the other hand, be platform-agnostic and cheaper to deploy. This method had the further advantage that the researcher only had to address the following two factors: 1) whether participants would have network access at the time the SMS (the signal) was sent to them and 2) whether the smartphone had internet access when responses were entered.

From a design perspective, it was a priority to create an ESM questionnaire that allowed for a seamless sampling across time and space, with a focus on being as unobtrusive as possible and integrated into the participants' daily lives. Seamless integration is primarily achieved by making sure that 'friction'—the time and cognitive effort required—is as low as possible. In practice, this means that each MOCC should present a minimal disruption to the participants' activity by being quick and intuitive. If these two factors are not taken into account by the designers the study, it is likely that the participants will either ignore the test occasions or resort to 'backfilling' the questionnaire at a later more convenient time. This problem has been highlighted by Gable, Reis, and Elliot (2000), who uncover how up to 70% of a sample population delayed data entry by up to 24 hours.

The technological implementation used relied on an advanced survey platform provided by Psycholite Ltd., a commercial company specialising in providing psychological tests and reporting capabilities. I designed the questionnaire, which was subsequently implemented by the technical staff at the company. I used an SMS signalling service from CPSMS, which has an application programming interface that allows the survey platform to control the sending of SMS.

3.5.6 Method

Experience sampling measures. The ESM questionnaire contained a measure of the PWE as well as job satisfaction and assessment of the participants' mood, activity,

location and social activity.

ESM coordinates: activity, location and companionship. The ESM coordinates (ESMCOORD) reflected conventions within ESM research (Hektner et al., 2007). They were consistent across MOCCs and included activity ('what best describes what you are doing right now'), location ('where are you right now') and companionship ('who are you with'). The answer categories were created in collaboration with eight participants from the organisation in a pilot study to ensure that the categories were meaningful and applicable to all participants. The resulting answer categories applicable to the academic institution in question were:

Activity: administrative tasks; work—core task; on the phone; email; housework; relaxing; other.

Location: work—in my office; work—elsewhere; home; other.

Companionship: co-workers; manager; friends; family; alone; students; other.

Although the participants in the pilot study found the ESMCOORD dimensions relevant, it transpired that the sample had a skewed distribution for each of the ESMCOORDs, leaving some categories with very few observations. I therefore decided post-hoc to create 'merged' categories for all three ESMCOORD dimensions.

Merged activity consisted of two categories: work (administrative tasks; work—core task); email_phone (on the phone; email).

Merged location had three categories: work (work—in my office; work—elsewhere); home; other.

The merged companionship coordinate was made up of three categories: alone; co-workers; other (manager; friends; family; students; other).

ESM mood measures. Mood was measured using four options: 'I feel relaxed', 'I feel worried', 'I feel content', 'I feel stressed'. Answer options were: 'Not at all' (scored as '1'), 'A little' (scored as '2'), 'Somewhat' (scored as '3'), 'Very much' (scored as '4'). The dimensions were chosen using Warr's (1990) two-dimensional approach to mood: arousal and pleasure. The chosen moods were opposite in pairs with *relaxed* being on the same dimension as *stressed*, but on opposite ends of the continuum, and similar for the pair *worried* and *content*.

A score of *mean mood* was calculated by reversing the two 'negative' moods *worried* and *stressed* and producing a mean across the four scales for each MOCC. For the *mean mood* scale, lower scores indicated a better mood.

The structure of the measurement occasion. Each MOCC contained one question from

each of the 12 variables. Each variable appeared in the same order at each of the MOCCs, but for the first five variables, the questions were sampled across the MOCCs. The 'sampling pool' column indicates the number of scales and questions for each variable. For example, the variable 'job satisfaction' consisted of one scale with seven questions, with one question sampled at each MOCC. The variable 'organisation and management' consisted of ten scales, with a total of 30 questions. The second question presented to the participants at a particular MOCC was thus derived from one of the ten scales. The sampling approach was designed so that all questions from the sampling pools were asked at least once to all participants. I randomly assigned participants to one of six different sampling schedules to mitigate biases due to 'order effects' or sampling schedules. Table 3.10 shows the structure of each measurement occasion.

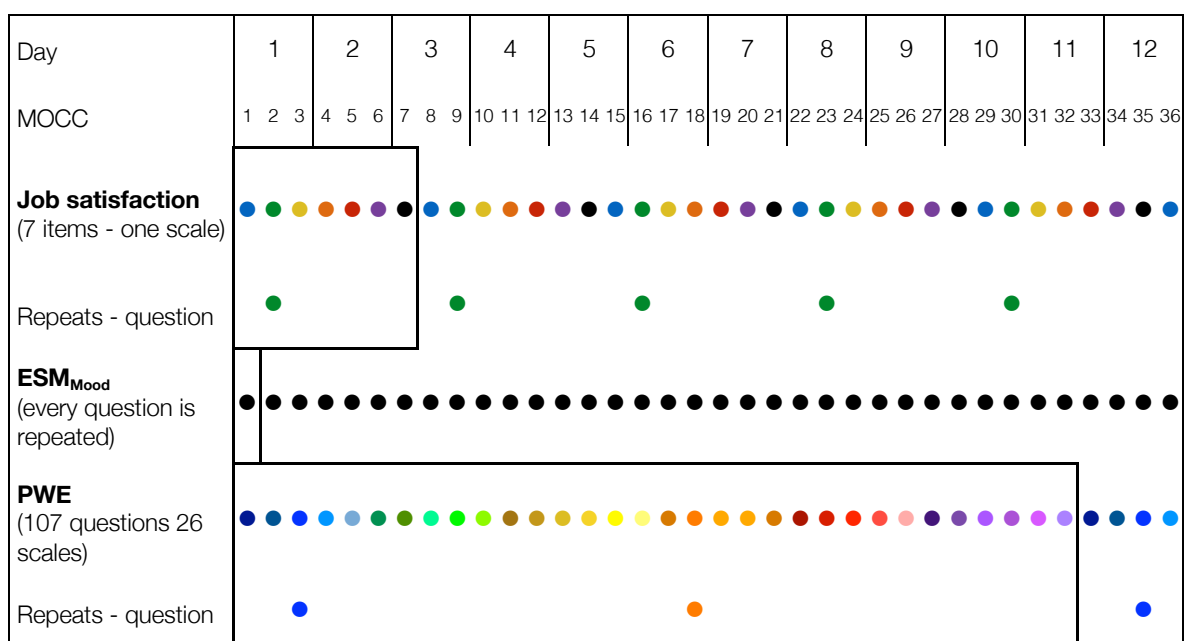
Appendix L contains the instructions, questions and answer options presented to the participants in the ESM condition for the ESM coordinates and the ESM mood measures.

Table 3.9 Structure of measurement occasions

Order	Question	Variable	Sampling pool
1	Job satisfaction	Job satisfaction	1/7
2	Organisation and management	PWE Organisation and management	10/30
3	Co-worker relations	PWE Co-worker relations	6/19
4	Immediate manager	PWE Immediate manager	6/22
5	Intrinsic job factors	PWE Intrinsic job factors	10/36
6	Activity	ESMcoord	No sampling
7	Location	ESMcoord	No sampling
8	Sociability	ESMcoord	No sampling
9	Relaxed	ESMmood	No sampling
10	Worried	ESMmood	No sampling
11	Content	ESMmood	No sampling
12	Stressed	ESMmood	No sampling

A consequence of this approach, which prioritised having a uniform structure of the MOCCs, was that the sampling rate differed across the variables. Figure 3.7 below provides a graphical representation of the sampling intensity of the different scales over the 36 MOCCs. It highlights the difference in the extent to which questions were repeated across the different scales.

Table 3.10 Sampling intensity across measures



The seven questions in the job satisfaction scale meant that each question was repeated once over the 36 MOCCs.¹⁰ For the PWE scales, the situation was more complicated, as the number of scales differed between the grouping variables. As an example, the ten variables that belonged under the 'Organisation and management' grouping variable contained 30 questions. Thus, only six questions were repeated once over the 36 MOCCs. Whereas, 17 of the 19 questions for the six variables under the 'co-worker relations' grouping variable were repeated once.

The purpose of randomising the questions within grouping variables was both to avoid the possibility of reactivity caused by repeating questions and to achieve the goal of reducing the total of 107 PWE questions to a sampling schedule that could be fitted to an ESM schedule. In theory the PWE scales adopted would be completed through the sampling design outlined. However, as ESM studies often show a low response rate (Beal, 2015), it was unknown how the sampling design would fare when implemented at scale.¹¹

ESM schedule. Participants completed three daily questionnaires on their smartphones over a period of 12 days resulting in a total of 36 MOCCs. The ESM setup was signal dependent—meaning that the participants received a notification when they had a MOCC to complete. The signal was sent via SMS containing a link to the questionnaire; the link launched an interactive questionnaire in a web browser on participants' smartphones. The survey period was between 08:00 and 16:00 on weekdays resulting in a survey period of two-and-a-half weeks. In cases where a survey period contained national holidays, the schedule was paused for the holidays and extended to include 12 working days. The sampling period of 12 days was within the range that Wheeler and Reis (1991) argue constitutes a meaningful time period for an ESM study. Most of the ESM literature consists of survey periods between seven and 14 days. Seeing that weekends were omitted from the sampling schedule, the study thus fell within this range.

Each MOCC was designed to take between one and two minutes to complete following the recommendations of Hektner et al. (2007). The complete ESM setup

¹⁰ Since there were 36 MOCCs, one of the seven questions was repeated twice. The question repeated twice was different across the six sampling schedules.

¹¹ The pilot project with five participants had a close to 90% response rate, but the sample was not representative as it consisted of highly motivated individuals with a personal relationship to the researcher.

and schedule was tested in a pilot study with four participants. The same pilot study tested two conditions. In one, the total of 36 MOCCs were asked four times a day over a nine-day period. In the second, the participants received three MOCCs a day over a 12-day period. The feedback from the participants overwhelmingly favoured the latter design, citing a more tolerable number of daily interruptions. As a result, I decided to implement the design where the MOCCs were spread over a longer period of time, asking fewer questions per day. This posed fewer interruptions for the participants on a daily basis.

My intention was to capture as much of the participants' daily experiences with a minimum of disruption to their everyday tasks. Initial feedback from the pilot study was that placing MOCCs too close to each other caused considerable inconvenience for the participants. As a consequence, a schedule was designed that would spread the test occasions out more evenly during the day, but at the same time maintain a random aspect. To do this, the eight-hour workday was split into three periods of 160 minutes. The notification system was set up so that one notification would occur within each of the three daily time slots. Using this schedule prevented a situation where the respondents, by random assignment of MOCCs, would have to answer the questionnaire three times in close succession. At the same time, it ensured that most times of the working day would be covered over the survey period of 12 days. The time brackets of the sampling schedules designed in combination with the question sampling schedules were such that each participant only had to be allocated to one of six schedules. The randomised schedules were produced using a 'random function' in Microsoft Excel, which was also used for the random allocation of participants.

The sampling schedule was designed to allow the participants a window of time in which they could complete the MOCC. Although the participants were briefed about the importance of completing the MOCC as close as possible to the point in time when they received the notification, it was likely that there would be situations where the participants could not complete the MOCC immediately (for example when teaching). The schedule allowed the participants to complete the MOCC until the subsequent notification was sent and a new MOCC was available for completion. If the participant had not completed a MOCC, it was recorded as 'missing' in the data set. In practice, this also meant that the last MOCC of the day was available for completion from the last time slot (13:20–16:00) until the first time slot (8:00–10:40) the following day.

Apart from the last MOCC each day, the ESM schedule prevented participants from 'backfilling' the MOCCs, which has been identified as a potential validity

threat to ESM studies (Beal, 2015). Moreover, having a window within which a MOCC could be completed provided an amount of flexibility for the participants that would likely lead to higher response rates than if MOCCs could only be completed at the time of the notification. The decision to delete the uncompleted MOCCs was the result of prioritising the need for a finite survey period of 12 days, disregarding the completion rate. The other option considered was to queue up uncompleted MOCCs and have the participants continue receiving notifications until all 36 MOCCs were completed. Such an approach would ensure fewer missing data points but would risk the data set being comprised of ESM data with de facto sampling schedules that were vastly different.

3.5.7 Measurement equivalence among the job satisfaction measures

The semantic equivalent of the job satisfaction construct as measured by the item sampling ESM approach and the questionnaire, respectively, was investigated by adopting a structural equation modelling (SEM) approach, as outlined by Dimitrov (2006). As the job satisfaction scale is a latent construct thought to underlie participants' responses to a questionnaire, a SEM approach was more appropriate for testing mean differences between groups than an analysis of variance approach (Dimitrov, 2006). Before comparing the means of the QUEST and ESM groups, I conducted a test of internal reliability for the job satisfaction scale using only the questionnaire data.

Previous studies of the internal consistency of the abridged job in general scale suggest a high internal consistency reliability of .85 and item-total correlation of each item ranging from .48–.74 (Russell et al., 2004). Although my analysis revealed a satisfactory internal consistency of .89, one item—'my job is poor'—had an item-total correlation of .33, which was significantly lower than the remaining six items (range .63–.9). The item also constituted the only reversed item in the scale. However, Russell et al. (2004) did not find general differences between the reversed and non-reversed questions in terms of item-total correlation.¹² It was decided that

¹² There are several possible reasons for differences between the internal consistency observed in the present research and previous studies of internal consistency in both the AJIG and the original job in general (JIG) scale (Ironson et al., 1989). Primarily at issue was the translation of the adjectives describing the job, which has a semantic level and connotations within a cultural setting. Moreover, both the AJIG and the JIG used a response scale of 'Yes', 'No' and '?'. The results of the present study suggest that further psychometric analyses are needed to produce a Danish AJIG scale with qualities similar to the original

the item was a poor fit with the scale and it was subsequently removed from the analysis in both conditions.

Form and measurement invariance. In comparing the job satisfaction construct across the two groups, I used both the ESM and the QUEST data in a two-step approach, where I first tested for form invariance. If form invariance was found, I subsequently tested for measurement invariance. Finding form invariance would imply that the model of the construct fits the data for both the ESM and the QUEST conditions. A confirmatory factor analysis (CFA) in the framework of SEM was employed using the 'lavaan package' in R (Rosseel, 2011), and the form invariance was estimated using the fit indices for the proposed model.

Measurement invariance is defined as the absence of differential item functioning, suggesting that the scores on the construct have the same meaning for both groups (Dimitrov, 2006). I investigated measurement invariance by looking at invariance among regression slopes and intercepts across the two groups for the model. I used the approach outlined by Dimitrov (2006), where a chi-square square test is applied to test for difference between two nested models: a model with 'invariance assumed' (χ^2_{INVAR}) and a model with 'no invariance assumed' ($\chi^2_{\text{NO_INVAR}}$). Invariance is then confirmed when the parameters being tested chi-square difference ($\chi^2_{\text{DIFF}} = \chi^2_{\text{INVAR}} - \chi^2_{\text{NO_INVAR}}$) is not statistically significant.

Reliability. Lastly, I checked the reliability of the JobSat measure by using generalisability theory (Cronbach, Gleser, Nanda, & Rajaratnam, 1972), which has been applied to ESM data by Cranford et al. (2006) and (Shrout & Lane, 2012). It is an extension of classical reliability theory, where variance is partitioned out as either true (systematic) variance or error (random) variance. It allows for the identification of multiple sources of variance in the observed score relevant to an ESM design. I used ESM data collected at T1 and followed the approach proposed by Cranford et al. (2006), where variance component information is used to estimate generalisability coefficients that describe how reliable the JobSat would be when used in two different ways—as ESM or as QUEST. I produced six variance components from the JobSat data as shown in table 3.12 below.

Table 3.11 Variance components

Variance component	Variance notation
Variability across items	σ^2_{ITEM}
Variability across persons	σ^2_{PERSON}
Variability across measurement occasions	σ^2_{MOCC}
Person-by-item variability	$\sigma^2_{\text{PERSON*ITEM}}$
Measurement occasion-by-item variability	$\sigma^2_{\text{MOCC*ITEM}}$
Residual variability	σ^2_{ERROR}

I used variance components to first produce the generalisability coefficient R_{1F} for the expected between-person reliability for one fixed measurement occasion (MOCC). As (Cranford et al., 2006) point out, this is analogous to taking a single MOCC score and computing a standard Cronbach's alpha. It is the variance ratio of the between-person variation divided by the between-person variation plus the estimated error variation for the scale, with m denoting the number of items. It can be described with the equation:

$$R_{1F} = \frac{\sigma^2_{\text{PERSON}} + [\sigma^2_{\text{PERSON*ITEM}}/m]}{\sigma^2_{\text{PERSON}} + [\sigma^2_{\text{PERSON*ITEM}}/m] + [\sigma^2_{\text{ERROR}}/m]}$$

Rather than treating the MOCC as random, the second generalisability coefficient R_{KF} considers the set of MOCCs to be fixed and is therefore relevant when the whole measurement period is taken into account. With m again denoting the number of items and K the number of MOCCs, this generalisation coefficient can be described as:

$$R_{KF} = \frac{\sigma^2_{\text{PERSON}} + [\sigma^2_{\text{PERSON*ITEM}}/m]}{\sigma^2_{\text{PERSON}} + [\sigma^2_{\text{PERSON*ITEM}}/m] + [\sigma^2_{\text{ERROR}}/Km]}$$

3.5.8 Semantic equivalence of the PWE scales

The sampling design employed (described in section 3.5.6) took the scales from a traditional questionnaire as a point of departure for a sampling approach. To the best of my knowledge, this approach has not been used in an experience sampling setup. This chapter is concerned with establishing the equivalence between the ESM* approach and the traditional questionnaire at a semantic level. In other

words, it explores whether it is possible to adopt a questionnaire to a sampling setup and retain important properties of the questionnaire. This means ascertaining whether the construct measured by the ESM* instrument is similar to the one measured in the original questionnaire format, and that the ESM* instrument retains a level of reliability.

I set out with the ambition to investigate the semantic equivalence between the ESM and QUEST conditions using the same approach for both the job satisfaction scale and the PWE scales, but had to differentiate the approach I took to accommodate the specific data set of either. Scores for the P-scales were constructed by taking the average of the MOCCs for each scale. I adopted the method used by Salthouse and Nesselroade (2010), who used a burst design to study change in cognitive ability over a period of 2.4 years using a range of tests of cognitive ability (reasoning, space, memory and speed). In their study, each measuring period (Time1 and Time2) consisted of three measurement occasions. They investigated the sensitivity of different change measures: 1) comparing a score at the same measurement occasion within each burst at Time1 and Time2; 2) taking the difference in the averages of scores at each measuring period (Time1 and Time2); 3) the difference between averages in each measurement period for each participant divided by the individual's average within the measurement period standard deviation; 4) the difference between scores predicted from within burst-burst regression equations; 5) a latent difference score comparing the scores on the latent construct (using a structural equation model) at Time1 and Time2.

The authors then correlated the change scores for each of the four cognitive measures with the age of participants (known to be correlated with cognitive decline on the parameters measured) as well as with the other cognitive measures. They find the greatest sensitivity in the latent difference score (5) and in the predicted score (4). However, they also point out that (5) is limited by the requirement of relatively large sample sizes and that only group-level estimates of mean and variance of change are available with no information at the individual level. They contend that the approach (3) that looked at the change score by using the average of each participant but took individual variability into account was less sensitive than the difference in average between Time1 and Time2. The least sensitive method was to use the same measurement occasion at Time1 and Time2. Based on these findings and considering that I, for several scales, had few data points made it impossible to apply approaches (4) and (5). Thus, I decided to use the change in averages obtained at the MOCCs at T1 and T2 respectively. The same procedure was used by Ilies and Judge (2002) for job satisfaction.

3.5.9 The ESM smartphone interface

As noted above, the present study used signalling via SMS. Principally, this choice was a result of the employees in the organisation, who used smartphones that had several different operating systems. An ESM approach that relied on a web-link sent to the participants at each MOCC could be sent via SMS. This opened the web browser on the participants' smartphones. The questionnaire was designed to look like a self-contained web app, meaning that all navigation was customised so that the respondents would not have to use the browser's built-in navigation. Figure 3.6 below contains three screenshots that participants would see on their smartphone: 1) the SMS with the link to the questionnaire, a question sampled from the PWE questionnaire and an ESMcoord question. The signalling via SMS provided an alternative that is a relatively cost effective and platform agnostic. The only requirements for the participants to be able to complete the questionnaire were that they had to have network access at the time the SMS (the signal) was sent to them and that the smartphone's web-browser was able to access the Internet via a data connection when the questionnaire was being completed.

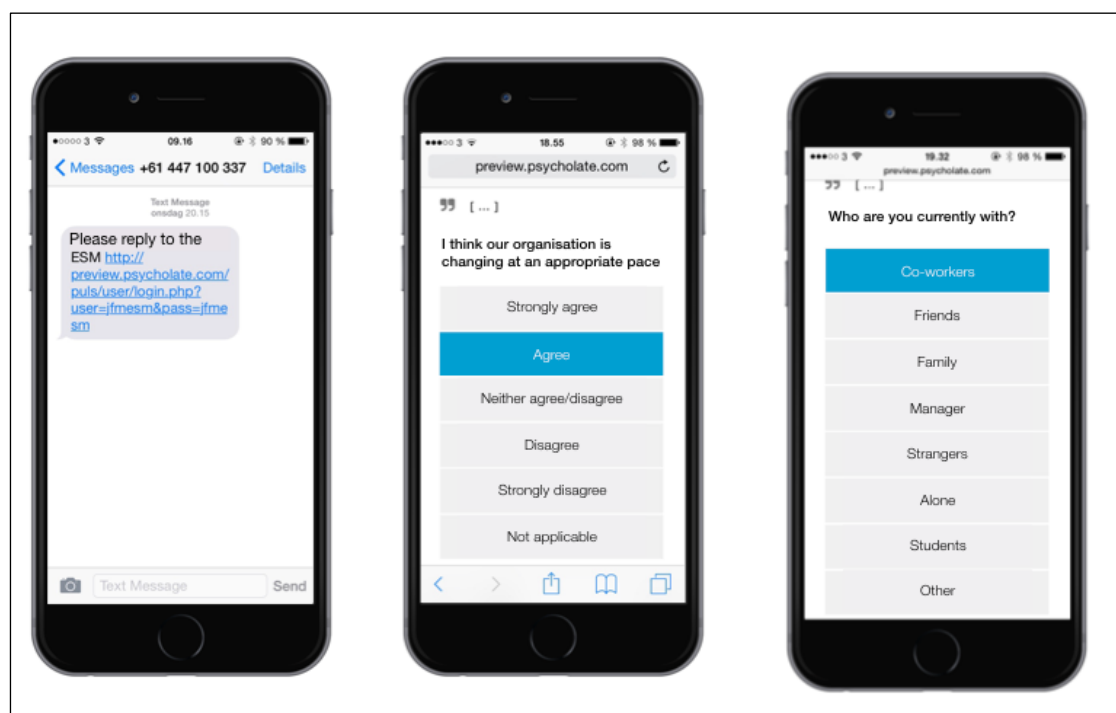


Figure 3.6 The smartphone ESM interface

3.5.10 The data feedback interface

Heller (1969), who originally developed *group feedback analysis*, stresses how the method allows participants to modify and validate quantitative survey data. This

mitigates some of the situational, emotional and contextual factors that might influence survey responses. Hence, as the participants of the current research completed the last question of the online survey, a link appeared that took them to an online interactive report. This interactive report contained data from their responses and was hosted on a secure professional survey platform ensuring anonymity and data protection.¹³

The participants in the ESM condition were able to explore their data in an online report format like a standard website, with menus, links and interactive elements. Key features included the display of the range within which scores fell across the test occasions, as well as the average score on each scale (see figure 3.6). Moreover, participants could access an in-depth description of scales in the report, as well as explanations relevant to the intervals of the scores. All features were available via user interaction.

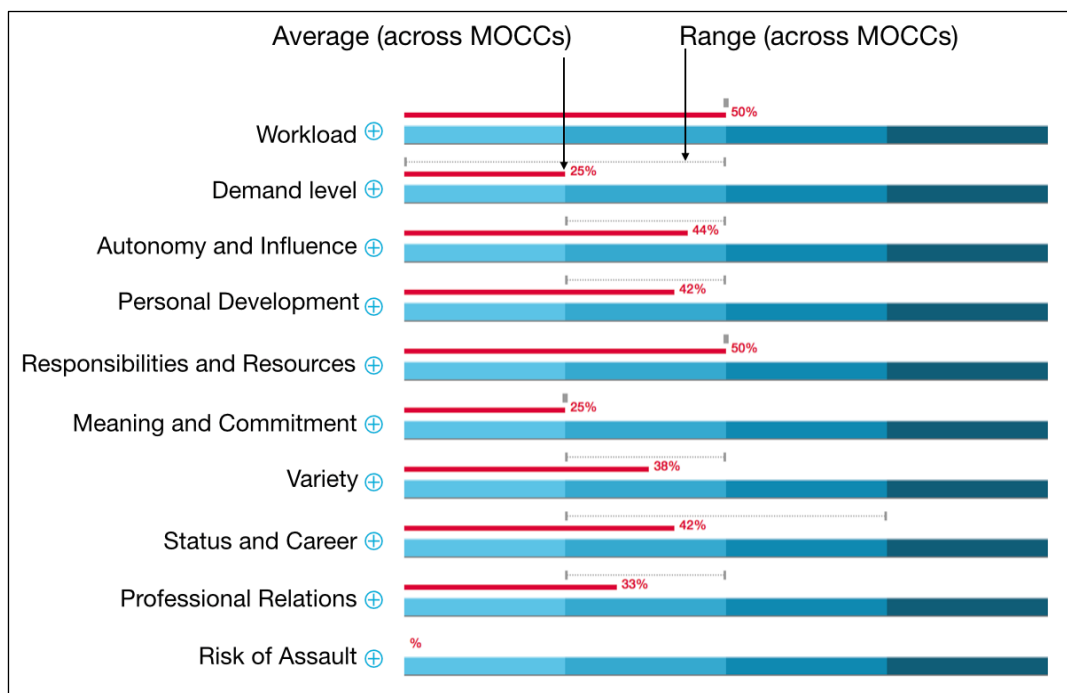


Figure 3.7 Interactive online report showing participant scores on intrinsic job factors

Furthermore, the ESM recordings of the four mood states were visible as a graph

¹³ The survey platform used complies with the ISO/IEC 27001 standard for information security.

(see figure 3.7), where the user was able to identify the 36 measurement occasions and, via interaction with the graph, obtain information related to the ESM coordinates (location, activity and sociability) associated with the mood score at any particular MOCC.

While the participants in the QUEST condition had access to a similar report, the nature of the data collection process meant that the information available to them was limited compared to the ESM condition. In practice that meant that each scale only contained an average (the score) compared to an average and the range in the ESM condition. Also, the interactive chart containing the ESM coordinates and mood level data was not available for the participants in the QUEST condition.

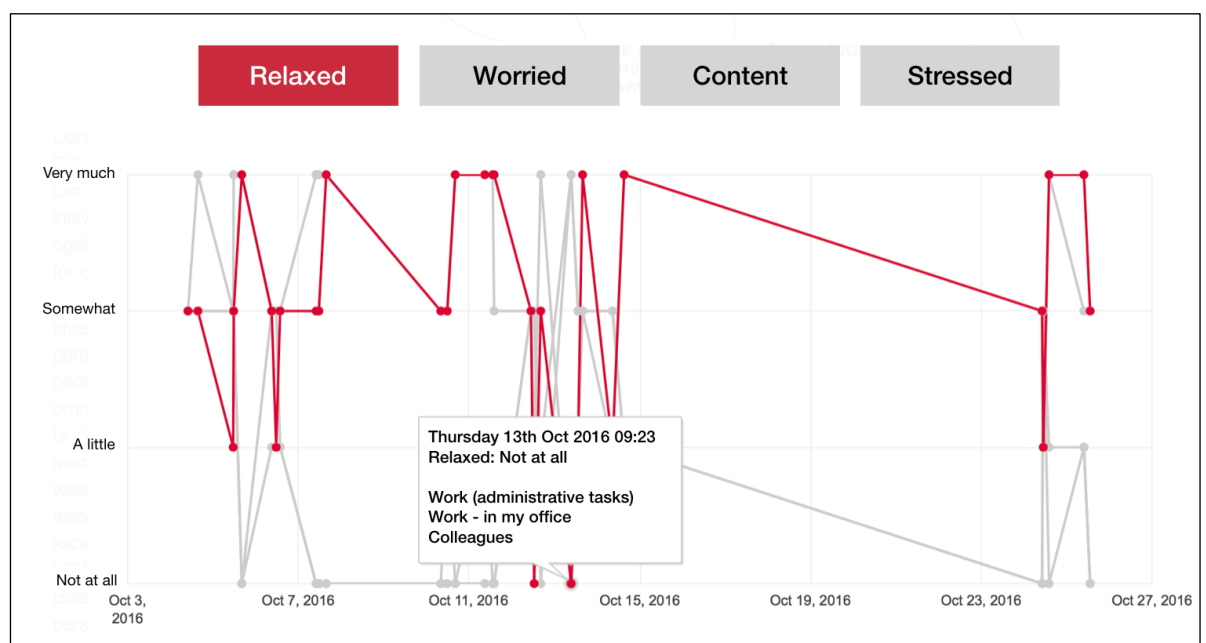


Figure 3.8 Interactive report showing mood levels of participants

The interactive report allowed participants in both conditions to access comparison scores after having completed the survey at T2. Figure 3.8 shows how T1 and T2 scores were displayed, allowing for comparison for each scale.

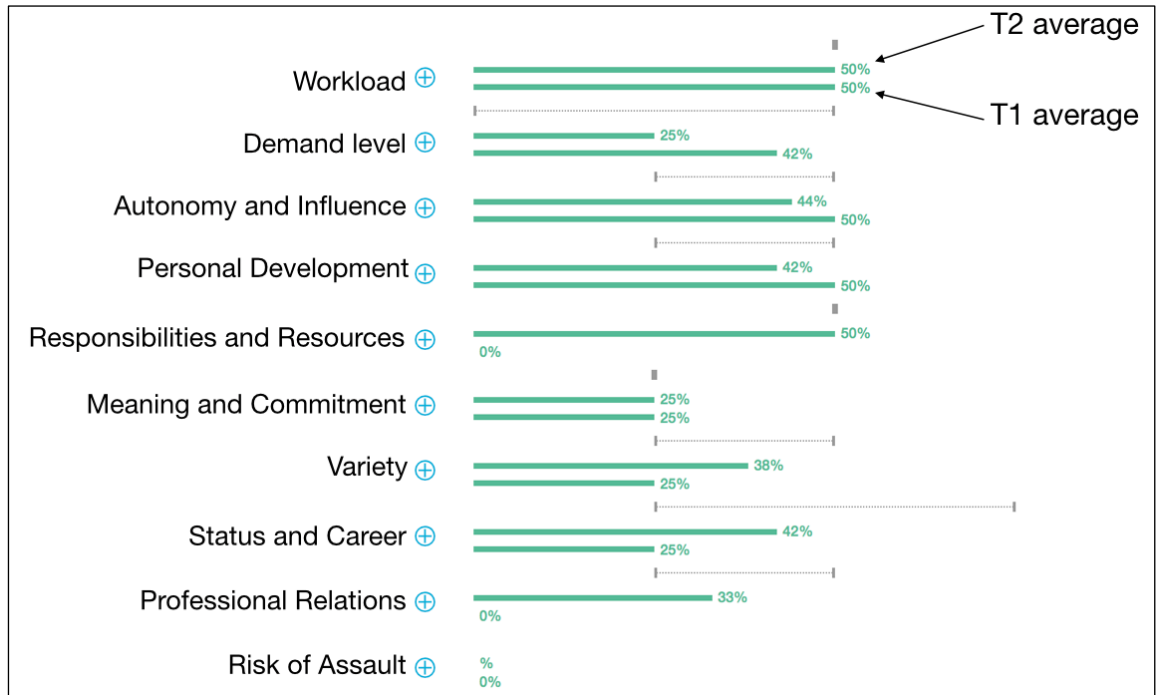


Figure 3.9 Interactive online report showing comparative T1-T2 participant scores

The aggregated reports, displaying the data for the work group and used in the feedback conferences, were similar for the QUEST and the ESM conditions. At T2, they contained a comparison function similar to the one for the individual level, but with the added feature of highlighting changes that reached statistical significance ($p < .05$).

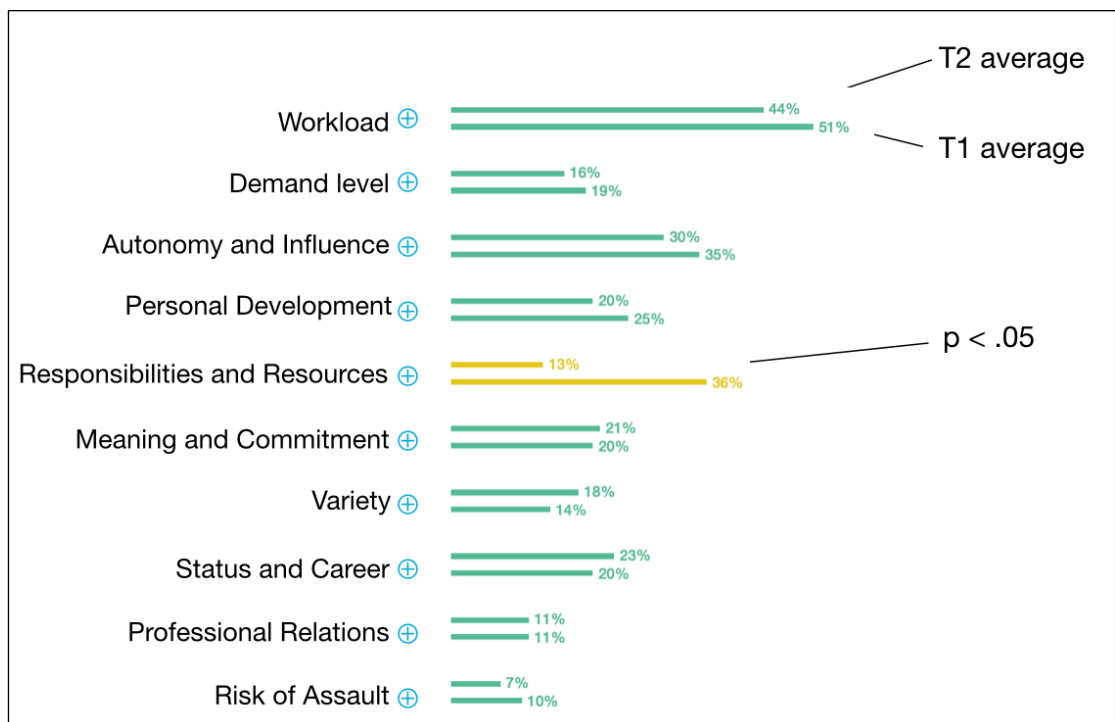


Figure 3.10 Interactive online report showing T1-T2 work group comparison

As a proxy measure, job satisfaction was not part of the web interface. The mood levels were the salient emotional states. My intent was to capture job satisfaction as a background variable. As it pertains to a general impact on the employee rather than something that concerns an evaluation of the environment, I did not find that it was meaningful to give the participants access to this. Moreover, the groups were assigned to one of two conditions: only one received that questionnaire treatment, consisting of a completed survey containing the PWE construct, as well as a scale on job satisfaction, followed by a section on coping behaviour, personal preferences and health behaviour.

4. Results

This chapter is made up of five sections. The first section outlines the characteristics of the data from the surveys, feedback conferences and action plans. The overview includes details on how PWE and job satisfaction co-varies with emotional states, types of activity, location and sociability.

Section two concerns the item sampling approach adopted to measure PWE and job satisfaction and the question of the measurement equivalence of the two survey conditions. Their psychometric properties are compared for scales concerning the PWE as well as job satisfaction.

Sections three through five form the substantive part of the thesis and look at the questionnaire and the experience sampling method as mobilisers for collective change efforts in a survey feedback setup. The two methods are used to examine the changes in the PWE for the work groups over the duration of the study. Section three investigates the changes in the survey responses and the statistical analysis of these changes. The following section analyses the observational data from the feedback conferences and the action plans with two purposes: to identify changes in themes between T1 and T2, and to identify the instances of sensemaking in the feedback conferences as an indicator of mobilising potential. The chapter concludes with a section summarising the evidence of the mobilising potential and effect of the two approaches in improving the PWE. Finally, the item sampling approach to ESM is evaluated based on the empirical data.

4.1 Result characteristics

The purpose of this section is to show the characteristics of the data collected. It provides an overview of the survey responses, observations from the feedback conferences and the action plans. Although not part of the research focus, experience sampling data of the PWE is in itself of interest in that few studies have systematically collected such data. The section will, therefore, provide a specific focus on providing an overview of the data collected using the ESM* method to provide a sense of the nature of the data, which results from using this particular item sampling approach. The characteristics of the experience sampling data include fluctuations of variables with mood levels and ESM coordinates as well as missing data.

4.1.1 ESM data on activity, location and companionship

The tables 4.1, 4.2 and 4.3 provide details on how the total of 4,581 completed MOCCs were distributed across different activities, locations and social interactions. The clearest pattern is that almost half of the MOCCs were completed when participants were in their offices. The most common category for companionship was 'alone', with 45% of MOCCs being completed when participants were alone. Yet companionship with colleagues was recorded in about one-third of the instances.

Table 4.1 Observations: Activity by location

ACTIVITY X LOCATION	Work— Office	Work— Other	Home	Other	TOTAL
Work—Core task	1485	784	269	49	2587
Work—Admin task	509	142	136	21	808
Phone	16	3	6	2	27
Email	111	25	51	10	197
Housework	0	1	129	7	137
Relaxing	8	24	267	88	387
Other	30	69	127	212	438
TOTAL	2159	1048	985	389	4581

Table 4.2 Observations: Activity by companionship

ACTIVITY X COMPANIONSHIP	Mana- ger	Colle- gues	Stu- dents	Stran- gers	Friends	Family	Alone	Other	TOTAL
Work—Core task	12	1031	436	15	0	18	1062	13	2587
Work—Admin task	3	335	6	4	0	15	443	2	808
Phone	2	7	1	0	0	2	15	0	27
Email	4	34	5	0	1	11	140	2	197
Housework	0	1	0	0	3	78	54	1	137
Relaxing	1	26	1	4	20	184	144	7	387
Other	2	94	7	37	11	75	193	19	438
TOTAL	24	1528	456	60	35	383	2051	44	4581

Table 4.3 Observations: Location by companionship

LOCATION X COMPANIONSHIP	Man- ger	Colle- gues	Stud- ents	Stran- gers	Friends	Family	Alone	Other	TOTAL
Work—Office	10	1044	58	1	0	0	1043	3	2159
Work—Other	11	407	381	23	1	4	210	11	1048
Home	2	4	0	1	7	309	657	5	985
Other	1	73	17	35	27	70	141	25	389
TOTAL	24	1528	456	60	35	383	2051	44	4581

4.1.2 Feedback conferences

The mean length of the feedback conferences for the work groups in the ESM condition was 2 hours and 16 minutes at T1 and 2 hours and 9 minutes at T2. A complete overview of the feedback conferences can be found in appendix I.

4.1.3 Action plans

Implementation of the action plans within the different work groups resulted in marked differences. Some (groups 1, 2, 4, 10) contained detailed descriptions of the themes discussed, and a subset of these (groups 1, 2, 4) outlined concrete actions to be put in place to address the problematic themes.

Other action plans (groups 5, 6, 8, 9) consisted of a keyword description of the discussion in bullet points. Three groups (6, 9, 10) were characterised by having a low ratio of concrete actions compared to the themes noted in the action plan. In the case of group 6, the transcript and the action plan indicated themes and related actions. However, there were no concrete actions noted. It is unclear whether the missing actions resulted from a misunderstanding or disregard for the instructions given.

The missing action plan from group 7 left the analysis of the action plans with only three action plans for the QUEST condition compared to six in the ESM condition. As the study design was unbalanced at the outset, with six work groups in the ESM condition and four in the QUEST condition, it posed a limitation on any analysis of the action plans.

Table 4.4 contains data from the action plans, including the total word count, as well as a categorisation of actions. I used the categories ‘employee action’, ‘management action’ and ‘joint action’ to denote their respective responsibilities as outlined in the action plan. The ‘joint action’ category signals that the initiative outlined was to be a joint effort between management and employees.

Table 4.4 *Number of actions noted in action plans for each work group*

ESM condition	Word count	Employee action	Management action	Joint action	Total
Group 1	1091	4	9	2	15
Group 2	1079	1	3	1	5
Group 3	320	1	4	1	6
Group 4	1150	1	7	8	16
Group 5	207	0	5	0	5
Group 6	220	0	0	0	0
Mean ESM	678	1	6	2	9
QUEST condition					
Group 7	-	-	-	-	-
Group 8	234	0	5	0	5
Group 9	621	0	4	0	4
Group 10	828	0	2	0	2
Mean QUEST	561	0	3.7	0	3.7

It is apparent from the table that both the word count and the total number of actions were higher in the ESM condition than in the QUEST condition. Moreover, it is noteworthy that none of the action plans in the QUEST condition contained any employee or joint actions. However, the observations from the feedback conference for group 7 indicated that a discussion concerning several themes resulted in concrete actions. This discussion suggested that the actions taken were both related to the members of the work group and a collaboration between employees and managers. Had the manager not misplaced the action plan, it is likely that it would have contained both 'employee actions' and 'joint actions'. As a result, this would likely have contributed to a less clear-cut distinction between the kinds of actions between the ESM and QUEST conditions. Disregarding the unbalanced design exacerbated by the missing action plan, the results support the notion that the total mobilisation for actions—as indicated by the steps taken in an action plan—was higher in the ESM condition.

4.1.4 Job satisfaction, mean mood and ESM coordinates

Hierarchical linear regressions (HLR) for job satisfaction by mean mood for each of the ESM coordinates revealed an association between mean mood and job satisfaction at each MOCC. This is in line with the existing literature in the field, which suggest that mood level covaries with affective attitudinal measures like the particular scale for job satisfaction used in the present study.

A Pearson's r correlation revealed an association between mean mood and job satisfaction ($r=.33$). However, the strength of the relationship between mean mood and job satisfaction differs across these coordinates, lending support to the notion that participants' activity, location and social companionship affect their overall evaluation of their job. Albeit the sharper differences in terms of the number of observations suggest that caution should be applied when drawing conclusions.

Figure 4.1. below shows the association between job satisfaction and mean mood across eight different types of companionship.

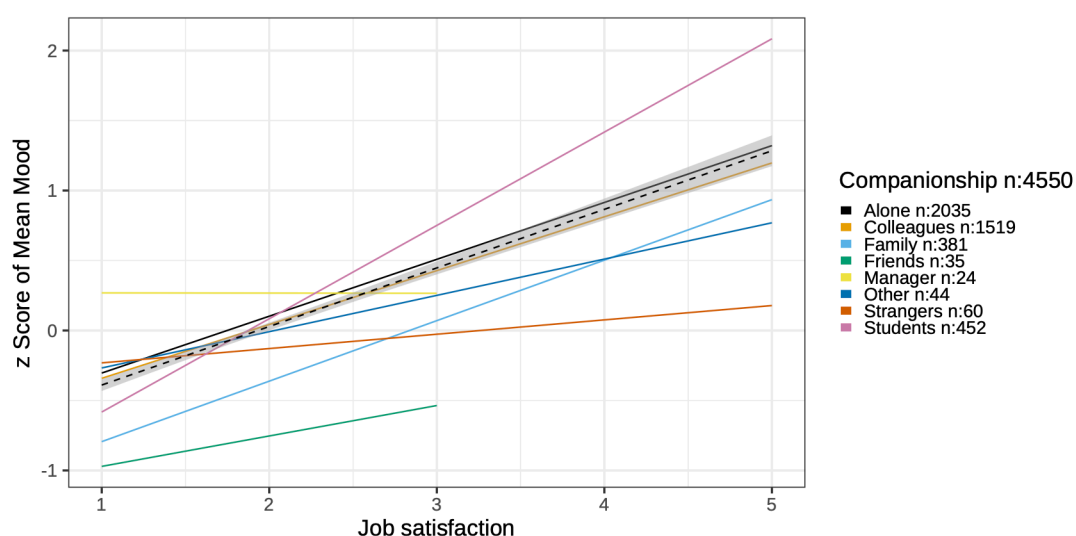


Figure 4.1 Hierarchical linear regression of job satisfaction by mean mood

The score on mean mood was the highest (indicating worse mean mood) in the instances when employees were in the company of their managers. Although the observations constituted less than half a percent ($N=24$), this is in line with the findings of Kahneman et al. (2004), who used the day reconstruction method (DRM) to look at the negative and positive events associated with different daily activities. Nevertheless, it is noteworthy that there was no association between mean mood and job satisfaction for the participants who completed a MOCC while with their managers. This might be caused by the limited number of observations in this category.

However, an equally small number of observations ($N=35$) with the companionship designate 'friends' indicated that the lowest scores (indicating better mood) were found when participants were in the company of friends. In this case, the regression line indicates that for the participants completing MOCCs while being around their friends, their general mood level was associated with their perceived job satisfaction. Yet for both the companionship categories, there were no observations at the high end of the job satisfaction scale, suggesting that the low

number of observations might have caused a restricted range in the scores recorded.

Two companionship categories with more observations were 'colleagues' (N=1519) and 'students' (N=452). For both of these, the regression line indicates that the full range of the job satisfaction scale has been used across the MOCCs. Moreover, the two regression lines illustrate a difference in the association between mean mood and job satisfaction. The correlation between the two measures is stronger in the cases where participants have indicated that they are with students than when they are with their colleagues. Moreover, the intercepts and slopes of the lines suggest that the range of scores in mood varied more when the participants were in the presence of students compared to when they were with colleagues.

4.1.5 PWE scales, mean mood and ESM coordinates

The association with mood level was higher for job satisfaction than any of the 32 PWE scales. A few of the scales related to job characteristics such as 'workload' and 'demand level' showed correlations with mean mood level that was almost as high as job satisfaction ($r=.27$ and $r=.32$ respectively). For the four composite PWE scales (D1...D4), the correlations ranged from .11 to .22 with the factor comprising intrinsic job factors (D4) achieving the highest correlation.

A complete correlation matrix for all the PWE scales and job satisfaction, including the number of observations, can be found in appendix F. Appendix E contains HLR plots for the main PWE factors and well as the composite factors (D1, D2, D3, D4) and for job satisfaction for all three (ESMCOORD).

4.2 The measurement equivalence of the two methods

This section examines the measurement equivalence of the ESM* and traditional questionnaire approaches when measuring PWE and job satisfaction. The purpose of this is to establish if the focal variables are similar across measurement conditions and thus understand whether the item-sampling approach constitutes a viable path for the implementation of ESM. Therefore, it outlines the psychometric properties of the questionnaires on job satisfaction and PWE deployed as either a traditional one-off questionnaire completed online (QUEST) or using the ESM* design. As the analysis was done half-way through the research project, it was based solely on data collected at T1.

4.2.1 *The psychosocial work environment*

As a first step in investigating if the structure of PWE scales differed between the ESM and the QUEST condition, I needed to establish that the model that I was basing the comparison on had a good fit for the data. I checked this by performing a confirmatory factor analysis (CFA) using the 'lavaan package' in R (Rosseel, 2011) on the sample containing the participants in the QUEST condition, specifying the 32 factors of the PWE questionnaire.

The CFA did not converge, which was to be expected with a sample of only 100 participants and a model of 32 factors, particularly considering the restricted range that was found for some items in the questionnaire. To test the fit of the model on a larger population, I performed the same CFA on an unrelated sample from a database (DB sample) containing 13,656 participants from a variety of jobs and sectors. The fit of the resulting model was assessed using the chi-square statistic (χ^2), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA) and the standardised root mean squared residual (SRMR). I used the cut-off values for the fit indices cited by Marsh et al. (2004) with CFI and TLI > .90, and RMSEA and SRMR < .08, indicating a good fit of the model. The fit indices were: TLI=.80, CFI=.82, RMSR=.09 and RMSEA=.08, indicating that the existing PWE model with 32 factors was not an optimal fit for the data.

That the original 32 scales were not an optimal fit for the sample did not invalidate the scale structure. As evidenced by Bjorner and Pejtersen (2010), some PWE scales can be influenced by differential item functioning (DIF) across job categories. In essence, that meant that specific items on a scale were perceived as relevant for a particular job group but not for others. As a result of this, a scale consisting of items exhibiting DIF will often have lower item intercorrelations, which could lead to the conclusion that the construct validity is poor. However, as Cronbach and Meehl (1955) point out, taking the measure of internal consistency as an indication of construct validity is predicated on the underlying theory that the phenomenon being measured calls for high item intercorrelations. The PWE scales are a way to conceptualise important aspects of the job and, as such, must satisfy several criteria to be a useful instrument in organisations.

As these instruments have gained popularity in Scandinavian countries, they serve a function as tools to improve the working conditions in organisations by providing guidance and insight for organisations, managers and employees as well as to inform policy at a national level. It is obvious that the constructs should be valid and stable, but they should also have ecological validity and fit into the

current way that society, organisations and employees conceptualise jobs and provide them with a framework that aids understanding of vital aspects of work life. As such, these generic questionnaires concerned with the psychosocial work environment are 'more than questionnaires' (Kristensen (2010, p. 149).

Although DIF on the PWE scales was not formally investigated, there was some evidence that the original 32 PWE scales showed evidence of restricted range in the samples. An example of this is the scale 'Risk of assault', where two items asked about experiences of being subjected to threatening behaviour as a consequence of the job and feeling unsafe. A third item on the scale asked about the perceived risk of being exposed to threatening behaviour as a consequence of the job. The last question has a low correlation with the other two questions in the QUEST sample. Reviewing the scores on these items indicates that the participants in the study have not experienced threats or felt unsafe, but that some perceive it as a potential risk of the job. Hence, the scale has a moderate-low internal consistency in the present sample but has high internal consistency in samples consisting of different job groups.

It is beyond the scope of the thesis to discuss the issue of restricted range and DIF at length. Nevertheless, it should be noted that restricted range and, to some extent, DIF is a consequence of using a generic questionnaire that asks the respondents to describe perceived hazards in their PWE. It also points to a key difference between most instruments that measure job satisfaction and instruments that are concerned with hazards in the PWE. As discussed in the introduction, the former is an evaluative assessment of the job or a facet of the job and often includes an affective element. The latter should be seen as a perception or description of the presence (or absence) of a particular characteristic or property of the job.

The PWE, as measured by the scales in the questionnaire, is hypothesised to have an effect on employees regardless of the attitude they might hold towards that particular facet of their job. On the other hand, job satisfaction measures are less likely to exhibit DIF or restricted range as described above, since they tap into the respondents' evaluations and feelings about an entity, which presumably has an element of interpersonal variability. Contrary to this, scores on many of the PWE scales show commonalities among people in similar jobs. That various aspects of a job's design affect employee wellbeing is an explicit point in much of the research within the PWE tradition (Kompier, 2003).

It is only possible to establish the semantic equivalence of the two methods if the starting point is a model that shows adequate fit for the data. With this in mind, it was justified to alter the structure of the PWE scales for the purpose of investigating

the equivalence of the ESM* and QUEST methods. Consequently, it was decided that a better starting point for a test of equivalence of the factor structures was to find the optimal model for the PWE items using data from the DB sample. The resulting factor model could then be applied to the ESM and QUEST samples, respectively, with a view to investigating the fit.

As a first step, I performed an exploratory factor analysis in R using the ‘psych’ package (Revelle, 2014) and an ‘oblimin’ rotation. Using the Kaiser criterion, factors that had an Eigenvalue greater than 1 were retained, suggesting a model of 19 factors would be a good fit for the data. The pattern matrix from the EFA was then used to specify a CFA with 19 factors. This largely retained the factor structure of the original PWE scales but merged some factors that were closely associated.

As noted above, I performed the CFA using ‘oblimin’ rotation. The model yielded a $\chi^2=49716.95$, TLI=.84, CFI=.82, IFI=.87, RMSR=.09 and RMSEA=.08. Using the recommended cut-offs by Marsh, Hau, and Wen (2004), it was clear that the model was not an optimal fit for the data. I used the pattern matrix to investigate the factors with low loadings. This revealed two problematic items, which were removed from the model. I ran an EFA again, this time specifying 19 factors. A model of 16 factors was indicated using the Kaiser criterion.

The pattern matrix from the EFA was used to specify a 16-factor model. The resulting CFA yielded a model with fit indices that indicated it as a good fit for the data with CFI, TLI and IFI > .90 and RMSEA and RMSR < .05. However, the final factor 16 consisted of only one question and, as a consequence, I decided to omit the final factor and specify a 15-factor model. The CFA for the 15-factor model had similar fit indices as the 16-factor model. However, the comparative fit indices Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were slightly lower for the 15-factor model—886796.55 and 888284.85, respectively, compared to the 16-factor model, with AIC=902565.47 and BIC=904162.78, indicating an improved model. I therefore decided to proceed with the analysis based on the 15-factor model

Internal consistency of the PWE scales. It has been argued that a measure like Cronbach’s alpha should not be used to investigate the internal consistency for intensive longitudinal data, where the primary analysis is within-person change (Shrout & Lane, 2012). Nevertheless, the nature of the data meant that it was not possible to use alternatives more suited to ESM data such as the generalisability theory (Cranford et al., 2006) discussed in section 3.5.7. This theory can only be applied to intensive longitudinal data if the same questions are answered several times across the MOCCs. The design of the ESM schedule meant that the majority of

the questions were only asked once, thus the approach could not be applied.

Since the purpose of the study was to investigate the measurement equivalence between the two conditions, however, I decided that it would be relevant to investigate whether the PWE scales could be shown to have internal consistency disregarding that they were collected over several MOCCs. To achieve this aim, I used the ‘psych package’ (Revelle, 2014) in R to calculate Cronbach’s alpha for the three samples and found values of .7 or above for 13 out of the 15 factors in the QUEST and DB samples, and the remaining above .65. This indicated a good internal consistency of the scales. The alpha values were slightly lower for the ESM sample but still acceptable ($\alpha > .65$) for 13 out of the 15 factors. Two factors were found to be problematic: ‘Risk of assault’ and ‘Organisational ethics’. As Schmitt (1996) has pointed out, when a measure has other desirable properties such as a such as coverage of a domain and reasonable uni-dimensionality, low internal reliability need not preclude its use.

An in-depth analysis of scores on the items revealed that this was due to a restricted range as a result of missing data. Respondents in the ESM condition often chose the ‘not applicable’ option for these items, indicating that they could not, or would prefer not to, answer the question. It is very likely that the ESM condition with the focus on short MOCCs caused the respondents to miss the subtle difference in meaning between ‘not applicable’ and ‘disagree’ for these particular questions. When presented with questions regarding the experience of threats at work or whether the job has forced them to engage in behaviour that goes against their own personal ethics, ‘not applicable’ can be taken to mean ‘no, that has not happened and it is therefore not applicable to me’.¹⁴

4.2.2 Job satisfaction

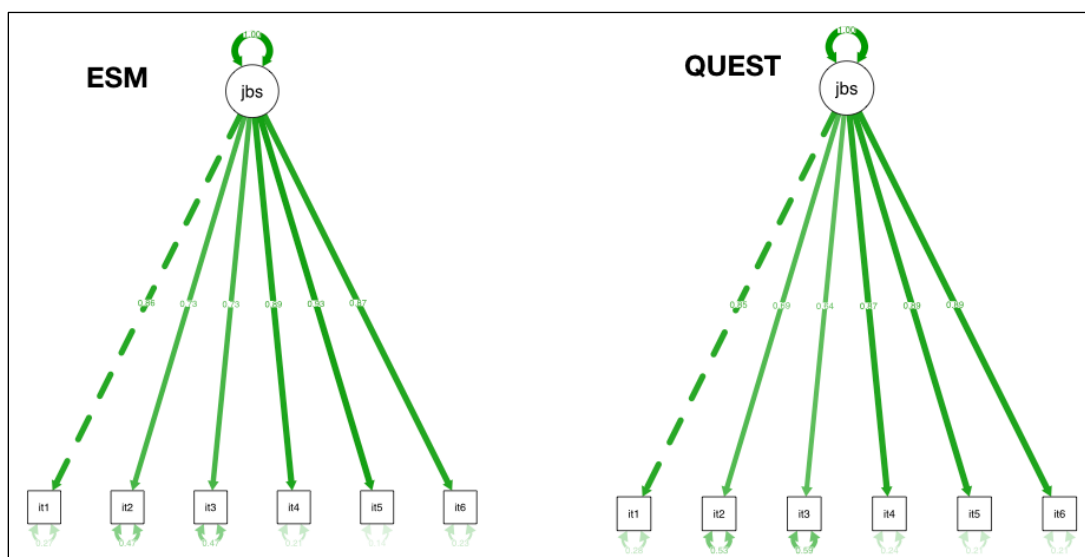
Form invariance. The results of the CFA conducted to test for form invariance between the two conditions is provided below (figure 4.2). I used the cut-offs suggested by Hu and Bentler (1999) that suggest a good fit is indicated with CFI > .90, TLI > .90, SRMR < .08 and RMSEA < .06, thus indicating that the model fit the

¹⁴ This in itself is a noteworthy finding: the subtle inaccuracies that might work or pass unnoticed in context are actualized and problematic when the context changes, as in the case of ESM, where speed and contextual factors force participants to answer the questions quickly. As a result, they have less time to carefully consider the meaning and logic of different responses.

data.

The RMSEA of the ESM condition did not fall within the suggested cut-off. Using the different combinational rules suggested by Hu and Bentler (1999), there was nevertheless reason to conclude that the model provided a good fit for the data. This suggested form invariance between the two conditions.

Figure 4.2 CFA models for job satisfaction: ESM and QUEST conditions



Fit indices ESM condition

CFI=.976

TLI=.960

SRMR=.030

RMSEA=.115 with 90% CI=(.064-.168)

Fit indices QUEST condition

CFI=.992

TLI=.987

SRMR=.023

RMSEA=.060 with 90% CI=(0-.117)

Measurement invariance. The results in table 4.5 show the three-step procedure where a chi-square test was used to examine differences between the two nested models. In 'model 0', the CFA model is fitted in the QUEST and ESM groups, allowing regression slopes and intercepts to be free with no invariance of parameters across them. In 'model 1', the CFA model is fitted in the QUEST and ESM groups, with the regression slopes held equal across the groups and the chi-square test for difference for the two models used to test for invariance of the regression slopes.

In 'model 2', the CFA is fitted in the QUEST and ESM groups, with the regression slopes and intercepts held equal across them. As model 2 is nested within model 1, the chi-square test for difference was used to test for invariance of the

regression intercepts. As evidenced in the table, the chi-square difference for model 0 compared to model 1 was not statistically significant ($\Delta\chi^2=23.47$, $df=5$), suggesting that the regression slopes across the two conditions were invariant.

The chi-square difference for model 1 compared to model 2 ($\Delta\chi^2=23.47$, $df=5$) was statistically significant at the .05 level, indicating a partial measurement invariance. Following Dimitrov (2006), the degree of partial measurement invariance was further investigated by setting some intercepts free across the two conditions. The modification indices, using item 5 on the JobSat scale, was set to have a free intercept within model 2, producing the modified 'model 2P'.

Table 4.5 Test for invariance of regression slopes and intercepts

Model	χ^2	df	$\Delta\chi^2$	Δdf
Model 0	39.82	18		
Model 1	46.84	23	7.02	5
Model 2	70.31	28	23.47*	5
Model 2P	48.46	28	1.63	5

Model 0: Non invariant slopes and intercepts

Model 1: Invariant slopes, non-invariant intercepts

Model 2: Invariant slopes and invariant intercepts

Model 2P: Invariant slopes and invariant intercepts with a 'free' intercept for item 5 (partial invariance)

* $p < 0.05$

When item 5 was set to have a free intercept in model 2 (model 2P), the chi-square was 48.46. The chi-square difference between models 1 and 2P ($\Delta\chi^2=1.63$, $df=4$) was not significant.

Out of the six items, five showed invariant intercepts but otherwise high measurement invariance across the ESM and QUEST groups. This suggested that the construct of job satisfaction as measured by the modified AJIG scale was similar across the two conditions.

Reliability of the job satisfaction measurement. The first step in establishing the reliability of the job satisfaction measurement in the ESM condition was to calculate the variance component as outlined in section 3.5.7. The resultant variance components for the ESM condition are displayed in table 4.6.

Table 4.6 Variance components for job satisfaction—ESM condition

Variance component	Variance notation	Percentage explained
Variability across items	σ^2_{ITEM}	.37
Variability across persons	σ^2_{PERSON}	27.43
Variability across measurement occasions	σ^2_{MOCC}	.2
Person-by-item variability	$\sigma^2_{\text{PERSON*ITEM}}$	25.68
Measurement occasion-by-item variability	$\sigma^2_{\text{MOCC*ITEM}}$.92
Residual variability	σ^2_{ERROR}	45.38
	TOTAL	100

The two results for the two generalisability coefficients on the T1 data were: $R_{1F}=.83$ and $R_{KF}=.99$, which suggested very high reliability for the JobSat measure across all MOCCs and high reliability of the measure on a randomly selected day. A Cronbach's alpha was computed for the QUEST data and yielded a value of .9.

4.2.3 Conclusions

It could not be determined whether there was measurement equivalence between the PWE scales in the two conditions. The residuals resulting from the comparison of the correlation matrices between the two conditions indicated moderate differences in the constructs. However, it was noteworthy that ResidualDB-QUEST was similar to ResidualDB-ESM. Thus, even an instrument shown to have scales with adequate internal consistency can have different factor structures in a specific sample, as in the present study. Clearly, the finding that the largest residual was the Residual QUEST-ESM implied a difference in the factor structures between the two conditions.

Missing data posed a significant challenge in the present ESM design. Using only data from T1 meant the analysis was restricted. Once all T2 data were available and included in the analysis, it became possible to gain a clearer picture from the analysis of the differences between the two conditions. Using a CFA approach, it was possible to do a formal test of the difference between the two models.

The reliability of both the PWE and job satisfaction scales in the ESM condition were acceptable when a traditional method for assessing internal reliability was applied. The difference between the two conditions was minimal. However, the Cronbach's alpha analysis was, at best, an approximation of a reliability measure for the job satisfaction scale in the present research design. A proper appropriation of

generalisability theory provided a better estimate of reliability for the measure of job satisfaction.

A key finding was form invariance and partial measurement invariance between the two conditions for the measure of job satisfaction. It suggested that the ESM* approach could be used to measure a questionnaire construct like job satisfaction without changing the meaning of the construct. The tests for reliability also indicated that the adapted AJIG scale is reliable when deployed using a sampling approach.

The results suggested that ESM designs could benefit from adopting an item sampling approach. This finding could be followed up by further studies that investigate how the approach holds up with different sampling frequencies and additional constructs.

Limitations. A fundamental limitation of the present study was the influence of order effects on the findings. The way that the ESM test occasion was set up meant that the job satisfaction questions were always asked first, followed by the PWE scales and then ESMCOORD, with ESMMOOD at the end. The ESM test occasion setup gave the participants a predictable pattern. They knew what to expect at each MOCC in terms of the structure of the questionnaire. The decision was made to reduce the cognitive load at each test occasion and to help the participants form a habit around reporting the ESMCOORD and the ESMMOOD dimensions.

By placing the core questions first in the questionnaire, participants would give the primary attention to this question. The ESMCOORD and ESMMOOD questions were placed at the end in the same order at every test occasion. Positioning the questions in this way was done so that the respondents could quickly fill in the mood and coordinate questions without spending too much time reading and interpreting them.

The order of the questions could have affected the answers. As Schwarz (1999) has pointed out, order effects in questionnaires can have a substantial impact. It is thus plausible that being asked a PWE question about an area that has importance or carries emotional weight affected the reported mood level. In this case, the attention drawn to a particular topic could also have affected mood. An observed emotional covariance between a mood coordinate and the PWE could thus be a proxy for the importance of the dimension.

4.3 Hedonopragmatics: Survey responses

The mobilising effect of the survey feedback method was examined using three variables that provided indicators about the process of the SF approach, and the outcome of indirectly inferring a mobilising effect.

Previous studies have implied a mobilising effect of the SF method and, consequently, its ability to facilitate change in areas related to the psychosocial work environment. There is the possibility that other explanations could account for this observed effect. Without an understanding of the underlying processes, it is complicated to harness the mobilising effect, adapt it to different cultural circumstances and organisational realities and to develop it further to improve its effectiveness.

4.3.1 Data quality

Figure 4.3 shows the mean number of measurement occasions completed for each of the six work groups at T1 and T2 in the ESM condition. The difference in completion rates between the groups is substantial: two groups (groups 2 and 5) have less than half of the MOCCs completed at T2. Also apparent is the high completion rates in groups 3 and 6—the two groups that consisted of administrative staff rather than academic and teaching staff.

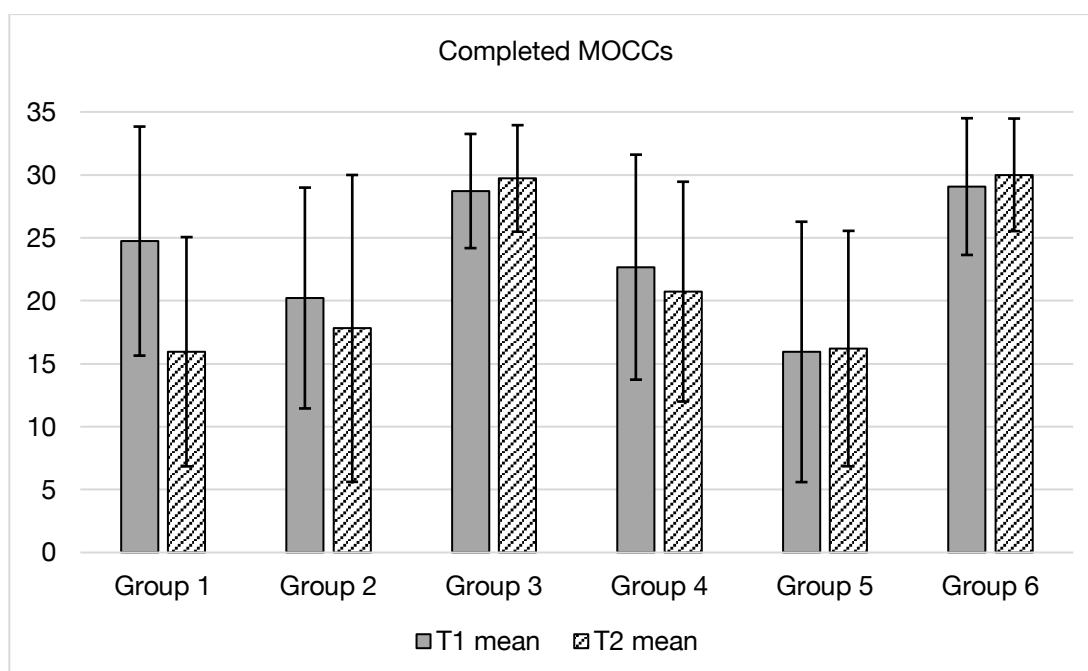


Figure 4.3 Mean number of completed measurement occasions (out of 36) by groups (bars indicate standard deviations)

4.3.2 *The psychosocial work environment*

An analysis of variance for mixed designs was conducted to test method (ESM vs QUEST) by Time (T1 vs T2), with dependent variables: PWE factors and job satisfaction. As shown in table 4.7, significant univariate interactions were found for two (D3 and D4) of the four main PWE factors. Hypothesis 1 was thus partly supported.

The interaction effect for job satisfaction as the dependent variable was not significant. Hypothesis 2, stipulating that there would be significant differences in job satisfaction depending on the research condition, was therefore not supported.

As the analysis of variance in table 4.7 shows, there was a main effect of method for three of the four PWE scales, but not for job satisfaction. This main effect thus indicates that the ESM and QUEST conditions differ in the scores of the PWE. Since the comparison of the measurement equivalence between the two methods was inconclusive, this main effect could either indicate that the measures are indeed non-equivalent, or it could be an indication that the ESM method captures the PWE dimension in a more nuanced way.

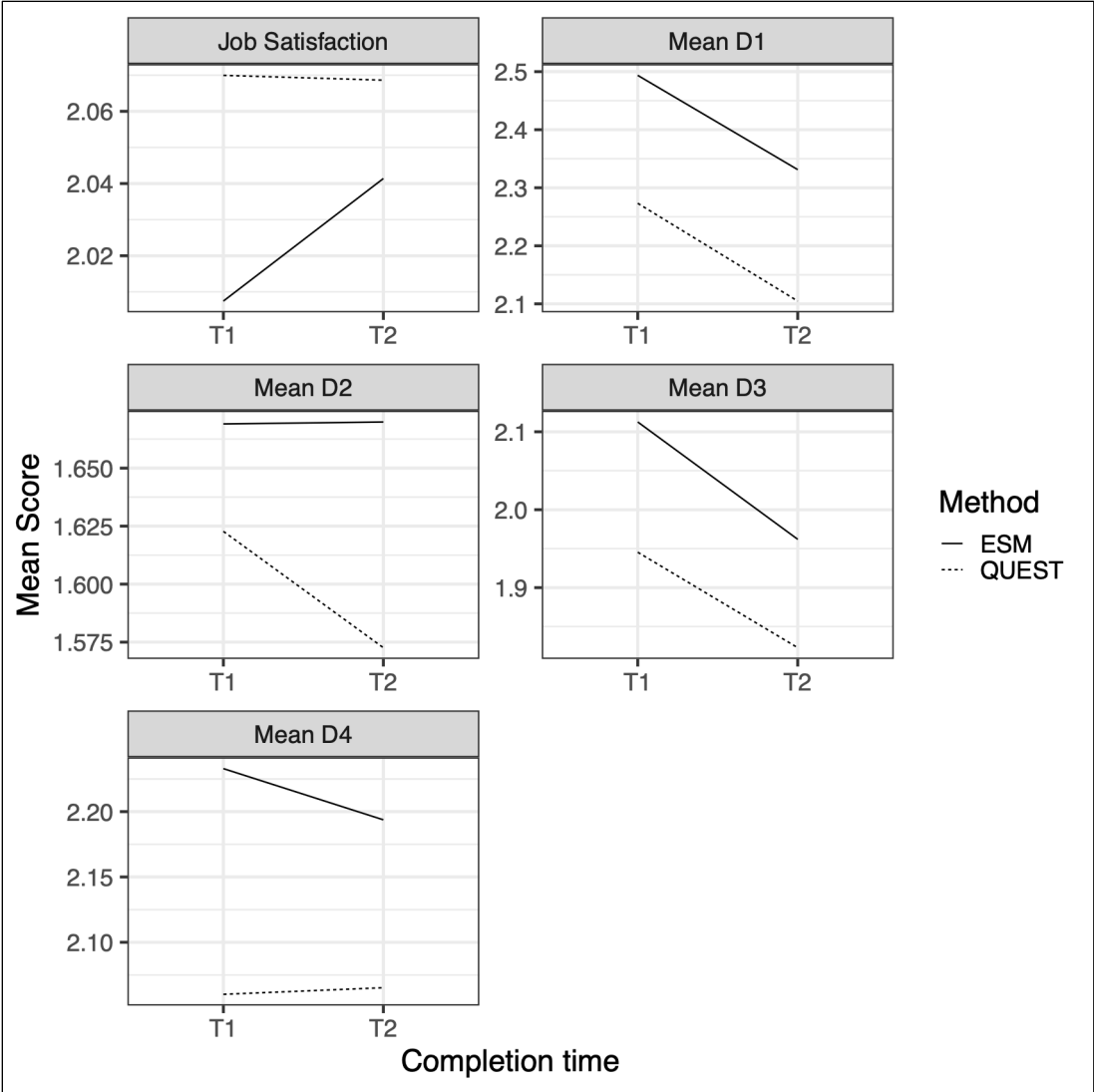
The analysis of variance also showed a main effect of time on D1, which is the PWE factor concerned with the overall organisation and management. This finding makes sense since the topics related to this factor are concerned with overall organisational initiatives and the top or senior management. As the whole organisation went through a process similar to the ten work groups in the present study, the organisation is likely to have used the knowledge obtained to initiate improvements related to general issues like the visibility of senior management, issues related to organisational culture, policies, information systems etc. The topics related to the D1 factor are thus more likely to benefit from general organisation-wide initiatives, resulting from the whole organisation undergoing a survey feedback process.

Table 4.7 Means, standard deviations, method and time effect for main factors regarding the psychosocial work environment and job satisfaction

Factors	ESM T1 (n=84)		ESM T2 (n= 84)		QUEST T1 (n=58)		QUEST T2 (n=58)		Method			Time			Method x Time		
	M	SD	M	SD	M	SD	M	SD	F	p	η^2	F	p	η^2	F	p	η^2
D1	2.497	.534	2.361	.577	2.191	.631	2.119	.580	9.24	.003	.592	5.87	.017	.376	.50	.480	.032
D2	1.688	.417	1.672	.401	1.563	.483	1.555	.391	3.61	.059	.960	.14	.713	.030	.02	.897	.004
D3	2.157	.715	1.992	.642	1.817	.525	1.844	.540	6.59	.016	.374	3.45	.065	.215	6.59	.011	.411
D4	2.264	.437	2.207	.452	1.993	.464	2.068	.494	7.72	.006	.650	.19	.665	.016	3.96	.049	.334
JobSat	2.03	.55	2.05	.56	2.07	.80	2.08	.78	.00	.96	.00	1.71	.19	.59	1.18	.28	.41

Figure 4.4 contains the graphs of the means with a downward slope from T1 to T2, indicating an improvement on the PWE and job satisfaction scales. In figure 4.5, a more detailed indication of change is provided for the level of the work group. The graphs reveal marked differences between the groups. Of particular interest is group 3, where job satisfaction and mean score on D2 worsened substantially between T1 and T2. As I will discuss later, this was largely associated with a particular event that happened during the ESM period.

Figure 4.4 Method x time interactions



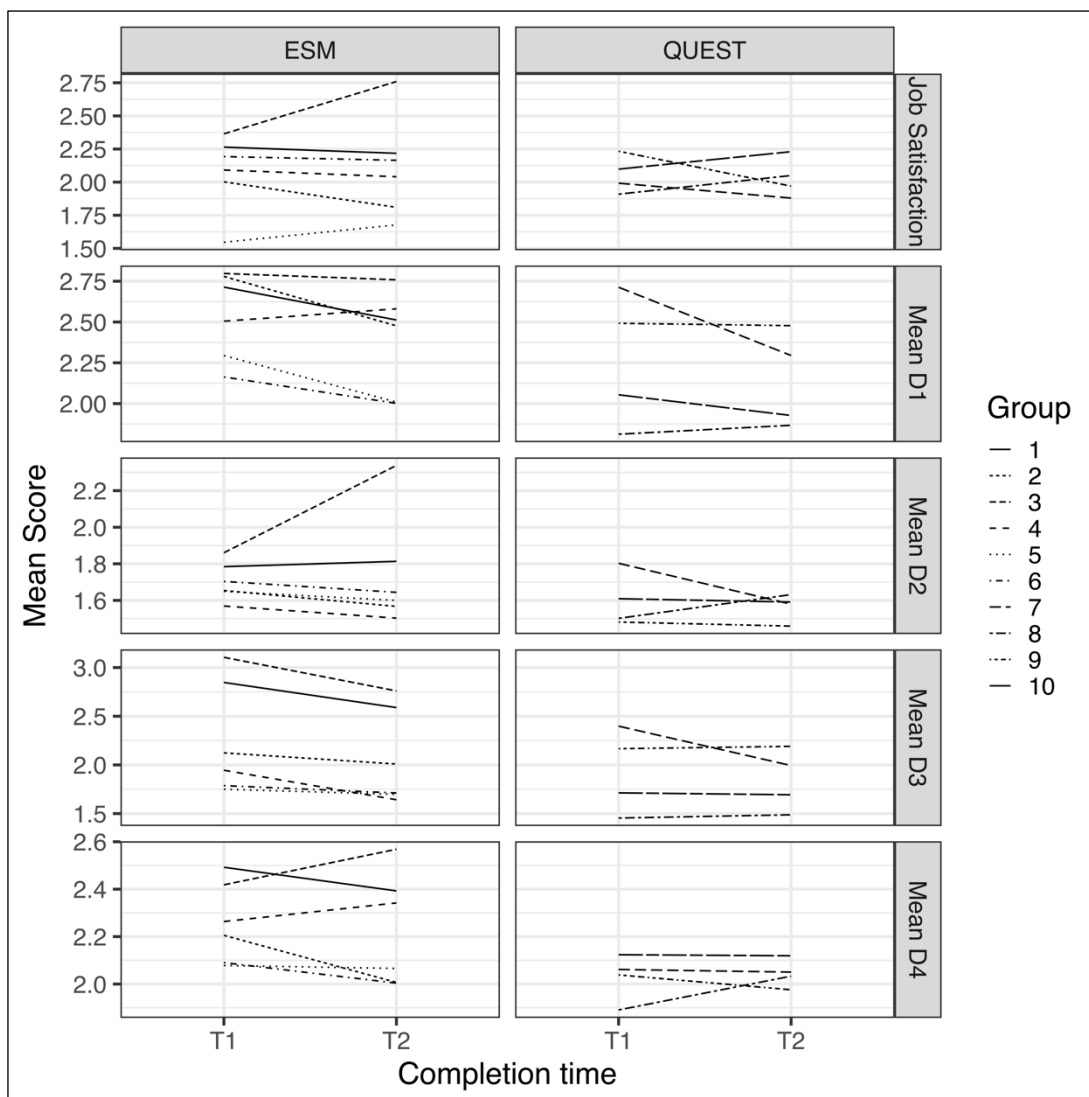


Figure 4.5 Work groups x time interactions for job satisfaction, D1, D2, D3, D4

4.3.2 The U-index – measuring changes in mood

The U-index (Kahneman & Krueger, 2006) was used to investigate whether the number of MOCCs changed between T1 and T2. It showed the means for the six groups in the ESM condition at T1 and T2, respectively. Although it could be observed (figure 4.6) that there was an increase in the mean of MOCCs with a dominant negative emotion between T1 and T2, a one-way repeated measures ANOVA revealed that this was not significant $F(1, 192)=.77$.

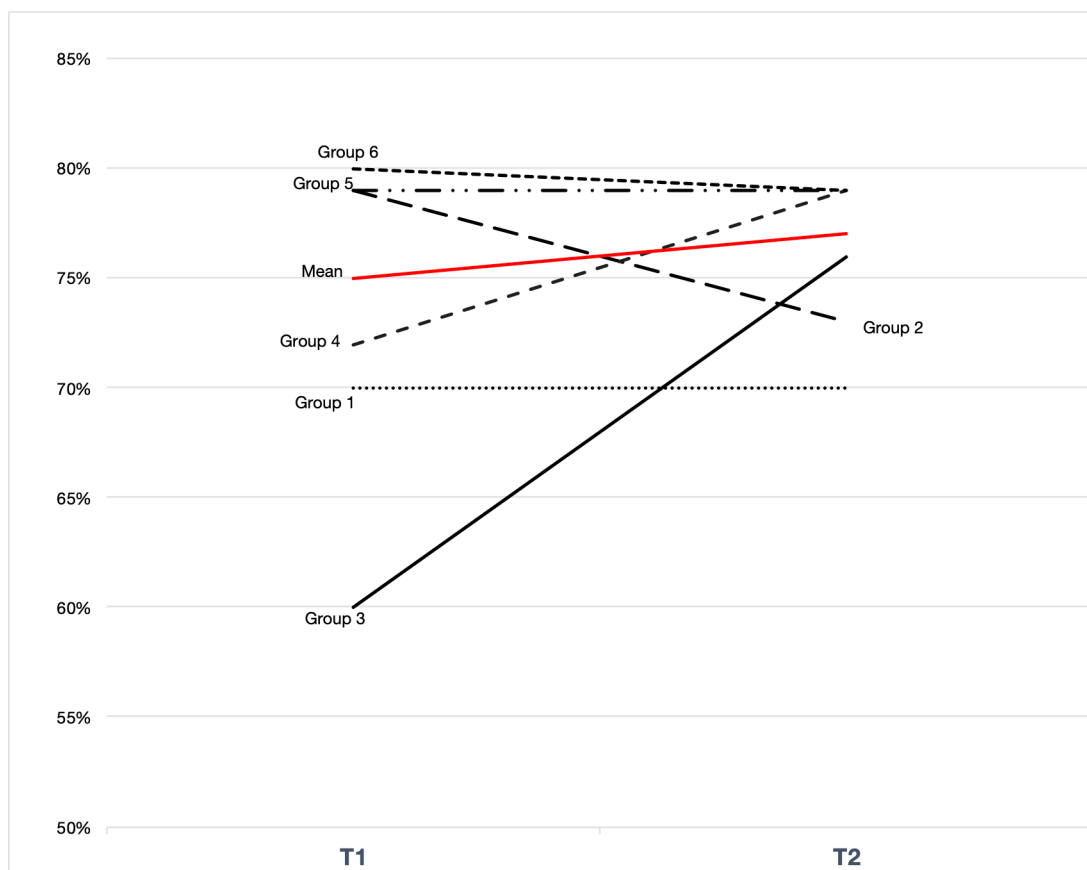


Figure 4.6 U-index change T1–T2 for ESM groups

4.4 Hedonopragmatics: Feedback conferences

4.4.1 Sensemaking at the group level

I coded the feedback conferences for the occurrence of sensemaking using the method outlined in section 3.4.7. In most of the instances where sensemaking was identified as having taken place, the exchange in the feedback conference was similar to what Rutledge (2009) describes as characteristic of sensemaking in meetings. At the top level, the exchanges containing sensemaking were characterised by two primary components: first the move from having an incomplete understanding of a situation or a topic to enhancing that understanding, and then a shift towards action or seeing the potential for action.

Specifically, these moments took the form of a frank exchange between members of the group and often started with someone selecting a situation or topic and offering a frame for interpretation. This perspective was typically put forward in a tentative manner rather than as a definitive description. Often there was a slight hesitation in the person who laid out the proposed frame or perspective. This

corresponds to the 'creation' process, noted by Sandberg and Tsoukas (2015). The act of proposing the frame was an invitation to other group members to comment on, complete or extend the proposed frame. After the initial proposal, another member of the group elaborated or commented on it. These comments initiated a dialogue wherein others in the group could contribute by adding or subtracting views. This is the part of the sensemaking process which Sandberg and Tsoukas (2015) refer to as 'interpretation'.

Modifications to the frame are characteristic of this process, inasmuch as the problem discussed looks different as a result of the dialogue. Clarity occurs either because of a deeper understanding of what was hitherto an issue or problem, or that a vague and complicated issue is clarified or simplified through a new sharper lens. In both cases, it is this process of 'enactment' that allows the group to remove obstacles that have prevented them from moving forward towards action and solving the issue (Rutledge (2009).

Sensemaking does not always imply that people will develop clear solutions to the issues in question. What is characteristic of sensemaking is that the participants, through their dialogue, move the issue towards a more precise understanding through several proposed frames or possible actions. These frames or actions can either make the problem clearer, and thereby make action possible, or in some cases, solve it. In either event, the propensity for action is characteristic of the sensemaking process.

Example of sensemaking. As it is somewhat difficult to provide a general description that summarises how the instances of sensemaking appeared in the feedback conferences, I have provided an example of how an such an instance took place. Table 4.8 contains a summary of the main components of the dialogue between the participants in the left column. The right column lists the description of sensemaking characteristics.

It is apparent that the exchange contains the characteristics of sensemaking as identified by Weick (1995) in that it is grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues and driven by plausibility rather than by accuracy. Moreover, it appears that the process is similar to that proposed by (Sandberg & Tsoukas, 2015) of creation, interpretation and enacting.

Table 4.8 Example of sensemaking in group 1 at T1:

Summary of dialogue between participants	Sensemaking characteristics
The dialogue around the development activities starts when an employee calls for the immediate manager to take a greater interest and become more involved in employee development by being more available and participating in teaching in the department.	A theme is brought up and framed by a participant. <i>Creation</i>
This makes another person reflect on the general need to develop the teaching and the quality of the teaching systematically so that the teachers can meet the requirements of the profession.	Another participant reflects on the theme and the framing and offers a modified (wider) frame on the issue raised, connecting the topic to an issue of professional identity.
This causes employees to reflect on how this could take place. Two team members state that they can see the need for this but acknowledge that they cannot identify a way to make it happen.	Other participants offer support for the framing of the issue and try to identify solutions to the problem as it is framed. The topic is elaborated on. <i>Interpretation</i>
Yet another participant suggests that the existing didactic forum within the department could find greater use and perhaps be planned to take place in connection with other departmental meetings to ensure that the discussions around this topic are prioritised.	One participant offers a modified frame around the problem, which opens the potential for action. <i>Enactment</i>
The manager closes down this suggestion made by the employee, saying that a solution that is similar to this has been tried without success because the employees did not engage in the process.	The suggested action is discredited by the manager.
The manager's response leads to the employees discussing the structure and management of the meetings, which they think has prevented them from having the didactic discussion. They have found the meetings unstructured and would like greater discipline, which management has thus far not enforced.	The employees reframe the nature of the obstacle as the manager identifies it. They restate that the proposed solution is viable if contextual factors are changed. <i>Interpretation, enactment</i>
This brings up the subject of prioritisation in the meetings and whether these developmental activities have an importance that merits their inclusion over other general organisational and management-related issues. They end by agreeing that this is an important issue they need to address at the upcoming staff meeting.	The proposed solution is identified as viable, and the discussion moves to whether it is desirable as it might involve a trade-off. The group members agree on an action, which is to discuss the priority of the topic. <i>Enactment</i>

Occurrence of sensemaking. Sensemaking occurred in 32 out of the 131 themes (24%) identified in the feedback conferences. The distribution between the ESM groups and the QUEST groups was very uneven, with only three occurring in the QUEST groups and 29 in the ESM groups. Close to half of all the instances of sensemaking (44%) were identified in themes related to the grouping variable 'top management and organisation', which bears some resemblance to the factor D1 used in the quantitative analysis.

4.4.2 Identifying the mobilising effect

In section 2.7, I stipulated that the mobilising effect of the survey feedback method

is likely dependent on the micro-mediating process of sensemaking in the work groups. However, in the data collected there are more data points that can be used as proxies, indicating that a mobilising effect has occurred as a result of the survey feedback process.

The mobilising effect was investigated by looking at the factors: sensemaking as it was coded in the transcripts from the feedback conferences, survey response change and change reported by the participants in the feedback conference. The original intent, to include ‘solutions generated’ in identifying a mobilising effect, was abandoned when the data revealed that for a large number of instances, it was not possible to make a reliable distinction between the occurrence of ‘solutions’ and ‘opinions’ from the position of an observer. The difficulty was related to utterances, which posed a solution, but also created a reaction from others in the work group.

T1				T2	
Theme /issue raised (T1) (FC)	Solutions generated (FC)	Sensemaking (FC)	Action plans	Change feedback conference (FC T2)	Changes survey responses (Survey responses)
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Table 4.9 Matrix with indicators of a mobilising effect

An example was when a participant suggested that the organisation scrap the newly implemented time registration system, which could be a critique as well as a solution. Another category of pseudo-solutions was when a participant proposed an obvious course of action, which did not consider certain constraints that most people in the group would agree were the reasons for the prior failure to solve this issue. Most of these pseudo-solutions did not qualify as viable resolutions that could bring an issue forward, and they were met with indifference by the other participants. The ‘observed mobilising potential’ outlined in section 3.4.9 was consequently assessed by a combination of the instances of sensemaking. It indicated a discussion about the theme to be mentioned alongside concrete action in the action plan prepared by the work group.

A matrix for data points indicative of a mobilising effect. Using the model for identifying change outlined in table 4.9, I created a summary table for each of the work groups containing the indicators of a mobilising effect. The seven data points were:

- ‘Survey change’—indicating the number of themes with a change in the

score between T1 and T2.

- 'Survey with sig. change'—indicating the number of themes with a change in the score between T1 and T2 reaching statistical significance.
- 'Feedback conf. change'—specifying whether the participants in the feedback conferences at T2 noted that a change had taken place.
- 'Survey and feedback conf. change'—the number of themes where both 'Survey change' and 'Feedback conf. change' occurred.
- 'Sensemaking'—specifying the number of themes where sensemaking was coded.
- 'Action plan'—recording the number of themes with a concrete action noted in the action plan.
- 'Action plan and sensemaking'—the number of themes where both sensemaking and concrete action were noted.

As a way of summarising the mobilising effect, I created a summary across the categories specifying that a mobilising effect could be said to have occurred if a number of the data points were indicative hereof. I specified two versions of the change thesis using a Boolean string. In one version, which I refer to as the *strong thesis*, a change in a theme can be said to have occurred if there was a change in the survey score on a scale related to the theme. This must then be supported in the observational data at the feedback conference at T2, noting that the theme was discussed during the feedback conference at T1 where sensemaking took place and was further supported by being mentioned as a concrete action in the action plan. Formally the Boolean string for the strong thesis was:

Survey change AND Feedback conf. change AND Sensemaking AND Action plan

I also specified a *weak thesis* of change, where either change in an appropriate scale related to the theme changed between T1 and T2. Alternately, the feedback observational data from the conference at T2 indicated a change and either an instance of sensemaking or the mention of a concrete action that was related to the theme. This resulted in the following Boolean string:

Survey change OR Feedback conf. change AND Sensemaking OR Action plan

In the following description of the work groups I will use the resultant matrix shown in table 4.10 as a summary of the change indicators in each of the ten work groups.

Survey change	Survey with sign. change	Feedback conf. Change	Survey and feedback conf change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
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Table 4.10 Matrix for summarising change indicators

4.4.3 Descriptions of changes in the work groups

Following section 3.3.6, which reviewed the background and biographical data of the work groups and participants, the following section presents a brief description of the characteristics of the results for each of the ten participating work groups. Results include observational data from the feedback conferences as well as changes in the survey responses from each group. Where relevant, references are made to themes as they appear in the summaries for each group—using ‘#’ to denote the number of a theme—as it appears in the table in appendix B.

Moreover, the section outlines the effect of the survey feedback treatment for each group. To achieve an overview and a uniform approach, it presents a summary of the same variables observed in each group with observations of the relevant circumstances. It makes visible the processes and contextual factors that affected the change efforts in each work group.

Group 1 (ESM). During the feedback sessions it became clear that the management of this work group, in terms of attending to the employees’ wellbeing and continuous development, were core issues that affected the psychosocial work environment of the group members (#1, 2, 3). Moreover, it was evident that the manager’s implementation of organisational changes was perceived as problematic and a cause for concern (#12, 14). Many of these concerns were directly addressed in the feedback conference at T1 as well as in the action plans. The results from the survey data and the feedback conferences at T2 suggested that several of these issues had successfully been addressed.

A total of 17 themes were observed during the feedback conference.

Survey change	Themes with sign. change	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
14	3	15	13	8	15	8	7	14

82%	18%	88%	76%	47%	88%	47%	41%	82%
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Internal communication was problematic both in terms of timing and medium (face-to-face or via email or intranet) (#5). There was a slight worsening of scores from T1 to T2 and the problems flagged at T1 were reiterated at T2. The action plan listed two concrete actions for this theme: the requirement for employees to be responsible for staying on top of the information flow by consulting the intranet on a daily basis, and the intention to install a touch-screen computer with access to the intranet in the staff break room. Hence, the action plan included actions that did not address the problem of poor quality, timing or the delivery of information.

Group 2 (ESM). In the feedback conference at T1, as well as in the subsequent session with the manager, it was clear that the group had a strong affiliation to their profession. Many of the challenges they experienced as employees in the organisation were attributed to the organisational procedures of UCD (#1, 2) which they perceived as impeding their teaching practices. They described how what they perceived to be unnecessary bureaucratic procedures were implemented without regard for their particular need as academics (#3). This was seen as particularly problematic in relation to the planned relocation and their integration into a larger campus with several different courses (#2).

The strong professional identity of the group members with the profession for which they were training students was especially evident when they contrasted it with their lower affiliation with the remainder of the UCD organisation. Many of the concerns voiced at T1 by both participants and management were related to the prospect of having to move to another campus, which had teachers and students from disciplines different from their own. Specifically, the concerns were related to the decision authority available to the manager of the work group (#2, 15). At T1, which took place while they were located at campus D, the management's ability to manage the group successfully was perceived as being predicated on the independence that came with being an autonomous and physically separate unit within UCD.

Although the formal management structure and organisational policies would suggest otherwise, the management was described in a way which suggested that it was unrelated to the remaining management structure. This perception prevailed from T1 to T2, 13 months later. At the time of the second survey and feedback conference, the group had been at the new location for five months.

A total of 17 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
13	2	5		5	5	5	3	3
76%	12%	29%	0%	29%	29%	29%	18%	18%

The structural barrier for information outlined the problem and the conversation (#4). It contained an in-depth conversation about the issue, which involved sensemaking, and the action plan laid out concrete actions. The immediate manager highlighted the importance of various organisational emails. However, it transpired from the feedback conference at T2 that the number of email strings passed around in the department was overwhelming. It appeared that the internal information and communication policy of the organisation represented the main problem, and as such something that outside the remit of the immediate and top management.

Collaboration and support from the administrative staff and IT decreased since the implementation of a new structure (#5). The action plan mentioned that IT needs a warning system to prevent IT-system updates from taking place during teaching hours. However, this action does not address the core of the problem as it is presented by the employees, which is about the lack of support and collaboration with IT. Participants noted that they could not access support when equipment failed in the classrooms and that IT dictated how the teaching staff should classroom resources rather than providing support for the way the teaching staff felt works best. At the feedback conference at T2, the theme was readdressed but with more emphasis on the problems that the requirements from IT created for the teaching staff. It appears as if the issue outlined by the employees at the feedback conference did not match the action plan.

At T1, the group noted the high level of social cohesion among its members and stated that everyone felt a sense of belonging (#8). Social cohesion and the sense of belonging was attributed to a long history together. However, one person noted the flip side of this, which was a lack of dynamism and a sense of being kept in specific roles. At T2, one group member stated that since T1 she had reflected on her opinion of the work group and since come to believe that some people felt the strong bonds in the group were restraining them from voicing their opinions. This aspect is covered in the survey theme 'groupthink'. The real effect of the SF method was visible at T2 when the new data and the conversation from T1 together formed a

new perspective on the issue.

Group 3 (ESM). The main themes from the feedback conferences related to how the work group was positioned within the organisation both in terms of how it affected its long-term survival as a separate unit and how it interfaced with other departments. Specifically, the employees raised the issue that it was unclear who in the organisation could ask for support from this unit and whether tasks assigned to the unit were under the purview of the local management (#1). Related to the unit's organisational positioning, issues related to how the 'manager-once-removed' (Jaques, 1989)—the immediate manager's manager—was seen as far removed from the unit, which made it difficult for the employees to see how the unit fit into the overall strategic initiatives of the organisation (#2). This contributed to the perception of the unit as being unmoored within the organisation, as well as making it problematic for the immediate manager to provide the employees with information about organisational developments relevant to the unit's daily functioning. The latter tied into discussions about the lack of clear learning and development initiatives for the employees and the internal competition to be assigned the most prestigious positions in the unit (#5).

Prior to the first survey feedback intervention at T1, the manager informed me about a process that the unit had gone through with an external consultancy to address the internal 'climate'. I inquired further into this process and was given a description of a workshop and several meetings, which had taken place eight months earlier. The interventions by the consultant had addressed themes related to a lack of trust between the employees and the immediate manager as well as the collaboration and collegial relationships among the members of the work group. Though the manager conveyed the opinion that the intervention had not had a visible effect on the collegial relations and the climate in the unit, they were less certain about how the perception of their management had changed.

A total of 10 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
4	3	3	3	3	5	2	1	3
44%	33%	33%	33%	33%	56%	22%	11%	33%

The group is small, which means that the statistical power is low. The vast majority

of differences did not reach statistical significance.

A major theme for the unit was its organisational position, purpose and direction. At both T1 and T2, there were in-depth discussions about this issue, and at both times the conversation was characterised by aspects of sensemaking that both management and top management take part in outlining the problem and possible actions to be taken (#1, 3). However, problems circumventing organisational priorities and strategic direction were unclear. Subsequent conversations with the senior management revealed this to be the case, and the unit was disbanded one year after the current study ended.

I attributed significant negative relations between co-workers to a current dispute about the relocation of two of the six group members to a new office space within the building (#4, 5). The relocation happened during the ESM period, and one of the group members pointed out the spike in her emotional reactions in her ESM mood readings. As the feedback conference took place only a week after the last ESM measurement occasion, it was a sensitive topic for them to discuss, and the resolution was unknown. From an hedonometrics perspective, it is interesting because it is clear that the time of the feedback conference played a large part in the social climate in the work group and was an affective event (Weiss & Cropanzano, 1996). However, as this happened at T2, it was not possible to follow the theme over time to see if it continued to play a significant role in the relationship between the co-workers in the group.

A new theme of job design was brought up at T2, which had not been an issue deemed necessary at T1, where one person indicated that he lacked opportunities to learn new things and develop his skills on the job. At T2, several of the group members indicated that they felt that the changing role of the unit and the organisational context meant that they could no longer make as many decisions about their job as they had done previously and that the job demands were affected by employees and managers in other departments.

Group 4 (ESM). Among the themes preoccupying the employees at the feedback conference at T1 were the perception of the senior management of UCD being distant and the opacity of the organisational structure and strategy (#2). Another topic raised at the T1 feedback conference concerned the collaboration between the group members and the lack of mutual support in the teaching teams (#9, 10). Finally, the group raised the issue of high work demands in terms of the quantity of teaching expected and the time pressure at peak periods during the academic year (#14, 15). Several employees voiced the concern that the responsibilities placed on them as teachers were not matched by the decision latitude given to them.

The group and the immediate manager in collaboration produced an elaborate action plan. However, halfway through the period between T1 and T2, a governmental decree meant that institutions within higher education were forced to implement substantial budgetary cuts. The implementation of these cutbacks within UCD led to the reallocation of resources within the organisation. Group 4 was among the groups that were most severely affected by this as six employees were relocated to another campus. Another two employees chose to leave the organisation, leaving the group with 24 teaching staff at T2 compared to 36 at T1.

The themes dominating the feedback conference at T2 reflected this upheaval. It was clear that the major challenges facing the section to which the group belonged in general, and group 4 in particular, had a substantial impact on the work group during the six months leading up to T2. As such, the PWE of the unit was affected by the environment external to the entire organisation, although the impact of the external environment was of course mediated by the responses of several layers of management. The top management's handling of this external event, in particular, negatively affected the employees' view of the overall management and the organisation.

A total of 18 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
6	2	6	5	3	3	12	1	5
33%	11%	33%	28%	17%	17%	67%	6%	28%

Management cancelled the actions regarding the implementation of 'buddy groups' (#10). The employees did not discuss the reason for this, but the subject of getting rid of the 'closed club atmosphere' was discussed in-depth with evidence of sensemaking at T1. A proposed solution from the conversation was to create 'buddy groups'. At T2, the work group discussed the mechanisms within the groups where the protective and non-inclusive group dynamics have resulted in newly hired employees not feeling included.

Workload was perceived as excessive at T1 and a very pressing issue for the employees as opposed to a temporary problem with the underlying cause being both teaching and the number of administrative tasks (#14). While the employees

awaited the impact on the workload of the departmental initiatives put in place, they suggested that the immediate manager and the top management addressed the issue at the systems level. Indeed, this was reflected in the action plan. T2 scores suggested a slight reduction in workload and the discussion at the feedback conference formed around the peaks and troughs of workload. The employees did not indicate whether they had perceived a decrease since T1 or whether the management initiatives had had an effect, as the focus was on the new situation brought about by the cutbacks and the new course structure. To meet the requirements of these changes, participants had to take on a higher amount of responsibilities without an increase in time or resources. This new and pressing issue at T2 was reflected in the survey scale related to the experiences between *resources and responsibilities* which indicated a deterioration by way of an increase in the average score of 10 points (n.s.).

Group 5 (ESM). Relationships with co-workers were raised as a theme both in relation to the general cohesion of the work group and in relation to a few participants scoring high on the scales related to offensive treatment and groupthink (#6). The confrontational tone between the employees, towards the management and towards me as the facilitator appeared to characterise the general climate of the work group. Nevertheless, the group did address some of these issues in the feedback conference at T1. Yet it was dominated by a few vocal employees and several refrained from commenting. This could be taken as evidence of the presence of group dynamics related to scale of groupthink, where a few extreme scores indicated a perceived pressure to censor oneself and finding it difficult to voice an opinion if different from the dominant way of thinking.

The most important theme to emerge from the feedback conference was the experience of excessive job demands (#8, 9). Although they perceived these to fluctuate over the year, they acknowledged that the timeframe within which they had completed the ESM survey was not considered a peak in terms of workload. Yet, this was a source of considerable frustration and the confrontational tone of the feedback conference should also be seen in the light hereof. Indeed, the participants acknowledged that they had not been able to solve this issue so far.

A total of 9 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis

9	0	6	6	4	6	3	2	7
100%	0%	67%	67%	44%	67%	33%	22%	78%

The action plan addressed the issues around senior management's strategy for the organisation and contained clear actions that targeted the lack of information perceived by the employees. The feedback survey scores and the conference at T2 indicated that the actions had been carried out. However, another related problem appeared at T2, where employees felt the need for senior management to be more explicit in their intentions regarding the overall direction of the department addressing a current topic of joining courses across two different campuses. This revealed a positive perception of top management concerning three areas: cutbacks, communication and evaluation.

At T1, a discussion of the remuneration policy (#5) resulted in possible actions. However, the action plan contained no mention of the theme. Although there was a small change in the score at T2, the theme was brought up and discussed in a similar way to T1, suggesting that no substantial change had taken place.

The lack of an internal communication strategy leading to a disorganised information flow was discussed at T1 (#4) but did not receive any attention in the action plan and showed a small change in scores at T2 and no indication from the feedback conference that a change had taken place. In this regard, it was a similar pattern to other groups where ideas of solutions to a poor informational strategy had been mentioned, but no actions were generated, even when the employees had described the topic as essential. Presumably, the obstacles were structural constraints that prevented any action from being taken (outside the remit of the work group).

Co-worker relations (#6) improved markedly, and the topic which had the most considerable attention at T1 related to the general tone in the various teaching teams, no longer described as problematic at T2, and the extreme scores on the related scales all disappeared at T2.

Group 6 (ESM). The key themes raised at T1 mainly concerned organisational and structural issues, with the distance to the top management (manager-once-removed) perceived as too great (#2) and the remuneration policy to be unfavourable for administrative functions compared to the teaching staff (#3). Included in this was the notion that the opportunities for development and advancement within the organisation were too limited (#5). Another topic raised was how being at two different locations affected social cohesion and acceptance among the group

members (#11). This was a subject to which the group suggested specific solutions. Lastly, the high workload and low decision authority was raised as an issue that needed attention from management. One proposed solution was to encourage greater diversity in the task portfolio of the employees so that tasks could be handed to other members of the group during periods of the year with a peak in workload.

Although many actions were discussed and noted by the manager, they were not recorded in the action plan, which only consisted of bullet points related to the topics discussed. Going over how the themes were discussed and how the manager reacted during the feedback sessions, it seemed clear that the group did in fact discuss actions, and the subsequent conversation at T2 suggested that several initiatives had been put in place as the result of the survey feedback intervention at T1.

A total of 10 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
9	3	7	7	6	n/a	n/a	n/a	5
90%	30%	70%	70%	60%				50%

The feedback conference was constructive, and the dialogue formed around six of the ten sensemaking themes. However, it was apparent that the work group had misunderstood the purpose of the action plan. The action plan was the shortest (word count 220 compared to the median of 621) and did not outline any actions to be taken.

Group 7 (QUEST). The topics brought up in the feedback conferences were similar to those of group 5, with a focus on senior management at the expense of the role of top management (#1, 3). Also similar was the subject of a lack of social cohesion within the work group. However, the latter had been an issue in the group for several years and one that neither the group members nor management had been able to resolve. Electronic communications between group members, in particular, was found to be the source of disputes and had led to the creation of fractures within the unit (#4). The employees expressed that the lack of social cohesion had led to the group members withdrawing from social activities, creating a vicious cycle that was difficult for them to break.

Again mirroring the feedback conferences in group 5, it was clear that the participants perceived their manager-once-removed as involved in many of the day-to-day management decisions but not the overarching strategic decisions that affected the unit. Those were perceived as confined to the senior management level (#5, 8). However, the manager-once-removed, who was present at the meeting, challenged this perception—acknowledging that the issues attributed to the senior management were in fact decisions in which they had substantial involvement and decision authority. Yet, it appeared that the perception of the section as separate from UCD prevailed throughout the feedback conferences, observable at the discursive level where the organisation was described as external to the section within which the group was situated.

During the feedback conference at T1, the participants were engaged but also showed frustration towards the process. During the break, I overheard a participant commenting on the process as being characterised by individuals contributing with ‘whatever is top of the mind—as a stream of consciousness—without direction and purpose’. This assessment was not supported when analysing the transcriptions of either of the feedback conferences. Rather, there is a clear indication of group members contributing to the uncovering of vital issues and also in a collaborative effort to bring solutions to the fore. Moreover, the nearest manager’s participation indicated that they took notes throughout and noted where participants had agreed on possible actions to take or discuss further.

During the period between T1 and T2 when I asked for the managers to send me the action plans devised after the feedback conference at T1, the manager of the group was unable to locate the action plan. Although they insisted that this was made, they concluded that it had been lost in the process of preparing to comply with the new European General Data Protection Regulation, which required that older documents with sensitive data be deleted from the PCs of employees. Although this presented a problem in the analysis of data in the study, I did not find anything in the feedback sessions which suggested that the action plan had not formed part of the process of group 7.

A total of 16 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
12	8	12	12	2	n/a	n/a	n/a	2

75%	50%	75%	75%	13%				13%
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The action plan was not available for analysis as the immediate manager misplaced it. It is clear from the recordings of the feedback conference that the manager did take detailed minutes. Moreover, in the feedback conference, the manager oriented their questions towards a draft for an action plan.

At T1 there was considerable scepticism of the survey feedback method, and one person remarked during the break that the method was prone to giving voice to team members' idiosyncrasies rather than systematically targeting critical issues in the department. Moreover, several employees initially expressed concern about raising management issues with the manager present and were quick to preface their critique with comments about the influence of the senior management throughout the organisation, as if to excuse the present manager from responsibility.

This critique was wholly absent at the T2 feedback conference. At that point, the feedback tone of the conference was both candid and constructive. Two employees approached me after the feedback conference to thank me for the process and the results it had yielded.

The survey responses had a very high proportion (50%) of statistically significant changes. At the same time, the proportion of sensemaking was relatively low (13%) when compared to other groups that exhibited more substantial changes. Nevertheless, both were lengthy exchanges between the group members, and both related to the climate and social support in the work group. At T2, all six scales related to the topic had improved, and there were no scores that could be considered to be high (defined as being over 50 on the scales).

At T1, there was a lengthy discussion about the visibility and goals of senior management. This discussion outlined the need for managers to clarify overall plans for the institute and the department. The topic resurfaced at T2, but the focus shifted to include an analysis of how the top management of the institute was a necessary intermediate layer. Overall, it showed how the employees advanced their understanding through participation in the process.

Group 8 (QUEST). The employees expressed great satisfaction with the manager, who they perceived as both clearer than the previous person to hold the job and as better at tailoring job tasks to their personal competencies (#6, 7, 8). The overall sentiment seemed to be that the work group had gone through a very positive development under the new manager and the main issues that were raised as problematic were related to organisational policies regarding remuneration and the

group's interface with the various academic departments to which they would provide maintenance services. As a result of the matrix-like structure, the employees often found themselves in situations where they had to decide between adhering to instructions from either their manager or the department where they carried out a particular task.

Despite both of the feedback conferences bearing little evidence of the employees engaging with the data in the spirit of the survey feedback method, the sessions produced clear topics for action and a clear action plan was produced. Nevertheless, the nature of the feedback conferences in group 8 was more akin to a fact-finding mission than an organisational development intervention that involves management and employees together identifying issues to address and solutions for a collaborative effort. There were no indications of the group members engaging in sensemaking activities, likely reflecting that the survey feedback intervention took a different form in this group.

A total of 12 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
1	0	0	0	0	4	0	0	1
8%	0%	0%	0%	0%	33%	0%	0%	8%

As discussed in section 3.3.6, the group was comprised of employees with the lowest educational level among the participating groups. Their lack of familiarity with engaging with data and abstract concepts related to their work situation likely led to the feedback conference taking on a different form compared to the conferences in the other groups. The process thus resulted in the production of a list of improvement to be made rather than serving as an opportunity for employees and management to engage in a collaborative effort to identify and discuss issues in the psychosocial work environment with the view to suggesting improvements.

The main actions centred around cooperation with other departments in the organisation. The boundary between the responsibility of the unit and the IT department, for example, was a central concern (#4). The action plan listed measures related to the problem of sharing tasks with the IT department, which involved the implementation of a new system as well as establishing an ongoing dialogue with the manager of the department to address those cooperation issues.

At T2, these themes were even more pressing, and the employees stated that they had not seen any improvement. The problem of sharing tasks was due to a delay in the new IT system, which was meant to help them organise tasks. This barrier to change was outside of the control of the department.

The employees discussed the fact that the scores indicated that one person felt social support in the group was lacking. They also acknowledged that it was a problem to discuss themes like that in the work group. One employee suggested that the immediate manager invite anyone who experienced this to approach the manager privately if they felt unable to discuss it in the feedback conference.

Furthermore, one person flagged the remuneration policy as being opaque (#5), but the employees did not move beyond stating the issue at T1. The manager did not comment on the issue, nor was it noted in the action plan. The theme had a similarly high score at T2, and the work group went into detail about how they saw the problem.

Group 9 (QUEST). The group members expressed dissatisfaction with several levels of management, ranging from the nearest manager to the the top management (manager-once-removed) (#1, 2, 3) and the senior management of UCD. The overarching issues raised were a lack of transparency in decision-making processes at different management levels as well as uncertainty about areas of responsibility. Moreover, the participants discussed issues related to shortcomings of the task management of their immediate manager and the lack of coordination within the team (#13, 14).

The process at the feedback conference at T1 was characterised by several employees expressing frustration that the themes they saw as problematic were to be addressed at the senior management level—not just at the top management and the immediate management level—both of whom were present in the feedback conference. Yet, as with other groups, the issues raised were in fact relevant to the remit of the nearest manager and the one above. The latter, in particular, attempted to address this subject by claiming managerial responsibility for the issues raised.

Nevertheless, the facilitation of the feedback conferences rarely succeeded in getting the participants to move beyond identifying an issue as problematic. The group members seldom took the role of actors who could bring valuable information to the table through a nuanced description of the problems they faced as a work group. As a result, the process of sensemaking, characteristic of a continuous cycle of noticing, interpretation and enactment, was only observed in a few instances. Part of the reason for this was both managers' behaviour in the

feedback conferences. There were three instances where they closed down discussions in which employees were engaged in building a coherent description of how information did not seem to flow through the different management layers, and what actions one might take to mitigate this.

As a facilitator, I attempted to intervene and acknowledge the group members' attempts to constructively engage in a problem formulation that would lead to possible actions. Nevertheless, the general attitude towards the process appeared to change due to the actions of the managers.

A total of 14 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sensemaking	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
5	0	1	1	0	2	0	0	0
36%	0%	7%	7%	0%	14%	0%	0%	0%

The group showed a negative development for the scores on five of the 14 themes between T1 and T2. The group expressed feeling very disjointed from the top management layer. They also felt the level above that (senior management) made decisions that affected their jobs. They thus felt that the questions regarding the top management were inappropriate as they concerned topics which they perceived as being related to senior management.

The action plan stated there would be meetings with the top management. This meeting was planned to be a discussion about the overall strategy for the department. By T2, there was no implementation of the action, nor was there a discussion about it. Scores worsened at T2.

Group 10 (QUEST). The feedback conference revealed great satisfaction with the way the overall strategy of UCD was clear to the employees, who understood well how they as a unit fit into the whole organisation. They expressed a high level of satisfaction with the top management and the senior management. Since part of group 10 had a top manager (manager-once-removed) who was part of the senior management, this manager was also present at the feedback meetings.

The employees raised a few topics that were addressed in the action plan—those were related to a couple of employees in the group indicating in the survey that they had experienced offensive treatment in the workplace (#6). The discussion

around this issue involved suggestions about being mindful of the different cultures within the work group and how a certain tone and behaviour that is acceptable in one context might not be appropriate in another context. Related to this was a discussion around social cohesion (#5), where a more elaborate exploration of the subject caused the members to link the problems in an otherwise high team coherence to a dispersed work group with many diverse tasks involving external stakeholders.

Through a process involving engagement in sensemaking, the group members suggested that the problem could be mitigated by increasing the awareness of the projects currently worked on by different team members. Finally, the feedback conference included a discussion of how workload and perceived demand level were related to the quality of the work produced (#9). The manager directly addressed this in the feedback conference and put actions in place to tackle this issue. At T2, there were no individuals with high scores on either the scale concerning offensive treatment nor on the scales regarding workload and demand level.

A total of 9 themes were observed during the feedback conference.

Survey change	Themes with sign	Feedback conf. change	Survey and feedback conf. change	Sense-making	Action plan	Action plan and sensemaking	Strong thesis	Weak thesis
5	0	0	0	1	1	0	0	1
56%	0%	0%	0%	11%	11%	0%	0%	11%

One extreme score on the scale of offensive treatment caused the theme to surface in the feedback conference at T1. Several group members noted a development towards cohesion and increased group identity for the whole unit and remarked that it was a surprise to them. They clarified that the topic of offensive treatment was a sensitive subject and discussed how they could mitigate it going forward. Everyone in the group appeared to be aware of how the general joking tone might be taken to be offensive by some colleagues. The action plan contained an approach where the manager would raise this issue with the employees in upcoming performance reviews. The theme of offensive treatment was not brought up at T2, but there was no extreme score at this point either.

Two organisational and environmental factors outside the remit of the immediate and top manager also affected the employees' psychosocial work environment. The first was job security, where the employees feared that general cutbacks in the sector might affect the unit. This fear directly impacted their work

because they feared that not being involved in relevant projects or being seen as adding value might force them into a position where they risked being made redundant (#3). The manager assured them that this was not the case but acknowledged that they could not guarantee job security or prevent organisational changes.

The second was the process surrounding remuneration (#4). The perception of the process was that it was opaque, unfair and the cause of considerable frustration for employees. Despite a detailed description of the process in the feedback conference, no possible actions were given, nor was anything noted in the action plan. The scores were unchanged at T2.

Related to the theme of job security was the experience among some members that they had a high workload related to incoming tasks, and viewed the 'opportunities' to part take in projects as overwhelming (#9). At the same time, they appreciated the authority they were granted at work. The manager highlighted that the level of quality delivered by them as employees was related to workload, suggesting that this was an essential element to consider in connection with the perceived amount of work. The manager acknowledged that it was a task for management to make the expected level of quality clear to the employees. One employee expressed the need for more guidance from management in this area, but others stated that they had sought the management's advice on this subject and found support. There was no concrete action noted in the action plan, but a note to keep a focus on the issue of reducing the workload for the employees who experienced a problem in the area. The three individuals with scores above 75% at T1 were no longer present at T2.

4.4.4 Evidence of change: The strong and weak thesis

The relatively low statistical power among the groups owed to the small sample size and the issue of outliers. I identified an effect using the outcome variable of the survey responses. Not all themes affected all group members, and the change was thus a question of looking at averages on the relevant scale, as well as seeing if the distribution had changed. In addition to this, I paid close attention to extreme scores on a particular scale.

Table 4.11 Evidence of mobilising effects by condition

Condition	Dimension	Strong thesis	Weak thesis
ESM	Management and organisation	19%	34%
QUEST		0%	0%
ESM	Co-worker relations	0%	25%
QUEST		0%	43%
ESM	Immediate manager	19%	23%
QUEST		0%	0%
ESM	Intrinsic job factors	30%	30%
QUEST		0%	0%

4.4.5 Evidence of multiple levels of feedback as a mobiliser for change

Sensemaking increased the propensity for action but represented only one possible pathway to effect change. If an issue was put forth and there was a clear path to solve a problem, it can happen alongside a more nuanced dialogue with the following frame:

Awareness -> action is obvious -> change

It may be the case that the process of framing an action is not apparent or perceived as impossible. A requirement for an action to take place is a new frame or a rising awareness. If the group succeeds in generating this through dialogue, new actions are possible, but these are still subject to reality testing and any structural constraints that prevent action.

5. Discussion

The objective of this thesis was two-fold: to assess the viability of a new approach to experience sampling in investigating the psychosocial work environment and to assess whether such an approach has a mobilising potential for change efforts in a survey feedback application that exceeds that of a traditional questionnaire. By shifting the focus from how ESM allows for greater methodological rigour, to exploring the potential for enhanced pragmatic relevance, both the diagnostic and emancipatory qualities of the method were illuminated.

These qualities were investigated in the field experiment, where the survey feedback method was implemented with the view to enhance the PWE. This investigation was achieved by the identification of dependent variables as instances of sensemaking; change efforts over 8–16 months, in the form of official action plans; changes in survey responses; and observations from feedback conferences. Both the variables indicating an observed mobilising potential and the variables representing an observed mobilising effect showed substantially more change for groups in the ESM condition, indicating that ESM increases the potential mobilising effect compared to a traditional questionnaire. An analysis of the observations from the feedback conferences at the work group level revealed that the barriers preventing change efforts mobilised at T1 from being realised at T2 were mainly found at the structural, organisational level.

The measurement of the PWE, using an item sampling ESM* approach, yielded mixed results. At issue were low MOCC completion rates in some work groups, which affected the integrity of the PWE constructs measured. The proxy measure job satisfaction, which had a higher sampling rate, fared better under the item sampling approach. A comparison of the data collected using the two methods in the measurement of job satisfaction revealed form invariance and partial measurement invariance. These findings suggest that the construct of job satisfaction was semantically equivalent across the two measurement methods.

The findings further indicate that previous research in the area, which has primarily focused on outcomes of survey feedback interventions, may underestimate the potential of the method as a mobiliser of change efforts within organisations. Moreover, the results suggest that the effect is at least partly mediated by an increase in the instances of sensemaking that the employees engage in during feedback conferences.

Accordingly, this chapter explores the reviewed literature on the mobilising

potential of the survey feedback approach. It then describes how the proposed inclusion of the sensemaking perspective can add to an understanding of the observed effect of the method. It concludes with reflections on the research process, and specifically the role of the researcher as a change agent, before considering the limitations of the results and providing suggestions for further research.

5.1 Revisiting the results

The research questions that guided the present project were related to two different aspects of the nature of the experience sampling method. The first part was concerned with 'hedonopragmatics'. The second part was concerned with 'hedonometrics'.

The hedonopragmatics arm formed the greater part of the thesis and sought to answer the question: *Does applying an ESM approach to a survey feedback intervention concerning the PWE mobilise change efforts over and above a traditional questionnaire approach?* The results suggest that the answer is that experience sampling does increase change efforts compared to a traditional questionnaire in a survey feedback design. This increase was evident in both indicators of the mobilising potential and the mobilising effect. It thus seems that survey data, which early proponents of the survey feedback method explicitly recognised as a lever for change efforts, are influenced by a switch from static questionnaires to a continuous sampling of experiences of the work environment as well as hedonic tone.

The hedonometrics arm dealt with the experience sampling method's usefulness for measuring the PWE. This arm examined the possibility that we can obtain valid measures of the construct using the item sampling ESM approach. The results lend partial support to the hypothesis of measurement equivalence between the item sampling approach to ESM and a questionnaire approach (hypothesis 2), but raise a number of methodological questions related to the sampling frequency of such an approach as well as practical issues related to missing data.

The support for the measurement equivalence of the ESM* and the questionnaire approach for job satisfaction suggests that the method of sampling items at each MOCC provides a viable path forward and overcomes the constraints of the otherwise restrictive nature of ESM. Dispensing with a requirement of having to measure each item at every measurement occasion opens a broader application of experience sampling methodologies. Thus, it is possible that the PWE can benefit from adopting the item-sampling approach to experience sampling.

The benefits of the ESM* approach concern the validity of evaluative judgements. These judgements may be more robust if collected across time and professional situations. The data in the ESM* approach to PWE was not sampled with enough frequency to provide a complete record of how participants experienced the PWE over time. However, the method did reveal how many different situations and moods influence a given variable within the overall framework of the PWE.

In an ESM* approach, specific events that influence the perception of the job and the work situation are most likely to be recorded as changes in hedonic tone. Nevertheless, some of the PWE scales appear more closely associated with fluctuations in mood levels, activity, location and companionship than others. This fluctuation appears even for constructs that are closely associated with each other, as is the case for the scale of demand level—which correlates with mood level more than workload.

The empirical part of the thesis also revealed that the ESM*, with its reliance on item sampling, is vulnerable to the problem of missing data caused by participants' failure to respond to all measurement occasions. Nevertheless, the measure of job satisfaction, which had a higher sampling rate and was used as a proxy measure for PWE, fared well in the test for measurement equivalence. Together, these results suggest that the item sampling approach developed for the present research is a viable approach to hedonometrics: measuring emotional pleasure and displeasure in experiences of the environment.

Albeit the results point to the need to carefully consider the number of variables in such an item sampling approach as well as the importance of obtaining knowledge about the expected level of completion for a given population. In the present study, the differences in the jobs and related daily tasks of the academic and administrative staff, respectively, meant that their completion rates differed substantially. Had all the participating work groups responded similarly to the two work groups with mainly administrative functions, the problem of missing data would likely have been negligible.

The change in the PWE across the work groups supported the finding of the systematic review of the literature: the survey feedback method does mobilise change efforts within organisations. The two interaction effects of method by time suggest that the mobilising effect was higher in the ESM compared to the QUEST condition on the dimensions concerned with the immediate manager and intrinsic job factors. Moreover, the findings suggested an observed change in instances of sensemaking during the feedback conferences at T1. This supports the notion that

the observed effect of survey feedback is related to its ability to induce a reflective perspective among participants in the work groups, while at the same time containing a propensity for action.

The analysis of variance revealed a main effect of time on two of the four main PWE scales. This suggests that the survey feedback intervention in general has a significant mobilising effect, though the lack of a control group in the experimental design precluded any firm conclusion in this regard.

Finally, the analysis of variance revealed that none of the two proxy measures—Job Satisfaction and the U-index—saw significant changes between T1 and T2. This is surprising as job satisfaction is often found to be associated with experiences of factors in the PWE. However, a closer look at the data reveals that in particular one group (group 3) saw marked changes (worsening) in job satisfaction and the U-index between T1 and T2. As I discuss in section 5.5, this was associated with a particular affective event. I also highlight that the negative changes in scores on the PWE scales were limited to the aspect of the PWE where an event had affected the group members.

5.1.1 The item-sampling approach

In comparing the ESM* approach to a traditional questionnaire when measuring the PWE and job satisfaction, I focused on establishing their measurement equivalence. The issue of missing data meant that the scales within the PWE did not contain the same detail as the job satisfaction scale. Although inconclusive, the results indicate that a construct like the PWE may lend itself to an item sampling approach.

The job satisfaction scale results suggest that the measure is unchanged across the two conditions and that an item sampling approach is viable as an experience-sampling measure of job satisfaction. Nevertheless, the finding that the measure shows form- and partial measurement invariance across the two methods merely follows the traditional approach to validate a new measure. Among the number of analyses typically carried out is an examination of convergent validity, which looks at the similarity of the new measure and an existing measure. Although I did not ask the participants to complete both the QUEST and ESM* versions of the job satisfaction scales, the analyses conducted had the same purpose: to compare a new measure of the construct ‘job satisfaction’ with an existing measure. Yet the methods differed in how and when the questions were presented to the respondents. Here lies an aspect of survey completion that has received little attention: how the measured phenomenon is congruent with the method used to measure it.

Moods are usually differentiated from emotions by measurements of time:

emotions can emerge and vanish rapidly while moods are last over longer periods. Thus, moods lend themselves well to a self-report method like ESM on a phenomenological level. Similarly, we can characterise job satisfaction as being a fleeting experience best captured over time. Nevertheless, it seems unclear whether the multi-faceted nature of the PWE construct should be captured as a fleeting experience, as a stable characteristic or both.

In the present study, I have sought to capture the experience of PWE by casting a wide net in the form of sampled items concerning the PWE. It shows that the item sampling approach can be problematic from a methodological perspective. However, the method might have another advantage: its ability to capture experiences related to the PWE in a way that retains the dynamic nature of the construct, with variations across time and place. Thus, both the snapshot and the representation are more congruent with how the PWE is experienced at the phenomenological level. Indeed, if the phenomenon that is measured is transient, any attempt to capture it in a quantitative form that eliminates its transient and variant nature will affect the construct validity of the method. With this mind, it is possible to see the observed emancipatory effect as at least partly the result of the participants feeling that the method captures their experience.

5.1.2 The mobilising effect of experience sampling

The results of the analysis of variance yielded support for the first hypothesis (H1), stating that compared to work groups participating in a survey feedback intervention based on a traditional questionnaire, work groups taking part in survey feedback interventions based on an ESM design will show significant improvements in ratings of the psychosocial work environment. However, the results did not support the second hypothesis (H2) predicting changes in the proxy measure of job satisfaction and the measure of hedonic tone in the ESM condition compared to the QUEST condition.

Sensemaking is a micro-mediating process associated with the mobilising effect of the survey feedback intervention. The third hypothesis (H3) thus stated the following: *Compared to work groups participating in a survey feedback intervention based on a traditional questionnaire, work groups in the ESM condition will engage in more instances of sensemaking during the feedback conferences and generate more actions for the action plans.* This hypothesis was supported, given the difference in the number of instances of sensemaking and the number of actions stipulated in the action plan.

The number of instances of sensemaking in the feedback conferences and ESM may be indicative of its value for the measurement of experiences. Therefore,

whereas previous research activated ESM as a more valid measure of experiences, it would also appear to elicit reflection and engagement. This reflection and engagement offer the potential to bring about collective learning and action in groups.

5.2 A critical examination of the change measures

When intervention studies are performed as part of psychotherapeutic treatments, it is customary to compare different therapies that are each tightly controlled by having therapists follow a strict protocol. Well-designed studies will also have a 'waiting-list' condition, where participants with a similar diagnosis to those in the treatment group, are told that they are on a waiting list to receive therapy at a later point in time—thus giving them the illusion that they are about to receive therapy (although they never do). The waiting list condition is thus an attempt to control for the effect that the prospect of receiving help will in itself have an effect on the individual.

Another control condition included in most studies of the effects of therapies is non-specific talk therapy, where participants participate in sessions with a therapist who will not adhere to any form of therapeutic intervention but solely talk to the patient. This is intended to control for the placebo effect—that any intervention can potentially have an effect if the participant believes that they are receiving an effective treatment. In organisations this is similar to how some people have interpreted the 'Hawthorne effect': that any initiative that is perceived by employees as either novel or an indication of being paid attention to has the potential to affect morale and productivity.¹⁵

Designing a longitudinal intervention study in an organisation poses several problems that are different to what one encounters in a study of clinical psychological interventions. The fact that the social system of the organisation is characterised by its complexity and thus is constantly being re-created through the interactions of the members of the organisation while being influenced by external

¹⁵ To this day the Hawthorne effect is controversial and there is little agreement as to its strength as well as the cause. Whyte (1978), who was involved in the studies in the 1930s, notes he is still uncertain about the nature of the effect. The term has de facto come to mean something similar to the placebo effect.

forces in the wider environment, the change in members (both employees and managers) makes it impossible to control for how this affects various aspects of the participants in the different treatment groups. Not only is it impossible to hold these parameters constant—as it is impossible to know which external influences to look for—changes in an organisation’s culture or the external business environment might not be easily observed or documented.

As this intervention study took place over the course of 8 to 16 months, it is more likely than not that the social system of the work groups investigated has been affected by changes in the social system of the organisation as well as other factors in the environment of the organisation. As a consequence, one should accept this as a fact when studying organisations and take the relevant precautions in the interpretations of the results. Any effect found could be caused by the above-mentioned externalities and further studies are needed to establish the credibility and robustness of a given effect. Arguably, this is a less ambitious pursuit than a well-designed intervention study such as the randomly controlled trial—albeit a necessary limitation given the nature of what is studied: a complex system. Nevertheless, the present research design should be seen as a contribution to a larger research project where the long-term goal is to establish the effect of an intervention. Thus, any potential effect would need to be replicated in other studies for it to be considered robust.

An ideal research design would allow the researcher to partial out the effect of the ESM measurement process, access to individual data, as well as the process adhered to in the feedback conferences. Yet, such a design would end up being very complicated and unwieldy to implement if one is to control for the most obvious potential confounding variables. One condition would entail the conduct of the feedback conference according to a process consultation paradigm or to a more traditional expert or advisor paradigm. Another condition would have one group of participants receive access to their data and one that would not. To control for the effect of feedback conferences, one group of participants would complete the QUEST/ESM and then participate in the feedback conference and one group would not participate in a feedback conference. Splitting these conditions into groups that receive the ESM or the QUEST treatment and not considering the relevant combinations of these conditions themselves, one would end up with a 6 x 2 matrix—12 experimental conditions. Mapping these 12 conditions to work groups in an organisation and ensuring that the research design has adequate power would require a very large sample size.

5.3 Emotion and affective events

As outlined in the first chapter, much of the application of experience sampling measures in an organisational context has revolved around establishing how fluctuations in employees' hedonic tone affect variables like job satisfaction or engagement and how they vary across activities, locations and social interactions. Weiss and Cropanzano (1996) published their paper on affective events theory (AET) more than two decades ago. It was originally intended to differentiate job satisfaction from the affective experiences people have at work. The proposed AET 'presented a macrostructure for understanding emotions in the workplace' (Weiss & Beal, 2005, p. 3) and was intended as a roadmap for future research into emotion in the workplace. In their reflective article a decade later, Weiss and Beal (2005) point out that one of the main contributions of the AET was to focus on events as instigators of emotional states. In doing so, the framework differentiated between features of the job environment and events. Although not part of the research focus, and beyond the scope of the present thesis, this distinction between events and features of the work environment merits a brief discussion, particularly as a major event took place in one of the work groups during the measurement period at T2.

Group 3 is an interesting example of how an event that has a strongly negative element can supplant itself in a work group. As discussed elsewhere, a problem with recording affective events is that they do not occur very regularly. As it happened, a strongly negative event took place in this group at T2, which concerned the relationship among several colleagues. The data showed a marked increase in the U-index at T2 compared to T1 and the score on the job satisfaction scale similarly changed dramatically. At the same time, the data from the group's feedback conferences and their scores on the PWE scales suggested that several of the topics in the psychosocial work environment improved between T1 and T2. A noticeable exception was the scales related to the relationships with co-workers, which was the area of contention. Yet it is worth noting that the scores on the dimension related to the manager were not affected by the negative event, even though the manager was implicated in the situation that caused it. This lends support to the notion that affective events do have an impact on emotions and by extension on job satisfaction. It is, however, unclear from the present study how long the effect of the negative event would last and the extent to which the emotional impact of such an event on the participants would 'leak' and affect measures that are not directly concerned with the domain affected. It is evident that hedonic tone for employees involved is affected and, as appears to be the case, is a global attitudinal measure with an affective component like job satisfaction.

5.4 Sensemaking as a micro-mediating process

The observational data from the feedback conferences—in connection with the questionnaire data—support the notion that sensemaking is an important micro-mediating process, which can at least in part explain the mobilising effect of the survey feedback method. The occurrence of sensemaking in the work groups assigned to the ESM condition was significantly greater than in the groups in the QUEST condition. In total, almost 90 per cent of the total occurrences of sensemaking were found in the ESM groups. This is a significant finding, even when considering the unbalanced design—with six groups in the ESM condition and four in the QUEST condition.

An analysis of the transcripts revealed that the occurrences of sensemaking frequently took place in connection to topics of importance to the work groups, discernible from the emotional response which a particular theme elicited among the participants. Nevertheless, it was not evident from the audio recordings or the transcripts of the feedback conferences, that the emotional response was greater in the ESM groups than in the QUEST groups. It was, however, evident that the sensemaking efforts in relation to these topics differed between the conditions.

One pertinent example of this relates to the topic of ‘workload’ discussed in nine of the ten work groups at T1. The theme was associated with sensemaking in all five ESM groups where it was raised. Yet, sensemaking only appeared in connection with workload in one work group in the QUEST condition (group 7). Although participants mainly used the term ‘workload’ when discussing their experiences related to this topic, related themes such as ‘conflicting demands’, ‘skill discretion’ and ‘decision authority’ were often part of the issues described. As such, the theme discussed as ‘workload’ related to several intrinsic job factors similar to those captured in the job demands and control (JDC) model.

The composite factor ‘D4’—used in the quantitative analysis of changes in the PWE—consists of factors intrinsic to the job, which includes the JDC scales. As discussed in section 4.3.2, an analysis of variance showed an interaction effect (method by time) for D4, indicating that the perceived change in the intrinsic job factors was greater for the ESM groups. This association between the occurrence of sensemaking and subsequent perceived improvements supports the notion that engaging in sensemaking efforts at a feedback conference can mobilise for action.

While the association between sensemaking and change is noteworthy, it is not clear if the sensemaking recorded at T1 was caused by the participants in the ESM condition having access to richer data—in the form of longitudinal recordings of

their experiences as well as hedonic tone. As I will discuss in section 5.6, it is possible that participating in a more intensive measurement scheme led to a higher degree of involvement, which in turn energised the participants to engage in sensemaking efforts.

However, it is significant that the themes and the content of what was discussed in the feedback conferences did not appear to differ between the ESM and the QUEST conditions. However, the effort invested in exploring the differed markedly between the two conditions. It is conceivable that the reasons for this increased level of sensemaking activities in the feedback conferences in the ESM groups, related to the participants being more aware of the immanent sensemaking that they had engaged in over the 12-day survey period. Although the data prevented a more detailed analysis of this notion, there were some indications from the participants' contributions in the feedback conferences that this could have been the case. There were several instances, where participants contributed with nuances and insight about a topic by referencing their personal data and its dynamic nature.

A frequent occurrence was participants referencing to their own data related to fluctuation in job demands. In several instances, this led to a conversation in the feedback conference about the dynamic nature of the job. Often the discussion related to how demands were both caused by the organisational structure and the design of the job, but at the same time allowed for considerable agency among the employees. The member of the work groups commonly discussed the ability to influence the work situation in a nuanced way. They recognised the decision authority available to them, as well the extent that the work group—as a collective—could influence the organising of the work within the institution. In short, compared to the participants in the QUEST condition, the ESM groups were more likely to discuss PWE factors in a way that implied that the work environment was at least in part the result of a process which they were capable of influencing.

The process leading the participants to discuss their agency in relation to a perceived problem in the work environment was often preceded by a longer in-depth discussion where nuances were continuously added and subtracted. The process resembled the sensemaking process—as it is described by Sandberg and Tsoukas (2015). Here, participants engage in a recursive loop where they move between applying a new and increasingly nuanced conceptualisation to the problem and modifying it after having tested its propensity for action.

In sum, the results suggest that the sensemaking process mobilised change efforts in the work groups and that this effort was associated with improvements in the perception of the PWE 8-16 months later. The specific process of sensemaking—

consisting of 'creation', 'interpretation' and 'enactment'—was found to be a useful guideline for identifying instances of sensemaking. Nevertheless, it also should be acknowledged that inferring the occurrence of sensemaking is not straight forward when analysing complex interactions between participants in a survey feedback conference. While it might seem straight forward ascertain the presence of the main constituents of sensemaking, it is, in fact, fraught with difficulties. In most situations require the observer will have to pick out cues from a flux of interactional communication. In doing so, the observer will inevitably make decisions regarding the intent and behaviour of participants necessary for categorising them within a sensemaking perspective. This process is in itself, subject to error and bias. There are thus several cases in the present study, where the evaluation of the presence of the constituents of sensemaking contains a large element of personal judgement.

Thus far, the discussion of sensemaking as a micro-mediating process has concerned the observations of the feedback conferences. I have speculated that the increase of sensemaking in the ESM condition might related to the method's ability to capture the immanent sensemaking, which characterise every day and routine activities. This broadening of the sensemaking perspective is encouraged by several scholars in the field (Holt & Cornelissen, 2013; Sandberg & Tsoukas, 2015). Yet, such a shift in focus should not preclude the analysis of sensemaking as occurring in relation to demarcated and salient events with particular importance for individuals.

In section 2.7.4 I reviewed recent theoretical developments linking sensemaking to emotions. This development asserts that emotions play an important part in motivation individual to engage in sensemaking activities. Moreover, it posits that emotions play a vital part in shaping the specific nature of the sensemaking action. The data collected do not permit testing the specific hypotheses proposed by Maitlis et al. (2013) pertaining to the valence, intensity and nature of emotions. However, the event that took place in group 3 during the ESM period at T2—and discussed at the feedback conference at T2—lends support to the notion that emotion can play an essential part in sensemaking activities.

As described in the previous section 5.3, the strongly negative event concerning the relationship between co-workers was noted by several members of the work group at the feedback conference at T2. Yet, the topic brought was up and framed by one individual who referred to her own ESM mood data, recorded during the time of the episode. The employee described the event as something that she only subsequently recognised was of major significance to her. At the feedback conference, she explained how reviewing her own data, made her aware of a spike

in negative moods around the time of the event. This led her to interpret the event as both important and something that she would like to discuss with the work group. The subsequent discussion at the feedback conference contained instances of sensemaking which helped the group arrive at possible actions for change. However, as this event took place at T2, there were no data points available to determine whether the enactment of the suggested changes had an effect.

At the processual level, the event suggests two ways that emotions play a role in sensemaking. Firstly, as Maitlis et al. (2013) propose, it appears that emotions play a role in directing an individual to pay attention to an event as well as providing motivation for overcoming the barrier associated with the costs of engaging in sensemaking efforts. Moreover, it appeared as if the emotional reactions discussed in the feedback conference in itself affected the quality of the dialogue and was a vital element of how the sensemaking activity was shaped at the social level. The findings are thus encouraging concerning the notion that emotions play a vital role in eliciting and shaping sensemaking.

5.5 Revisiting the issue of measuring change

In 3.2.1, I discussed the issue of measuring change, which features as a prominent theme within organisational studies. Golembiewski et al. (1976) point out that OD studies should be able to differentiate between behavioural change (alpha change), response scale recalibration (beta change) and changes in conceptualisation (gamma change). This is especially difficult in OD interventions, which often are designed to change the perception of the phenomena under investigation. This leaves survey measures vulnerable to beta change, which implies that the measure itself is affected simply due to its use as a measure for the particular variable. The authors point out that 'self-reports are rooted in socio-emotional or cultural definitions, or in an individual's knowledge-experiences, which provide anchoring points...' (Golembiewski et al., 1976, p. 136). It is thus possible that some scales are 'lengthened' as a consequence of respondents obtaining greater knowledge of the subject they were asked about in the pre-intervention questionnaire and that the post-intervention completion of the questionnaire happens with a different interpretation and understanding of the questions. Even more radical is gamma change, where the conceptualisation of the variable shifts as a consequence of the intervention to a point where the post-intervention response can no longer be placed on the scale.

In the present study, the risk of observed changes being due to scale

recalibration (beta change) was considered highest with regard to the ESMmood dimensions, as they were asked the same questions at each MOCC and thus had continuous focus on the same variables. This involved the participants reporting on an emotional state and yielded data which was fed back to the participants. The PWE scales were deemed unlikely to be prone to beta change, as the questions making up the construct were presented to the participants in a random sampling setup and consisted of statements that were not explicitly connected to a particular PWE dimension. Moreover, the method for capturing PWE dimensions followed a psychometric approach with multiple items containing behavioural anchoring as suggested by Lindell and Drexler (1979).

Furthermore, in the ESM condition the answers were dispersed over 12 days, making a compelling case for rejecting the hypothesis that observed changes could be put down to beta change in the form of scale recalibration after the intervention at T1. Such a scale recalibration should have a lasting effect of 10–14 months (the time between T1 and T2) as well as having affected the participants' perception enough that they consistently would express this over the 12-day sampling period at T2. If a change was to be observed in such a case, the most likely conclusion is that it is because of alpha change rooted in 'real' behavioural change rather than a reconceptualization of the scales used to measure the phenomena.

Ultimately, we would have to ask what expression of experience one would have to record from individuals before determining that a change has indeed taken place. This is even before one starts to question the linear assumptions that underlie the conceptualisation of 'observed behaviour'. Taking Lindell and Drexler's (1979) example of 'managerial support', one can perceive it from a detached 'objective' perspective and assume that what is measured is the respondent's dissociated perspective of a manager's actions. In doing so, one would overlook the fact that the relationship between the manager and the employee engaged in the rating is relational in nature and that the observed behaviour is also a function of the ongoing relationship between the employee and the manager. The notion that the behaviour of the manager can be observed without the (perhaps changed) behaviour of the employee is thus an illusion. From a pragmatic point of view, the question seems to matter less. If the change is perceived as real and if it is persistent over time, then it is of less importance whether it is purely 'perceptual'—beta change.

Moreover, the present study did not only look at the self-report data, but also indirectly considered change through the narratives offered by the participants at the feedback conferences. The overlap between the observational data from the

feedback conferences and the survey responses largely support the notion that changes did take place between T1 and T2 on a number of themes in the ten work groups. This also supports the argument that the ESM condition was associated with greater change.

5.6 Participant engagement

It is pertinent to discuss the finding that the ESM condition was associated with a superior mobilising effect, as the method—by design—is likely to elicit a higher level of engagement. Completing 36 MOCCs requires more attention and involvement on behalf of the participants, for good and for bad. On the one hand the increase in the burden on the participants can lead to higher attrition rates and survey fatigue. On the other hand, it can force participants to continuously focus and reflect on their job and their work situation. When coupled with detailed data feedback, this might produce higher engagement. It is thus unsurprising to find that organisational development interventions that presume participation in both data gathering, analysis and action are more effective in work groups and organisations with enthusiastic participative employees and motivated and capable managers.

This view of the importance of obtaining *buy-in* from employees is consistently represented in both the OD and OB literature. Nevertheless, the two traditions differ in the way employees are perceived, which means that, in the latter, *buy-in* is often discussed as a prerequisite tick box exercise for management to complete to ensure the success of a given intervention. In contrast, the OD literature, at least in its original form, places particular importance on change efforts being collaborative, involving both management and employees in interventions (French & Bell, 1999). In a review of moderators of the effect of organisational interventions to prevent occupational stress, Biron, Cooper, and Bond (2009) highlight evidence to suggest that employees evaluate the opportunity to influence an organisational intervention before they decide to 'buy in' and participate and that the employees' appraisal of interventions mediates the relationship between participation and outcome.

Stressing the importance of management support for interventions as well as employee 'buy-in' to said changes borders on banal. However, the differential effect has explicitly been pointed out in survey feedback (and perhaps is true in many other OD interventions), where 'the rich often become richer and the poor become poorer' (Born & Mathieu, 1996).

The notion that the rich get richer in SF might perhaps be amplified in the ESM condition. The SF method has the highest impact when the participating teams and

managers are motivated and involved in the process, which means that they obtain the maximum results. Without their motivation and engagement in the process, feedback conferences are unlikely to be able to get to the core of issues. As we saw in section 2.2, the role of the manager as involved in the process, and as someone who is the primary motivator and helps frame the process in a way that makes it meaningful for the employees, is vital. Only by this measure is the survey feedback process likely to achieve a level of meaningfulness and relevance to the employees, one that would make them likely to invest in the process interpreting the results and constructing action plans.

The experience sampling methodology is equally demanding at the individual level since it does not only require involvement and commitment in the data gathering phase, but also presumes that the individual has an interest in reflecting on their data and using this as a point of departure for the contribution in the feedback conferences. The present study suggests that this is perhaps the Achilles heel of the method

5.7 Main contributions

The thesis makes several contributions to the literature. First, it affirms the finding that survey feedback is an effective organisational intervention for mobilising change with regard to the PWE. The systematic review found only one study that applied a true experimental design to the area. The present study is therefore an important addition, especially because of strength of the evidence regarding the combination of survey responses, observational data from the feedback conferences and action plans.

In addition to showing changes in these outcome measures, the study found evidence to suggest that instances of sensemaking constitutes an underlying micro-mediating process and that this is associated with the observed mobilising effect. Together with the finding that the ESM provides a mobilising effect, adding to that of the traditional questionnaire, this provides new insight into the processes that underpin the mobilising effect of survey feedback. The thesis therefore provides a theoretical addition to the current literature of survey feedback.

The final contribution concerns the development of the item sampling approach to ESM, which was shown to be methodologically sound for the construct of job satisfaction but yielded inconclusive results for the PWE. The method nevertheless was shown to have pragmatic relevance beyond the methodological qualities and outlines a path for the wider use of the experience sampling method.

5.8 General findings and conclusion

The research sets forth a convincing case for reconsidering experience sampling as more than an improved self-report measure. The thesis provides some answers to criticism of the trend in organisational research towards reducing interactive social phenomena to individual traits and actions. At a practical level, sampling people's experiences and providing them with access to the data seems to aid a sensemaking process at the collective level. Moreover, it is possible, although not explicitly investigated in the present study, that the experience sampling approach facilitates introspection at the individual level. Thus, ESM has an under-appreciated propensity to aid emancipatory processes.

The evidence supports the merit of further exploring how distributed data collection and feedback can inform social-psychological organisational interventions. Early versions of OD interventions recognised the potential of data to act as catalysts for insight and change in collective processes in organisations within the work group. My analysis demonstrated that the ESM condition was more effective in producing a critical dialogue evidenced by the occurrence of sensemaking during the feedback conferences.

Moreover, the quantified-self movement and the use of the diary method in clinical psychology points to the same effect, as does the ESM study of happiness (Bakker et al., 2016). The underlying theme is that people are active participants in creating and interpreting data and, in that process, gain an awareness of the dynamics of intra- and interpersonal processes that allows them to act.

The point is that the active ingredient might be the attention to our trajectory in terms of mood, attitude and experiences, which allows more in-depth knowledge and insight into human behaviours and experiences. Perhaps it is self-observation that allows this—these data and the process leading up to their review—the data collection itself—and makes it easier for people to view themselves as part of the consulting process. The latter case represents the reason for returning to some of the basic tenets of OD, which involve emphasising the importance of the work group as a unit, and harnessing the situated and relational nature of knowledge and agency.

5.9 Concluding reflections

5.9.1 Limitations

This study explored the potential of experience sampling data to examine how it could function as a catalyst for participatory change efforts regarding the psychosocial work environment. Although the results are promising, there were limitations to the research design.

In some of the work groups, a substantial number of people opted out of the study between T1 and T2. Although a separate analysis revealed that they did not differ significantly from the participants who remained in the study in their scores on the four main PWE factors, it does pose a threat to the validity of the conclusions. This threat is in so far as it is unclear what made the participants withdraw from the study.

A more serious threat to validity is the low MOCC completion rates and the resultant missing data. The low completion rate was unexpected, as a pilot study yielded very high completion rates in a sample chosen for its representative nature. However, in hindsight, the enthusiasm of the participants in the pilot study as well as the time period in which it took place, characterised by a lower teaching burden, are likely to have contributed to participants going out of their way to incorporate the ESM MOCCs into their daily lives. The completion rates in the pilot study were therefore unnaturally high for an ESM study with this particular target population.

Indeed, Beal's (2015) statement that up to 40% missing data is standard in ESM studies suggests that the completion rate in the present study is the norm rather than the exception. Future studies that include an item sampling approach should carefully consider the sampling rate and length of sampling period concerning the daily routines of the participants. Having in-depth knowledge of what a workday looks like for most of the participants sampled will make it easier to design a realistic sampling schedule.

Nevertheless, there is a possibility that participants in some jobs are less willing than others to accept the distractions associated with experience sampling. The present study clearly showed a marked difference in MOCC completion rates between the two work groups with mostly administrative functions and the four groups consisting of academic teaching staff. Conversations with some of the participants revealed that some had 'crafted' the ESM to fit their situation. Rather than letting their activity be interrupted by the signal and completing the MOCC, they had set aside specific times during the day where they were willing to be

interrupted. Typically, this meant that two or three timeslots during the day were the only times when they would answer the questions.

When asked which situation they were then reporting, some stated that it was the state at the time of MOCC completion. One participant observed that this was why their online report showed all the MOCCs as having been completed when the participant was alone in their office. Others stated that they looked at the time stamp of the SMS they had received, and recalled the whole situation (activity, location, companionship and mood levels) and reported this.

The intensive, and at times invasive, nature of the ESM is the main obstacle to its wider use. However, the positive feedback from the two work groups in the administration indicates that the method works well in some contexts. The participants reported the experience of completing the MOCC as quickly becoming an integrated part of their day, which they felt less distracting over time and preferable to completing a one-off questionnaire.

The instructions to the participants emphasised that it was vital that they explore their data through the online interactive web-report before participating in the feedback conferences. These instructions included the production of a video about how to use the report plus an easy-to-use graphical user interface design. The purpose was to make it easy for the participants to access their data concerning both the mood dimensions and the PWE scales. Nevertheless, there was no data collected concerning whether the participants did, in fact, access the web-report nor how long they spent on the site. Not having data on this poses a problem in so far as the treatment in the present study consisted of both the survey completion and the data feedback.

However, data were only collected regarding how many people completed the MOCCs in the ESM condition and the questionnaire in the QUEST condition. This makes it unknown how many people received the part of the treatment that was concerned with data feedback. Such information is relatively easy to obtain and should be part of future studies with relevant interest. Nevertheless, the lack of information regarding how much of the treatment was received is a common problem within field experiments as it is difficult to control how much of the treatment is received. It is thus possible that a simple measure of time spent on a web-report will miss important nuances concerning engagement with the process.

An additional limitation of the present study was that it restricted the focus on the dynamics and change efforts initiated to those within the work group. However, it was clear that some groups experienced changes over the year between T1 and T2 that were caused by how the organisation responded to external demands. As a

result, the actions mobilised as part of the survey feedback intervention were, in some cases, never implemented. Instead, the attention of the organisation and the work group diverged from the factors within the sphere of influence of the work group and management, to focus on the organisation's response to the changes in the external environment at a macro-level. A study by Dollard, Osborne, and Manning (2013) considers the importance of including the macro-level. The authors find that the way resources were employed to manage changes in external demands in an organisation was associated with employees' negative or positive reactions at work. This finding led the researchers to suggest that workers' experiences of distress were less a failure to adapt at the individual level than an organisational failure to adapt to the environmental context.

A further methodological limitation of the present study was that I as the researcher undertook all tasks from designing the study, mounting the experiment within the organisation, facilitating the feedback conference and coding the observational data and the action plans. It is thus possible that there is researcher bias. A careful reading of the transcripts from the 20 feedback conferences did not reveal any differences between the two conditions in the facilitation process. Yet further studies using several facilitators are needed to assert the findings of the present research that an increase in instances of sensemaking are associated with the ESM approach to survey feedback. Likewise, as the coding of the transcripts from the feedback conferences was conducted by the researcher, having an additional researcher coding the transcripts and reporting inter-coder reliability would have strengthened the validity of the study. However, resource constraints towards the end of the project foiled the original plan to have a second coder recode half of the transcripts.

A final limitation to consider is the possibility that the higher mobilising effort in the ESM groups was not caused by sampling and data feedback of experiences, but rather by the method that coerced continuous participation in the study. In a process resembling the classical studies of cognitive dissonance, this behavioural demand of the method might, therefore, influence the perception of the method and subsequent commitment and involvement in change efforts.

5.9.2 Hypotheses for future research

To conclude, it would appear that survey feedback processes improve in an ESM approach compared to more traditional questionnaire design. There are, however, several uncertainties surrounding this effect that future studies could explore. For instance, the mobilising effect in a survey feedback design is likely dependent on

the initial commitment from the employees and the organisation, and especially the stance of the immediate manager. The present study controlled for this factor by randomly assigning the groups to one of the experimental conditions. Future studies might want to explore further how organisational backing and employee commitment and enthusiasm mediate the intervention effects.

As discussed in the previous section, there are cases where participants prefer not to be interrupted to report their here-and-now experiences, either because they are performing a task that cannot be interrupted (like teaching), or for fear of breaking concentration. In these instances, it may be worth considering using an experience sampling approach, which allows for the reporting of experiences within a recent time interval.

Indeed, the way the participants in the present study appropriated the ESM contains a possible solution to the problem. An ESM design that allows the participants to select the times of day where they do not mind being interrupted would likely increase completion rates. Such a design would prompt the participants to report their activity, location, companionship and hedonic tone for a recent time interval. Such a time interval reconstruction method will have much in common with the day reconstruction method (DRM), which can capture fluctuations in mood levels very similar to what is found using the ESM (Kahneman et al., 2004). However, the cognitive burden of reconstructing a whole day is likely to be higher than reporting a more recent time interval. Thus, a hybrid between the ESM and DRM might be well-suited for a survey feedback design like the present study, where both the recording of experiences and the feeding back of data has to be perceived as low in friction to gain adoption in participants' lives.

Future studies in this area would also do well to employ a design which allows for the analysis of data using a multilevel framework for studying group processes as outlined in a recent paper (Lang et al., 2019). This design would add nuance to multilevel change measures within the work group by supplementing the mean-level change measure with a measure of the level of consensus within the group. This approach will likely reveal groups dynamics previously black boxed by statistical methods. Understanding whether group members' perceptions of their work environment converge or diverge over time as the result of a survey feedback intervention will likely add relevant information about the process level of the intervention.

If future studies also employ designs with three or more measurement-bursts, they will allow for the measurement of change using growth models. Such additions would constitute an essential part to further 'open the black box' of

group-based organisational interventions, which has been a primary focus of the present thesis. As repeatedly mentioned in the discussion, the proportion of missing data in the present study was a general obstacle for applying more sophisticated multilevel statistical analysis to the data set. Thus, finding the right sampling strategy for the population and thereby increasing MOCC completion rates will likely make the use of a multilevel framework possible for constructs measured using an item sampling approach.

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Appendix

Appendix A: Confirmatory Factor Analysis— 4 factor model for PWE

Call:

```
lavaan::lavaan(model=model_4,data=ESM_QUESTIONNAIRE,model.type='cfa',int.ov.free=TRUE,int
.lv.free=FALSE,auto.fix.first=TRUE,,auto.fix.single=TRUE,auto.var=TRUE,auto.cov.lv.x=TR
UE,,auto.cov.y=TRUE,auto.th=TRUE,auto.delta=TRUE)
```

	fit
npar	180
fmin	16.37674264
chisq	11725.74773
df	3648
pvalue	0
baseline.chisq	20817.48303
baseline.df	3741
baseline.pvalue	0
cfi	0.526966547
tli	0.514907306
nnfi	0.514907306
rfi	0.422376032
nfi	0.436735569
pnfi	0.42587847
ifi	0.529528774
rni	0.526966547
logl	-33861.43074
unrestricted.logl	-27998.55687
aic	68082.86148
bic	68781.35741
ntotal	358
bic2	68210.31051
rmsea	0.078645923
rmsea.ci.lower	0.077054777
rmsea.ci.upper	0.080241877
rmsea.pvalue	0
rmr	0.072173786
rmr_nomean	0.072173786
srmr	0.088519735
srmr_bentler	0.088519735
srmr_bentler_nomean	0.088519735
crrm	0.089543168
crrm_nomean	0.089543168
srrm_mplus	0.088519784
srrm_mplus_nomean	0.088519784
cn_05	116.7014474
cn_01	118.5339071
gfi	0.557921653
agfi	0.536108576
pgfi	0.531687092
mfi	1.26005E-05
ecvi	33.75907188

The table below contains the PWE questions forming the four factors (D1,D2, D3, D4) identified by the confirmatory factor analysis. The factors are used in the quantitative analysis of change in the PWE. Appendix J contains the complete questionnaire used for measuring the PWE.

Factor	Q ID	Question	Scale
D1	36	The top management provides the employees with the necessary information about the organisation's objectives	Clarity of goals
D1	41	It is difficult to find out what the organisation's objectives actually are	Clarity of goals
D1	45	I believe that the majority of employees support the goals and objectives of the organisation	Clarity of goals
D1	33	I have strong faith in the top management's abilities to realise its visions	Confidence in Top Management
D1	43	It is too easy for our top management to break its promises	Confidence in Top Management
D1	48	There is high mutual agreement in our top management with regards to goals, priorities and resources	Confidence in Top Management
D1	25	There have been too many changes in the organisation lately	Continuity and Coherence
D1	27	I think our organisation is changing at an appropriate pace	Continuity and Coherence
D1	39	Our organisation is in need of change and renewal	Continuity and Coherence
D1	44	The employees support most of the changes that are implemented in our organisation	Continuity and Coherence
D1	30	I feel pressured by colleagues and/or the management to think or behave in a certain way	Culture and Adaptation
D1	34	In our organisation we have a culture and an attitude that makes it more difficult for me to carry out my tasks properly	Culture and Adaptation
D1	38	I am comfortable with the tone and social conventions we have in our work place	Culture and Adaptation
D1	24	Our top management has clear ideas and visions for the future	Image of Top Management
D1	28	The top management does not have the support and respect of its employees?	Image of Top Management
D1	37	The top management has the necessary level of competence and drive	Image of Top Management
D1	20	I have access to the information I need in order to do my job	Information
D1	22	I often have to push to receive the necessary information on time	Information
D1	46	It often the case that I receive delayed or inaccurate information	Information

D2	56	I feel that my colleagues accept me and respect my abilities and skills	Acceptance
D2	60	My colleagues are kind towards me	Acceptance
D2	65	My colleagues are capable and competent	Acceptance
D2	50	My colleagues and I manage to benefit from disagreement and differences within our group	Groupthink
D2	52	I prefer to keep quiet if I have a different opinion than my colleagues	Groupthink
D2	68	If I disagree with my colleagues I risk being 'left in the cold' or 'being put in my place'	Groupthink
D2	55	I have been exposed to serious harassment from one or more persons in my workplace	Offensive Treatment
D2	57	I have witnessed others being exposed to serious bullying and harassment from colleagues or management	Offensive Treatment
D2	58	Any kind of serious bullying or harassment is unthinkable in our workplace	Offensive Treatment
D2	67	My colleagues treat me badly (e.g. continuous teasing or physical assaults)	Offensive Treatment
D2	53	If I am going through a difficult time, I can talk to my colleagues about it	Openness and Support
D2	63	My colleagues show an interest in me as a person	Openness and Support
D2	66	My colleagues are prepared to help me when necessary	Openness and Support
D2	51	I feel that I get on well with my colleagues	Sense of Belonging
D2	62	I almost always look forward to seeing my colleagues	Sense of Belonging
D2	64	My colleagues always greet me when they or I arrive at work	Sense of Belonging
D2	54	I think there are too many intrigues and conflicts among my colleagues	Team Coherence
D2	59	I feel left out in my group of colleagues	Team Coherence
D2	61	My colleagues and I have a good sense of team spirit	Team Coherence
D3	81	My manager is not very goal-directed in their way of changing things	Change Management
D3	83	My manager does not have much scope for planning and initiating changes him/herself	Change Management
D3	84	My manager is good at implementing changes and new ideas	Change Management
D3	89	My manager gives importance to acting in understanding with the employees when changes are imminent	Change Management

D3	69	My manager is good at mediating in conflicts and creating solutions that everyone can live with	Conflict Management
D3	70	My manager is good at making people co-operate	Conflict Management
D3	88	My manager creates more conflicts than they solve	Conflict Management
D3	90	My manager acts with appropriate speed and efficiency in situations of conflicts	Conflict Management
D3	71	My manager gives criticism and praise in a way that motivates and encourages me to put more effort into my work	Feedback
D3	74	My manager is not interested in listening to the employees' perception of things	Feedback
D3	79	My manager responds positively to criticism from the employees	Feedback
D3	75	My manager helps getting things done	Personal Relation
D3	76	My manager shows consideration and empathy	Personal Relation
D3	78	My manager is attentive and listening	Personal Relation
D3	82	I have more conflicts with my manager than I would like	Personal Relation
D3	80	I often feel disrespected or belittled when I have spoken with my manager	Recognition and Acceptance
D3	86	I sometimes miss that my manager appreciates my effort	Recognition and Acceptance
D3	87	I know that my manager notices and appreciates my contribution	Recognition and Acceptance
D3	72	My manager's way of managing tasks gives rise to frustration and/or conflicts among the employees	Task Management
D3	73	My manager has a good overview of the tasks and distributes them with fairness	Task Management
D3	77	It is often the case that my manager does not start or follow up on a task in time	Task Management
D3	85	My manager does not consider the individual's competences and experience when distributing tasks	Task Management
D4	91	I have a lot of autonomy with regard to my area of work	Autonomy and Influence
D4	92	It is up to me how I plan my work	Autonomy and Influence
D4	108	I have the opportunity to take part in decisions that affect me	Autonomy and Influence
D4	126	I have the freedom to make my own decisions	Autonomy and Influence
D4	104	I often have conflicting and incompatible demands in my job	Demand Level
D4	109	My job is so demanding that I do not have the energy to enjoy my spare	Demand Level

		time	
D4	112	My responsibility for other people and/or materials weighs very heavy on me	Demand Level
D4	122	I feel that I need training/education in order to be able to handle the demands of my job	Demand Level
D4	106	I find it difficult to see a deeper meaning in my job	Meaning and Commitment
D4	113	I think my job is very exciting and important	Meaning and Commitment
D4	121	My job demands a lot of skill	Meaning and Commitment
D4	124	I often become so engrossed in my work that I forget the time	Meaning and Commitment
D4	95	I have the opportunity to obtain greater responsibility as I learn more	Personal Development
D4	98	My job gives me good opportunities to develop my skills and competencies	Personal Development
D4	125	I have plenty of opportunities to learn new things in my job	Personal Development
D4	111	Some customers make my life so difficult that I think about it during my spare time	Professional Relations
D4	115	My job demands much more customer contact than I would actually like	Professional Relations
D4	96	I have the necessary freedom of action within my area of responsibility	Responsibilities and Resources
D4	105	My formal status and competences are too small compared to my actual responsibility	Responsibilities and Resources
D4	110	I have the financial conditions and resources needed to carry out my job	Responsibilities and Resources
D4	100	My job is monotonous and repetitive	Variety
D4	102	I am constantly required to generate new ideas and solve new problems in my job	Variety
D4	103	My job has a lot of variety	Variety
D4	107	Most of the time I have sufficient time to carry out my tasks at work	Work Load
D4	114	I have to work very hard	Work Load
D4	118	I have to work very fast	Work Load
D4	123	My workload is manageable	Work Load

Appendix B: Thematic summary table for the work groups

Table referencing the summary produced for each work group (not included in the appendix).

Contains a summary of:

1. The main themes raised at the feedback conferences at T1
2. The paragraph in the summary where the theme was discussed.
3. Whether sensemaking was recorded in relation to the theme at T1
4. Whether sensemaking was recorded in relation to the theme at T2
5. Comments made in relation to the theme at T2
6. Whether the theme/issue was addressed in the action plan devised at T1
7. The name of the survey scale(s) (if any) that was related to the theme
8. The change in the survey responses in the scale(s) between T1 and T2 (scale is converted from responses recorded as 1-5 to a 0-100 scale) where lower is better. Negative change in scale scores indicate an improvement.

Group 1 ESM [Academic department]

Themes	Discussed at T1	Sensitized (T1)	Sensitized (T2)	Comment at T2	Action plan (T1)	Survey scale involved	Change
#1 Lack of continuity and coherence related to organisational changes	¶1 ¶4	§1		¶21 Meeting with the top manager and hearing her articulate strategy in person has made it easier for the employees to see organisational changes as part of a coherent overall strategy.	#2	Continuity and coherence Clarity of goals	-12* -6
#2 Insecurity about agenda of top management in view of their actions	¶1 ¶4 ¶8		§4	¶21 It is clearer who the top management is and the goals and strategies are more understandable.	#2	Image of top management Confidence in top management	-5 -4
#3 Top management is not present and visible	¶4			¶21 Top management and senior management have a greater presence in the department and the employees have a clear understanding of what they stand for.	#2	Image of top management	-5
#4 Introduction of procedures that are perceived as wasteful, unnecessarily bureaucratic and without a clear purpose. Current issue is the new time tracking system.	¶2 ¶12			¶21 The new procedures have been related to overall goals of the organisation through meetings with top management and an ongoing implementation process.	#4	Continuity and coherence Working conditions	-12* -17
#5 Internal information and communication strategies is lacking. Especially around important issues when it is important who is informed, how they are informed and when they are informed. Employees would like the manager to decide when face-to-face orientations are required and how it is done as she in the best position to make that judgement. They stress that more direct information	¶4 ¶5 ¶6			¶22, ¶24 Whereas goals for the organisation have become clearer the level of information is still lacking with important information being late and not communicated in an appropriate way.	#1	Information	+4

should be prioritised in times of transition and around organisational changes. They need someone in management who can see the bigger picture to explain to them where they fit in the bigger picture and how a certain organisational aspect is important to them.							
#6 Organisational values are vague and difficult to relate to. A need for a core mission.	¶3 ¶7			¶21 Goals are clearer, but there is not mention of organisational values in the feedback conference.	#3	Clarity of goals	-6
#7 Senior management disavow the opinions of employees when they voice concerns publicly in a plenary debate	¶9		§4	¶24 Further meetings with senior management has meant that the employees have a more nuanced view of the senior management. Some see his manner as a way of establishing a more informal relation to the employees and engaging them in discussion.	#6	Culture and Adaptation	-12*
#8 Not having access to adequate IT resources in the classroom, reliable PCs and support is a hindrance to productivity and quality of teaching	¶10			¶25 Working condition related to IT resources have improved with shorter response times and fewer issues with problematic IT equipment. But the work group is divided on this issue—some do not see any improvement.	#5	Working conditions	-17
#9 Social support from co-workers is a major strength of the group	¶11			¶27 The cohesion in the work group is seen as improved as a result of more staff socials being organised.	No action	Team Coherence Openness and Support	+3 0
#10 Knowledge sharing and collaboration among co-workers creates a culture of continuous improvement and facilitates the inclusion of new group members	¶11			¶27 The staff socials have meant that the employees have gotten to know each other better at a personal level which has meant that new members of the group are more likely to form bonds with others which facilitates both knowledge sharing and collaboration.	No action	Sense of Belonging Acceptance	0 -4
# 11A new time tracking system causes insecurity about own performance and social comparison and competition within the work group	¶12			No mention	#7	Acceptance	-4

#12 Immediate manager's handling of new initiatives and change is problematic—information is often late and she is often not clear on her stance on a topic	¶13	§1		¶28 ¶33 Information is still perceived as late and employees are not involved early in change processes. However, the stance of the manager on various topics is now clearer.	#8	Change management	-3
#13 Immediate manager is often inconsistent with regard to the decision authority that is first given to the teaching teams but then overruled by management	¶14			¶34 Task management has improved with clearer decisions made and tasks allocated via emails in a prompt fashion.	#9	Task management	-8
#14 Immediate manager does not clearly state when a topic is one where the employees are part of the decision process and when it is a case of informing the employees about a management decision	¶15	§1		¶33 The stance of the manager on various topics is now clearer.	#9	Change management	-3
#15 Employees request better opportunities for developing their skills and abilities—especially in relation to didactic themes. Immediate manager to take a more personal, direct and proactive role in relation to this.	¶16	§2		¶38 The manager is very good at keeping up with the progress of the individual employees in terms of their teaching and research and that this is reflected in the way that she gives the employees feedback.	#10	Personal Development Personal Relation Recognition and Acceptance Feedback	-5 -4 0 -7
#16 Information in the organisation seen as overwhelming and dependent on the employees reading the intranet which leaves them wanting a higher degree of curated information where the immediate manager conveys important information	¶19	§1		¶22 Vital information is conveyed informally and seemingly at random rather than systematically and directed at the relevant recipients.	#1	Change management Information	-3 +4
#17 Workload is characterised by annual peaks which is manageable if they are followed by periods of lower workload. These periods that we previously used for 'recovery' are now increasingly being filled with other activities due to an open calendar policy where other people can book in each other's calendars, resulting in a loss of control of their own time.	¶20	§3		¶41 Workload is variable but employees feel that the peaks and valleys are in proportion and allows for recovery after peak periods. The responsibilities they are given are generally matched by the resources they are giving to honour these. The manager is praised for involving the employees in the planning in a way where they have a say on the amount of work they	#11	Workload Demand level Decision authority	-4 -6 -7

				do and which tasks they take on. This is places a responsibility on the employees that some might find difficult to manage.			
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Group 2 ESM [Academic department]

Themes	Discussed at T1	Sen se-making (T1)	Sen se-making (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Lack of continuity and coherence related to several changes in the organisation and top management that were either not explained or did not make sense to the employees	¶14	§2		¶46 improvement since last T1. Top management has prioritised participating in meetings with employees at regular intervals. This is important not just regarding the topic they discuss, but just as much meeting the top management, which gives the employees a sense of who it is that makes the decisions that affect them.	#3	Continuity and coherence	-19*
#2 Employees would like management to involve the employees so that vision statements and strategies are discussed with the employees harnessing the knowledge of the employees. A need for top management to be clearer on when they ask employees for input in departmental decisions and when they merely inform them about decisions. Giving the employees false hope about gaining influence on topics that have been decided causes frustrations	¶16	§2		¶40 Senior management shuts down employees when they voice their opinions or criticise initiatives see problems that they feel is important to consider. ¶46 improvement since last T1. Top management has prioritised participating in meetings with employees at regular intervals.	#3	Image of top management Confidence in top management	-7 -13
#3 Many organisational procedures are perceived as meaningless or fulfilling a requirement for the documentation or digitalising procedures for the sake of it. Top management does not provide	¶2 ¶3 ¶6			¶41The implementation of a new course planning system has happened without the involvement of the employees which has caused considerable disruption to their work.		Clarity of goals Working conditions	-2 -4

satisfactory explanations.				¶43 The pressure from the senior management to digitalise as many processes as possible has led to a rigid requirement to only use powerpoints in lectures. The teaching staff feel this negatively affects their ability to plan their classes. Raising this issue has caused them to be pigeonholed as technologically inept rather than management listening to their reservations in relation to the didactic problems.			
#4 Information about organisational issues relevant to the employees is perceived as disorganised and split between a difficult to understand intranet and long email chains.	¶18	§1		Not mentioned	#2	Information	+4
#5 Collaboration and support from the administration staff and IT has decreased since a new structure has been implemented	¶19			¶42, 43 The support and collaboration with IT is a cause of considerable frustration. Employees state that they feel that the IT requirements dictate how they can teach.	#1	Working conditions	-4
#6 Pressure for having as many students as possible pass the exams brings about ethical dilemmas for the teaching staff	¶21			¶51 The ethical issue presented to the teaching staff of feeling they have to let students graduate even if they don't have the necessary qualifications		Ethical issues	-7
#7 Strong social cohesion among co-workers is seen as a strength as everyone know each other very well and for many employees a key component in job satisfaction	¶24 ¶25			¶47 Social cohesion has positive benefits at the personal and professional level.		Social cohesion Sense of belonging	-2 +3
#8 For some employees the very high social cohesion leads to an environment that is very predictable and at times lacks challenge and dynamism	¶23		§4	¶47 In relation to the score on the dimension 'Groupthink' they suggest that the group can at times be very cohesive and some might find it difficult to voice a different opinion. Several people express surprise about this and they discuss how they can be more aware of this issue going forward. One person states how the first feedback conference opened her eyes to the fact		Social cohesion Groupthink	-2 -1

				that the rosy picture she had of the department might contain more nuances and that she has seen an improvement since then. This leads to a discussion of how the everyone in the department can contribute to changing this aspect.		
#9 The immediate manager is clear in her statements and direction she sets out is also capable of conveying a strategy that has been laid out by people above her. It is appreciated that she clearly states what needs to be done and also why it has to be done.	¶126			¶148 The employees see the immediate manager as skilled at navigating between the organisational requirement coming from above and the day to day management of the employees in the department.	Change management	-2
#10 Immediate manager is good at recognising the contribution of the employees both in formal ways through reviews and informally in the way she interacts with the employees.	¶127, 28			Not mentioned	Recognition	0
#11 A request for the immediate manager to be more physically present in the department as there are entire weeks where the employees do not see her. It is however noted that the manager is very clear on when she is in the department and when she is away. It is acknowledged that the manager is always reachable via email even if she is not present physically in the department.	¶127			Not mentioned	Personal relation	-3
#12 The immediate manager is praised for being skilful at delegating tasks in a way where the employees feel that they are given responsibility to find their own way of solving tasks	¶129			Not mentioned	Task management	-6
#13 The manager is also very open for feedback from the employees.	¶130			Not mentioned	Feedback	-5
#14 The manager is very aware and supportive of the individual employees' need for further training and development.	¶132			Not mentioned	Feedback Personal development	-5 -5

#15 Employees perceive it as problematic when they see that the immediate manager is not in agreement with the top management's direction for the organisation.	¶134			¶148 Immediate manager is skilled at navigating between the organisational requirement coming from above and the day to day the management of the employees in the department. She is able to make decisions and to be decisive in situations where these are in conflict		Change management	-2
#16 Conflicting demands and an imbalance between resources available to the employees and the responsibilities placed on them. Resource constraints make it impossible to hire in teachers on a short-term contract to make up for the lack of staff. The employee mentions that the longer the problem persists, the bigger the problem in terms of increased workload is likely to get. Other suggest that the high level of decision authority available to them means demands are often the result of self-imposed quality standards. The level of quality expected from the organisation might be different. This can be gleaned from the time and resources that is allocated for certain tasks.	¶138	§3		¶150 Acceptance of the resource available to them and the priorities they have to make accordingly. Some current changes in course structure likely to alleviate work pressure.	#3	Demand level Responsibility and resources Decision authority	-3 -24* -5
#17 Workload is high at times, but fluctuates considerably. The fluctuations take place over months rather than days and are not captured in the ESM method. Peaks in workload are manageable and for the most part followed by troughs which gives time for recovery. The job contains a great deal of autonomy and the oscillation between high and low intensity suits several employees well and is a feature of the job that they appreciate.	¶137			¶149 Workload and stress levels are discussed with relation to the ESM procedure. Some people indicate that they responded to the ESM survey between teaching sessions and therefore always indicated that they were alone in their office. Others indicated that they answered the questionnaires between meetings walking down the corridor on campus. This led to a discussion around bias in the survey.		Workload	-7

Group 3 ESM [administrative unit]

Themes	Discussed at T1	Sensitising (T1)	Sensitising (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Employees experience a lack of clarity in both purpose and direction for the unit. Longer term goals of this strategic unit are unclear to the employees and so is the unit's role and function within the larger organisation. This lack of clarity also means that the employees feel that they are perceived as a unit that serves an unnecessary purpose in the organisation.	¶1	§1,	§7	¶11 Purpose and position for the unit still unclear. ¶13 It is unclear how the unit should handle tasks that flow into the department from other departments	#1	Continuity and Coherence	-1
						Clarity of goals	-2
#2 Employees perceive the top management as distant, not 'visible' or taking an interest in the unit's work. As a result of this, they know little about top management's intentions with the unit in the long term. They speculate that unit might be in danger of being closed down. Mistrust and lack of confidence in top management is a result.	¶2	§1 §2		¶10,12 Management still distant and does not show any concern for the unit's work.	No mention No action	Clarity of goals	-2
						Confidence in top management	-8
#3 Several employees experience the uncertainty of the unit's future as a direct threat to their job security .	¶2, ¶3	§1		¶11 Organisational changes and cut-backs fuel uncertainty.	Mentioned No action	Job Security	+4
#4 Co-worker relations are characterised by social cohesion and support available in the unit. They give examples of how they are aware of each other's general well-being and support colleagues that need support in a period.	¶4		§8	¶16 Social cohesion and feeling included in the social group has deteriorated since the unit has been scattered across several offices. This process leading up to this and the way it was handled in the work group has caused tensions among some employees.	No mention No action	Team coherence	+12
						Sense of belonging	+14

#5 Employees prioritise collaboration and knowledge sharing, the success of which they attribute to the diversity in terms of skills in the group. They do not compete for tasks or turf—but rather try to point each other towards tasks that are relevant for the person’s competencies and are able to distribute new opportunities amongst themselves.	¶4			¶16 Being scattered across different offices has caused the employees to have less information about what their colleagues are working on and more of a competition for getting the interesting projects.	No mention No action	Acceptance	+16
#6 The manager does not distribute tasks in a timely manner or manage to keep an overview of timelines and deadlines in a way they allow the employees to plan their work without being burdened by a large workload.	¶5	§4		¶14 Task management has improved within the unit, but new issues have arisen with regard to the manager not being aware of the number of tasks that flow into the unit’s employees from other departments	#2 #4 #5	Task management Change management	-8 -14
#7 Employees call for the manager to take a decisive stance and make decisions when opinions are divided and issues cannot be resolved.	¶7			Not mentioned	#3	Conflict management	-19
#8 The manager does not distribute the tasks to the employees in the unit but takes on too many himself. When he involves the employees, it is often too late in a project. This prevents the employees from developing their skills on the job. The employees suggest that the manager recognises their abilities by giving them projects that they are responsible for and support them through continuous feedback.	¶8	§4		¶15 Some employees have seen an improvement since T1 others state that the improvement has been marginal. They would like the manager give them more responsibility and autonomy.	#4	Feedback Recognition	-25 -13
#9 Several employees characterise the relation to the immediate manager as one of ‘mistrust’ according to the employees. The root of the mistrust partly the manager’s handling of situations of disagreement in the unit.	¶7			¶16 The lack of trust in the manager is mentioned by an employee who states that she is very dissatisfied with the way that tasks are taken away from her without explanation.	#3	Personal relation	0
Not discussed.			§9	¶18 Especially one person indicated that his score on the JDC dimension matched his experience of a high strain job with high and	Mentioned	Work load Demand level	+7 +8

				fluctuating demands on characterised by low skill discretion and little decision authority.	No action	Autonomy Personal development	+6 -3
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Group 4 ESM [academic department]

Themes	Discussed at T1	Sen se-mak ing (T1)	Sen se-mak ing (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Many organisational changes implemented in the department are the results of decisions made higher up in the organisation. The employees are uncertain about the larger purpose of the changes and they feel that initiatives are launched by top management without any follow-up or informing to the employees about current status.	¶1			¶19 The confidence in top management is affected by cutbacks that were initiated after a year where the department ran over budget. The employees see this particular year as an anomaly and as resulting decision as based on a false premise. ¶20, ¶21 The amount of organisational changes have caused a change fatigue among the employees. A feeling that a period of stability with few changes is needed. Employees experience a need for discussing changes internally and finding a way to deliver high quality teaching within the new structure.	#1 #2	Image of top management Continuity and coherence Confidence in top management Clarity of goals	+6 +4 +9 +11
#2 A lack of transparency about decisions that are made higher up in the organisation which affects the employees. Uncertainty about which changes are the result of decision made in the ministry of education and which are made by the senior management in the organisation.	¶2			¶18 Cutbacks in the sector affect the employees and their perception of senior management. The employees would like the top management to take a clearer stance on the cutbacks and its effect on the organisation. ¶22 Organisational changes that affect other employees outside the teaching staff are not communicated to the employees in the department which creates a feeling that the organisation is siloed and an impression that the	#3 #4	Confidence in top management Continuity and coherence Clarity of goals	+9 +4 +11

				decision processes as opaque.			
#3 A lack of clear and timely information is problematic when the organisation expects the employees to exhibit self-management. Employees would like changes that affect responsibilities and resources to be communicated to them in a clear and timely way.	¶13			Not mentioned	#5	Information	-6
#4 Senior management is perceived as behaving in a condescending and authoritarian manner in meetings with the employees.	¶14			Not mentioned		Image of top management	+6
#5 Employees have little time allocated for developing their skills and engaging in research activities. These activities are relegated to the employees' spare time.	¶15			Not mentioned	#16	Resources and responsibilities Personal development	+10 +11
#6 The use of temporary teaching staff has a negative influence on collaboration among the teaching staff	¶16	§1		Not mentioned	No mention	Team coherence Sense of belonging Acceptance	-3 0 +6
#7 Ethical issues are raised concerning the fact that the course structure means that the teachers will evaluate the same students several times across the duration of the course which makes it difficult to uphold an objective and professional perspective.	¶18			Not mentioned	No mention	Professional ethics	+1
#8 Some working conditions have improved lately as the IT department has improved its service. On the other hand, the new time management system is perceived as restricting the employees' freedom.	¶19			Not mentioned		Working conditions	-9
#9 Relations with co-workers are characterised by interest at a personal level and knowledge sharing			§3			Openness and support	+6

and collaboration at a professional level.							
#10 A couple of members of the groups of employees that have the experience of being outside the otherwise cohesive and inclusive group. This might be a consequence of a 'closed club' atmosphere.	¶10	§1	§4	¶23 An employee who arrived since T1 states how he has experienced the 'closed club' atmosphere as difficult to penetrate. ¶21 The buddy groups planned at T1 have been cancelled	#6 #9	Sense of belonging Acceptance Openness and support	0 +6 +6
#11 The immediate manager takes a personal interest in the well-being and professional contributions of the employees	¶11			¶25 The immediate manager is available, personable and attentive to the needs of individual employees.	#12	Personal relation Recognition	-8 -7
#12 The immediate manager often acts as a catalyst for the projects teams and helps them develop their ideas.	¶11			¶27 The immediate is good at facilitating processes when the employees feel they are stuck with a problem and is willing to let them try out new ideas.		Feedback	-11*
#13 The immediate manager's way of introducing and implementing new procedures is at times not calibrated properly and both the amount of new initiatives and the speed with which they are introduced can seem overwhelming to the employees	¶12			¶24 The immediate manager is good at striking a balance between listening to the employees and letting them contribute with ideas and solutions	#11	Change management Task management	-6 -10*
#14 The workload is perceived as excessive and a very present issue for the employees. The high workload is not perceived as a temporary problem but of a permanent nature. The underlying cause is both the teaching burden and the amount of administrative tasks. Some departmental initiative have been put in place but the employees await their impact on the workload. The employees suggest that the immediate manager and the top management address the issue at a systems level.	¶13	§2	§5	¶28 The workload is high and the employees discuss how there are peaks in workload which affect them. ¶29 New structure constraints in the course structure negatively affects the balance between the resources available to the employees and the responsibilities placed on them.	#10 #12 #13	Workload Demand level Resources and responsibilities	-5 0 +10
#15 An employee on a temporary contract links the high workload to a situation where he has to perform to put himself in a position where he has a chance of getting a permanent contract. He	¶13			¶25 Manager is seen as attentive at the personal level	¶12	Recognition	-7

speculates that increased attention from the management on this particular issue would likely alleviate this problem—especially if he received a greater level of recognition from the immediate manager						
#16 The manager is not very present on campus which makes it difficult to have more informal conversations and meetings face-to-face. The manager acknowledges this and will raise it with senior management as it concerns the resources available to her in her role.	¶14			¶25 The immediate manager is available, personable and attentive to the needs of individual employees.	#12	Personal relation Feedback -8 -11*
#17 Any administrative procedures are superfluous and could be rationalised. The employees suggest that the manager make general decisions concerning these procedures to all circumvent the built of several procedures that solve the same problem. The manager asks the employees to seek her out and provide her with specific information concerning these superfluous procedures.	¶15			¶29 Reduced resources makes it difficult for the employees to fulfil their responsibilities	#5 #8 #15	Resources and responsibilities +10
#18 The employees suggest that the manager establish a culture for meetings where the employees are included in the discussion rather than recipients of information. This mean utilising the potential of smaller teams by including them in decision processes in a strategic way	¶16	§2		¶26 Manager recognises the importance of including employees in decisions when appropriate	#7	Task management Change management -10* -6

Group 5—ESM [academic department]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 A disconnect between what employees experience as important 'on the floor' and the initiatives that are launched from the senior management. Senior management is perceived as too focused on an external role and not enough on building relations internally.	¶1, ¶4			Not mentioned		Image of top management	-13
#2 Senior management's strategy for the organisation is unclear a need to translate to concrete actions in the department.	¶2			¶18 Employees feel that there is a need for senior management to be clearer on what their intentions are with regard to the overall direction of the department and whether there is an intention that the course that is taught on two different campuses are to be joined.	#1 #2	Clarity of goals	-11
#3 Top management is direct and clear on what is happening in the organisation and informs about coming needs for cutbacks and their implications for the department. Top management is skilled at taking the departments culture into consideration when implementing new initiatives	¶3			¶19 Top management praised for keeping continuity and coherence high by not being distracted by a constant flow of external events and potential distractions that could open for changes in the course and the structure.	#1 #2	Continuity and coherence	-11
#4 Information strategy is lacking—too scattered and across several platforms	¶6			Not mentioned		Information	-4
#5 Remuneration is problematic because the system is non-transparent—unclear if bonuses are given based on merit or according to a turn-taking principle.	¶8	§1		¶22 The remuneration policy is unclear for some employees that feel they do not get paid for the extra hours they spend on dealing with students outside working hours.		Salary	-3
#6 Relation to co-workers is characterised as mixed. Two employees state that the survey data mirrors what they experience in the daily life. The	¶9	§2		¶23 Co-worker relations are described as good. It is noteworthy that the topic is not discussed at T2 and that it had been an issue in the department	None	Team coherence Sense of belonging	-7 +3

majority feel that there is social cohesion, inclusion and respectful relations. A small minority of 3-4 people have a different experience of being on the periphery of the group of colleagues and experience a significant element of groupthink evident in the way the employees have a very direct tone in the teaching teams which might explain why there is one respondent with at high score on offensive treatment.				also prior to T1. No extreme scores on either groupthink or offensive treatment (all scores are <25% on the scales).		Acceptance Openness and Support Groupthink Offensive treatment	-9 +1 -9 -7
				¶25 Some feel the members of the team should be better at supporting each other with refence the high peak workloads and the stress experienced by some. This requires a higher degree of social support		Openness and Support	+1
#7 Changes that affect the course structure and the employees communicated to employees quickly and in a way that so that they understand how it affects them and what they need to do.	¶13			¶17 Immediate manager is at involving the employees in development activities so that they contribute to how changes are implemented— example is a new course structure.	#3	Change management	-5
#8 Workload is experienced as excessive often because of conflicting demands and lack of clarity regarding responsibilities.	¶14	§3	§4	¶27 The manager helps the employees prioritise tasks and plan ahead to alleviate excessive workload and conflicting demands. ¶29 Workload mainly related to the organisation around the digital course clashes with the other course structure. A high level of decision authority does help them cope.	#4 #5	Task management Demand level Decision authority Workload	-1 -11 -5 +4
#9 Conflicting demands is a problem as an there has been an increase in activities outside the core task of teaching—such as required presence in departmental committees and teams..	¶15	§3		¶23 Few conflicting demands—employees don't have to spend time in mandatory teams that take up a lot of time.	#6	Demand level	-11

Group 6—ESM [administrative unit]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Changes within the past with a new manager and a new workflow has greatly affects the way they work and has required adaptation.	¶1	§1		Not mentioned	No mention No action	Continuity and coherence	-1
#2 Top management is somewhat distant and not very visible on a daily basis.	¶1	§1		¶8 Top management has become more visible in that the very senior management has visited all the campuses and explained the overall strategy and goals for the organisation. But the top manager who is responsible for the department is as seen as distant and not taking a personal interest in the department.	Mentioned No action	Confidence in top management	-10*
#3 Remuneration policies are perceived as unsatisfactory with both the salary being lower compared to similar departments in other comparable institutions and an opaque process for allocating bonuses.	¶3	§2		¶10 Still a frustration that the level is too low. The manager has taken to address the subject individually with each employee in the performance reviews.	Mentioned No action	Salary	-13
#4 The internal communication and information procedure is sometimes problematic. Several employees mention that they receive important information too late and that it interferes with their job.	¶2			¶9 The level of information is good that the management makes vital information available on the intranet and comments on developments that the whole organisation.	Mentioned No action	Information	-17*
#5 The lack of opportunities and financial support from employees who want to further develop their	¶4	§2		¶13 The employees state that they have ample opportunity in the department to develop new	No men	Status and Career	-6

skills is raised by one employee who states that the employees in administrative functions are not giving the same opportunities as the academics.				skills by asking for new and different types of tasks. The manager picks up the theme from T1 about opportunities for development and states that the formal guidelines for development opportunities is in the works and that he is very open to helping employees that would like to further their skills. One employee notes that this point was stressed in the recent performance review and that this was a much appreciated initiative	tion No acti on		
#6 The immediate manager is relatively new on this post, but the employees praise his ability to be approachable and personable and at the same time maintaining a professional distance to the employees as they would expect him to as a manager.	¶5			¶14 He maintains a personal—not private—relation to the employees	Me ntio ned No acti on	Personal relation	-5
#7 The manager shows confidence in the employees’ abilities to perform their jobs and allows them freedom in how they plan their tasks while at the same time making himself available for advice and guidance.	¶6			¶12 The manager has an excellent overview, which means that he is knowledgeable of the tasks they are working on and is able to provide guidance and input.	Me ntio ned No acti on	Task management	-8
#8 The employees experience the manager as very busy and his large span of control means that they sometimes would like more recognition for the job they do. But they suggest themselves that in order to get this, they need to be active themselves and ask for feedback and recognition to a greater extent than they do at the moment.	¶5			¶12 Manager is good at developing employees’ skill by coaching them on new types of tasks as well as accepting that some are learning.	No men tion No acti on	Recognition Feedback	-3 -4
#9 The group states that there is both social cohesion in the group as well as a level of respect for other each persons’ competencies and also the difference in competencies within he group which they could use to a greater extent than they do at	¶6	§3	§5	¶11 Social cohesion and collaboration has improved—they are less focused on who is physically located where and think of the department as one.	Me ntio ned No acti	Social cohesion Acceptance	-6 -7

present. This leads them to talk about how this could be brought about.			¶12 The note that they have become better at travelling between the two locations ¶16 The group discussed the theme from T1 around how to enhance knowledge sharing and collaboration with a focus on the individual differences when it comes to asking other people for help and support. They suggest that the teams could put a process in place that would make it easier for some people to share difficult problems that they are tackling and thereby create a culture where it is more legitimate to ask for help and guidance.	on		
#10 Workload and especially the peaks that they experience at certain times of the year are handled by them working harder and longer during peaks. One person remarks that learning and development in the job is partly obstructed by having to meet the demands during the peaks where they have many standardised tasks to perform with little say over how.	¶7	§2	¶15 ¶16 Workload score reflects a busy period but that there are also periods with lower workload and one employee states how helping others in periods of peak pressure is important and something he states takes place in his team.	Mentioned No action	Work load Decision authority Demand level Personal development	-10 -11* -6 +5
#11 Collaboration with other departments is sometimes seen as a source of frustration as the administrative function served by the department is at times perceived by the academic staff as a exercising control and undue influence over their jobs.	¶8	§4	Not mentioned	Mentioned No action	Professional relations	-1

Group 7 QUEST [academic department]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	Dimension(s) involved	Change
#1 The overall management of the department is perceived as the result of policy decisions and not something that the top management has much influence over. The employees see the agency for change in overall management as resides outside the organisation. In their view top management are merely implementers of someone else's strategy.	¶1			¶17, Several examples of how the employees implicit perceive that the top management can set and influence goals of the department.		Image of top management Confidence in top management	-17* -14*
#2 The department is spread across two locations which is a problem because top management is mainly present at the one location. Employees feel that they have less of management's attention and are less privy to important information. There is also the feeling that the favouritism that some experience could in the long-term result in the closure of the department at the present location. An employee would like clear statements from the management on this topic.	¶2			¶17, ¶19, ¶21 The is no longer perceived as a problem as the new top manager is present at both locations. Moreover, decision processes are perceived as transparent, and information about goals for the department are clearly communicated to the employees.		Confidence in top management Clarity of goals	-14* -10
#3 The decision processes at the top layers in the organisation are perceived as opaque and the general vision and strategy for the department is unclear.	¶3		§3	¶17 The manager prioritises collaboration with the employees and they state that they feel he listens to them and that they have a sense that their opinions are being paid attention to. Furthermore, they feel that the decision processes are more transparent after the change.		Confidence in top management Clarity of goals	-14* -10
#4 Information is scattered in emails—making it difficult to find departmental information about a specific topic. Both access to information and the flow of information is lacking important according to	¶4		§5	¶35 There is some confusion as to how information should be shared within the department. Some employees suggest that the learning management system, which the		Information	-9

one employee. Management is not using the official channel—the learning management system.				organisation is using for students, and which is the official channel for sharing among the teaching staff, is not working properly.			
#5 Some employees were cautious about answering the questions about the top management and elaborating on them in the feedback conference because they were not sure if that would mean that they attributed blame to a management level that was not responsible for the problem	¶15			This is not commented on at T2. But it is not raised as a concern. Rather, the employees are quick to comment on top management at the feedback conference at T2.		Image of top management Confidence in top management	-17* -14*
#6 The department is invisible in the larger organisation and does not have the attention of the senior management.	¶16			¶19 The employees give examples of how the top management has helped the department get their points through higher up in the organisation.		Image of top management Confidence in top management	-17* -14*
#7 Changes in goals and strategy as well as frequent changes in the management of the department means that they lack continuity and that it is difficult for the employees to plan for the long-term, in terms of projects and initiatives.	¶17			¶18 There is a feeling that the top management and the immediate manager work towards the same goals which was not the case before. In addition to this, there is a feeling that there is a cohesion between the management layers that was not there before.		Continuity and coherence	-14*
#8 The employees would like the senior management to be more visible in the organisation and to understand the overall goals and direction of the organisation and their department.	¶18	§2	§3	¶20 Some employees call for the senior management to be more visible and spend more time with the employees engaged in a dialogue in information meetings rather than in superficial presentation. Moreover, they would like them to pay more attention to their department. One employee speaks out against this wish and states that he would like the senior management to concentrate on broad themes related to strategy for the organisation and the department.		Clarity of goals	-10
#9 The employees state that they mainly see	¶10			Not mentioned		Culture and adaptation	-10

themselves as member of the department and do not feel that they have much of a shared culture with the rest of the organisation. Most employees state that they are fine with this fact and describe it as a deliberate choice to not participate in activities with the rest of the organisation.						
#10 The survey and method is questioned by two employees that are unsure about the purpose and outcome including who is responsible for conclusions and actions. Implicit is a criticism of the method was assumes agency within the work group in collaboration with the immediate manager and top manager. [This lack of agency and responsibility within the group might be a reason for the low level of observed sensemaking in the T1 feedback conference].	¶11 ¶12			No critique of the method, responsibility or agency in the feedback session. Significantly more instances of employees exploring different perspectives on issues and engaging in the formulation of actions and solutions.		
#11 There is a lack of social cohesion and sense of belonging in some parts of the work group. This is attributed to the group members rigid positions and	¶14	§2		¶126 Co-worker relations are good and have improved since T1. The organisation within the department has changed with new teams having been created to work on specific tasks. This is a change from earlier where the teams were always based on the subject taught by the employees. This new organisation has improved collaboration and knowledge sharing across the teams. Management has initiated a strategy and development meetings with the teams which has further supported this structure and the knowledge sharing.	Team coherence Sense of belonging	-11* -7
#12 Some employees in the group feel that the tone in the work group is tough and confrontational.	¶13	§1		¶127 They state that social cohesion, acceptance and the general tone has improved. This improvement has happened because they have discussed the issue in the department after some episodes where the tone within the department was harsh. Moreover, some	Acceptance Groupthink Offensive treatment	-4 -5 -7

				member of the group have observed elements of offensive treatment during visits by external lecturers or consultants with whom they disagreed.		Conflict management	-13*
#13 Regarding the topic of the immediate manager there are two people who mention the fact that it is difficult to talk about the management when he is present in the room.	¶15			There is no hesitation nor any explicit concerns about giving feedback on the manager's management. The employees are very direct but constructive even if the top management is present in the room which was not the case at T1.			
#14 The task management of the immediate manager is a major focus of the employees. He is perceived as giving too short notices and to frequently work up against deadlines which stresses some group members. Moreover, the manager is seen as lacking some competencies needed for the job and that the poor task management leads to a lack of oversight over which tasks the employees have at what time of the year. A further critique is that the manager's planning is not visible to the employees which leads to periods with excessive workload.	¶18			§32, ¶34The immediate manager has become better at explaining which tasks he expects the employees to do and it has been further improved by the hiring of a coordinator in the department which has freed up the manager's time to attend to the interaction with the employees. One employee states that he would still like the immediate manager to improve the task management and especially the part that has to do with the timing of introducing new tasks for the employees.		Task management Feedback Recognition	-16* -10 -6
#15 The employees would like the manager to be clearer and more transparent in his decision processes so that the employees understand how and why he arrives at certain decisions as well as being better at following up on decisions explaining what consequences of a decision will be. The employees would like the manager to be more decisive at time and take decision rather than seeking consensus	¶19			¶35 The immediate manager is seen as authentic in the way that he implements new initiatives from the senior management where he is clear on what has to be done and which decision has been made while at the same time acknowledging if he disagrees with the decision. An employee praises the immediate manager for being able to balance the personal relation with the professional management role which is necessary for the department to be run effectively.		Change management Conflict management Personal relation	-13* -13* -11
#16 The intrinsic job factors workload is discussed	¶16		§4	¶39 The slight changes in the scores on intrinsic		Workload	-4

as being surprisingly high and one person says that he is satisfied with the workload but surprised that they are high. This leads to a discussion of the JDC model and the benefits of having autonomy and skill discretion. Nevertheless, they have had two colleagues who have suffered from stress and have had to either take a longer sick leave or leave the profession as a result. They discuss if and how they can spot the symptoms in colleagues and what they can do.			§6	job factors from T1 were discussed in the light that the survey took place at the same time a year earlier. They acknowledge that they have peak workloads at certain times of the year, but one employee states that the level of decision authority has decreased. The employees are unable to exercise the control necessary for having a tolerable level of workloads. As a result of the high workload the opportunities for development decreasing.		Demand level Autonomy and Influence Personal development	-2 -2 -1
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Group 8 QUEST [administrative unit]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Top management is clear in outlining goals and strategies for the department, but not very visible as the immediate manager is responsible for most organisational issues. Strategies have changed from previously being focused on the short term and local to looking at the organisation as a whole and taking a long-term perspective on the management of the departments resources.	¶1 ¶2				#1	Confidence in top management Clarity of goals Image of top management Continuity and coherence	+3 +4 -4 0
#2 Top management take quick action on issues that require their managerial approval making it easier to get things done for the employees.	¶3					Image of top management Confidence in top management	-4 +3
#3 Since the current top management took over, the collaboration within the department has improved across the four locations and the	¶4					Task management Decision authority	0 -1

employees make better use of each other's skills. This has improved the structure of the job for the employees and their feeling that they now work on projects with a longer-term benefit to the organisation. As a result this has improved the satisfaction with the job.						Engagement	+3
#4 Lack of clarity in terms of the roles and responsibilities when it comes to collaboration with a number of other departments. As a staff function the employees often find themselves in role conflicts in their interface with other departments. One the one hand they would like to accommodate the requests for assistance from people they know and on the other hand they know that doing so entails them going outside their remit and allowing unofficial channels to take root which will lead to increased work load and lack of control in the job. Newly implemented structures and booking systems are starting to have a behavioural impact which reduces these requests.	¶15			¶15 The collaboration with the one department has improved in one location where a new IT specialist solves many of the issues that they previously handled within the member of this work group. In another location they have set up another meeting with the IT department to discuss the issues with collaboration that have not been resolved.	#4	Resources and responsibilities Professional relations Working conditions	+7 +2 +13
#5 Processes related to remuneration is non-transparent.	¶16			¶17 Remuneration policy is perceived at unfair and non-transparent.	No action	Salary	+2
#6 Immediate manager seen as very approachable and the employees feel they can discuss any issue with him.	¶17					Personal relation	+3
#7 Immediate manager has a good overview of tasks and distributes them well. He makes decision quickly and decisively when required to do so which receives much praise from the employees	¶18					Task management Conflict management	0 +2
#8 The immediate manager delegates decision authority to the employees trusts them to manage the budgeting of smaller projects and thereby cuts	¶19					Task management Decision authority	0 -1

out red tape associated with having to get sign off on various expenses. This has increased the decision authority in the job of the employees as well as the opportunity to learn new things and skill discretion.							
#9 The employees state that the relation to co-workers within the group are characterised by them helping each other and an open but also very direct tone.	¶10				#2	Team coherence	-1
					#3	Openness and support	+10
#10 Several employees give examples of how they are perceived and treated as lesser members of the organisation by other departments and how they are often not invited to socials as they are seen as caretakers rather than as organisational members.	¶11					Professional relations	+2
#11 Workload is perceived and moderate and manageable with only a few weekly peaks and seasonal fluctuations but the less busy periods are plenty and allows them to distribute non urgent tasks for these periods.	¶12					Workload	-2

Group 9 QUEST [academic department]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	PWE dimensions involved	Change
#1 Difficult for employees to answer questions related to the top management because it is unclear who in the 'top management' layer makes the overall strategic decisions which influence them. A general feeling that these decisions are made at the very top of the organisation. Similar reservation in relation to the perception of the	¶1, ¶16			¶21 Difficult for the employees to relate to the 'top management' as they see the main influence as happening at the levels above the 'top management'.	#1	Image of top management	+4

immediate manager and that an evaluation unfairly attributes responsibility to him not taking into account the structural constraints which he works under.							
#2 Top management is seen as distant and invisible to the employees. A feeling that she is not very present or knowledgeable about what goes on in the department. Mainly experience her management through emails. Uncertainty about her goals and strategies	¶12			¶123 The employees have not seen the top manager for the past year. ¶125 The employees feel that the top manager does not listen to the concerns that they are trying to convey to the top management.	#2	Clarity of goals	+4
#3 The experience of top-down decisions from top management without regard for local knowledge and processes. Top management is described as distant and with little feeling with how new procedures and systems affect the daily lives of the lecturers. As an example, the administrative staff has been prohibited from taking their break with the lecturers in the canteen.	¶14, ¶16, ¶13		§1	¶124 The top manager has micromanaged the process of new course structure descriptions to a degree where she has decided which sections could be added by the work group responsible. ¶122 The re-design of the staff room and the people who can use it in the organisation has affected the employees who feel that management has not taken into consideration that the room served an important cultural function and a meeting point for the staff. The change had taken place without involving the staff.		Image of top management	+4
#4 Employees experience a large number of administrative procedures that are superfluous, bureaucratic and making it more difficult for them to perform their job	¶13, ¶17			¶124 The implementation of a new structure of the course and the related need to document this structure is unnecessarily bureaucratic		Working conditions	-5
#5 Too many changes are initiated without regard for the consequences at the employee level.	¶15			¶125 A feeling that the top manager does not listen to the concerns that the employees are trying to convey to the top management.		Continuity and coherence	-6
#6 Conflicting demands result from being micromanaged and pressured into following standardized procedures and told to work in an empowered and self-managing way.	¶16, ¶18					Responsibilities and resources	0

#7 Discrepancy between being told to focus on the core task (delivering high quality education) and a student centred approach to teaching and the need to handle ever more administrative tasks.	¶9				Confidence in top management	+5
#8 Communication, information and knowledge sharing outside smaller units in the department is lacking. Difficult for the employees to know who and where to ask in the organisation about a specific topic which leads to replicating of effort.	¶10			Not mentioned	Information	+9
#9 The need for more information about what happens at the departmental level and as well as goals and strategies	¶11, ¶12			The level of information from top management and the organisation is overwhelming and not relevant to the employees. They would like the top manager to take a clearer stance on what she intends for the department rather than simply relaying information from the senior management.	Information Clarity of goals	+9 -2
#10 Relation to co-workers very positive both in terms of social cohesion and inclusion in the work group. They take an interest in the well-being of colleagues and offer social support to colleagues under a high workload. Moreover, they are open about each others' strong and weak points and offer practical support when needed. There is also an culture in the department where people actively seek out help from co-workers which is seen as especially important for new teachers.	¶14			Not mentioned	Team coherence	+1
#11 They are based at two locations which poses a challenge to the cohesion of the group where one of the locations is characterised by having less social interaction between the employees. The staff room at one of the locations is where most of the knowledge sharing takes place and this can pose a problem to the employees that are mainly at the other location.	¶15			An employee reflects that since the T1 session they have been more focused on the collaboration between the campuses and that she as a consequence of the last SF session has had an awareness that the group at the other campus needs to be represented in meetings. Other employees state that they do not feel that enough has been done in this area	Sense of belonging	-4

				and that the concrete suggestions of video link meetings has not happened. They state that they have an awareness of the problem and that all general meetings that are called for the whole department have representatives from both campuses.		
				¶127 An employee notes the outlier scores on the dimension 'offensive treatment' and asks if that can include relations to people outside the group of co-workers. When assured that this is the case he states that in that case it is a known problem that is being dealt with in the organisation.	Offensive treatment	0
#12 The role of immediate manager is somewhat unclear to the employees who during the feedback conference attribute the management to both the immediate manager and the person who has a role of administrative coordination within the department. Several employees state that they see her as a manager in the same capacity as the immediate manager.	¶17			¶128 The management of the immediate manager is difficult to separate from the action of the coordinator who takes on many of the managerial responsibilities. A general feeling that the arrangement works well	Task management	0
#13 The immediate manager is very approachable. His way of providing feedback has improved over the last while as well as him being more susceptible to inputs from the employees. The employees are generally content with the way he manages tasks and attributes this development to fact that he has delegated some of the planning activities to the coordinator within the team. They state that this has changed considerably over the past few years.	¶18			¶129 The manager makes himself available through phone or video call if he is not able to be present at either of the campuses.	Personal relation Task management	-1 0
#14 The immediate manager has previously been perceived as reluctant to take action when required and mediate when in situations where there was either conflict among staff or the need for a	¶19				Conflict management	-6

management decision.							
			§2	¶130 Some employees request clearer and more frequent feedback from the manager. The manager notes that the dimension feedback has the highest score and that he would like to improve in this area. One person who is new in the job would like the manager to take more of a personal interest in her and ask her about how things are going and help her develop in the role.		Feedback Recognition	+3 +7
#15 The workload is perceived as manageable and the decision authority available to the employees is highlighted as something that contributes to making the seasonal peaks in workload manageable.	¶20			¶131 Workload is mentioned and some employees state that their scores have changed dramatically. The overall change is towards lower workloads and the employees raise the question of how much this is reflection of a temporary situation.		Workload Demand level Decision authority	-5 -8 +2

Group 10 QUEST [administrative unit]

Themes	Discussed at T1	Sense-making (T1)	Sense-making (T2)	Comment at T2	Action plan (T1)	Dimensions involved	Change
#1 Historically the unit has previously has undergone several changes over the preceding years as a result of pressure from the surrounding world. The general consensus is the management has handled this in a competent way that to a large extent has provided the continuity that was needed for the employees to perform their jobs. Even though the changes have gone well, they express a need for a period of more stability of fewer changes	¶1				No mention No action	Continuity and coherence Change management	-4 -3

going forward.							
#2 Cohesion between top management and the immediate manager of the department and they feel that the management has been adept at positioning the unit within the larger organisation in a way where it is seen as legitimate even though of its obligations relate to external parties. Goals and strategy seem to be transparent and clear to most the employees.	¶12			¶10 The interface between top management and immediate manager is seen as close which gives the employees a an early understanding of future goals and strategies in the organisation which allows for employees having a say over how the strategy is implemented in relation to their jobs.	Mentioned No action	Clarity of goals	-3
#3 Some employees in the group are on a short-term contract which means that they perceive the job security as low and a factor that affect their well-being to some extent.	¶13				No mention No action	Job security	+1
#4 Salary reveals that the base salary is perceived as low compared to other groups and the way bonuses are distributed is seen as opaque.	¶14			¶12 Job security is again a theme of some importance due to changes in the environment which affects the funds channelled into the unit. However, the employees acknowledge that this is a fact that is difficult to change and they praise management for not making this a theme in the daily life of the department. As such there is no profit and loss department statement visible to the employees which they deem important for taking the pressure off them for bringing in money for the department.	No mention No action	Salary	+1
#5 Relation to co-workers is characterised by a high degree of social support that participants underline is important in situations where pressures from outside work affects them—e.g. undergoing greater life changes. Moreover, they stress that there is a willingness to share knowledge and draw on the diverse expertise present in the department. It is however noted that the department is	¶15	§1		¶13 Relation to co-workers is again highlighted as a major resource of the department and that the social cohesion and support is a motivation for the employees. The colleagues talk about how the inclusion in the work group differs over time for employees that have many external obligations where they provide a service for other parts of the organisation and mainly	Mentioned No action	Team coherence Sense of belonging Acceptance	+2 -1 -1

geographically dispersed and consist of a variety of different functions which results in groups within the work group which at times makes it difficult to create a shared identity as a department. Moreover, it is sometimes difficult to know what other people are working on which hampers knowledge sharing and collaboration internally in the unit as well as making it difficult to direct external partners and clients to the right employee.				collaborate with people outside the unit.			
#6 Offensive treatment is raised a topic because the distributing of scores show a single person in the third quartile indicating that the person has either witnessed or been subjected to behaviour or treatment that is seen as offensive by the respondent. Several members of the group note that there is a development towards a cohesion and group identity for the whole unit and that this is a surprise to them. They discuss how the problem can be mitigated going forward, mainly by everyone in the group being aware of how the general tone of joking might be taken to be offensive by a few colleagues. Several employees call for their co-workers to come forward if and when they experience this.	¶6			[no comment on this even though they were probed directly]	#1	Offensive treatment	-2 [no extreme score at T2]
#7 Immediate manager is perceived as very approachable and ready to help with guidance on task management as well as any other issues the employees present his with. At the same time the manager allows for autonomy and has confidence in the employees' abilities. The manager is also praised for his ability to making decisions and staying the course when there is disagreement in the group.	¶7			¶14 Immediate manager is praised for similar competencies as in T1 – being open and approachable and balancing giving direction and allowing freedom to make own choices about when and how to do the job.	Mentioned No action	Personal relation Task management Conflict management Recognition	+2 -1 -1 -1
#8 The manager's way of introducing and	¶8			¶15 The manager points out that there since the	Me	Change management	-3

<p>implementing new initiatives in the unit with regard to pace and timing could be improved. The employees would like to feel that they have enough time to implement an initiative before a new change is introduced.</p>			<p>first survey (T1) have been substantial changes in the number of services that the wider organisation expect the department to provide. He tells the employees that he is very content to see that despite this there is a slightly positive development in the score on change management and he takes this as an indication that the strong focus on providing clear and timely information about these changes has been successful.</p>	<p>ntioned No action</p>		
<p>#9 Some experience the high workload of incoming tasks and opportunities to part take in projects as overwhelming, but at the same time appreciate the decision authority in the job. The manager highlights that the level of quality that the employee delivers is related to this, and that this is an element to consider in connection with perceived workload. He acknowledges that it is a task for management to make it clear to the employees what level of quality is expected. One employee would like more guidance from the management in this area, but others state that they have sought the management's advice with regard to this and found him very supportive. Management stressing the importance of reducing the workload to a manageable level for the employees affected by it, especially the four people in the fourth quartile.</p>			<p>¶16 Intrinsic job factors is a major theme in relation to the job demand—control dimensions. Especially the interpersonal differences in wanting to do a high quality job and how that affects both workload and is exacerbated by the decision authority (a theme that the manager noted in the action plan at T1). Another aspect of the JDC dimensions is whether the model and the scales being normative misrepresents the experiences of the employees that are content with routine tasks and little control. Several employees note a fluctuation in workload over time and one person underlines the importance of the management allowing for 'down time' after peaks in order to recover.</p>		<p>Workload Demand level</p>	<p>-5 [no extreme scores at T2] 0</p>

Appendix C: Template for action plan for work groups

Work group / Unit:	<name>
Immediate Manager (project owner):	<name>
'Top management':	<name>
Action plan to be shared with:	<name>
Date:	<DD-MM-YYYY>

Top management and the organisational culture—main themes:

<dynamic text field>

Are there concrete actions to take?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

Who, What, When?

<dynamic text field>

Co-worker relations—main themes:

<dynamic text field>

Are there concrete actions to take?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

Who, What, When?

<dynamic text field>

Immediate manager—main themes:

<dynamic text field>

Are there concrete actions
to take?

Yes
No

Who, What, When?

<dynamic text field>

Intrinsic job factors—main themes:

<dynamic text field>

Are there concrete actions
to take?

Yes
No

Who, What, When?

<dynamic text field>

Appendix D: Coding book

Name	Description	Files	Reference
ACTIONS		11	83
Employee action	The action outline is tied specifically to the employees in the work group.	5	19
Joint action	The action outlined involves the joint action of the management and the employees	5	10
Management action	The management is to take action on a theme.	10	54
Behavioural impact	Mention of a observed behavioural impact of an action taken.	2	14
COLLEAGUES		28	348
Fractions within work group	There are subgroups or fractions within the work group which affect the social cohesion of the work group.	5	15
Groupthink	Mentions of mechanisms in the work group or part of the work group which makes it difficult for the members to express their opinion.	9	41
Inclusion	Inclusion of (new) members in the work group as well as a discussion of people who feel less as part of the group	10	25
Internal mobilisation against outside organisation	The work group's mobilisation of resources to deal with outside pressure, threats or changes.	2	3
Knowledge sharing and collaboration	Sharing knowledge, helping behaviour and collaboration in the work group.	21	100
Offensive treatment	Tone and behaviour experienced by employees in the work group which challenge the members' personal boundaries for acceptable behaviour.	10	46
Social climate and cohesion	Social support, cohesion and general climate in the work group	26	118
ESM	Mentions of and comments on the experience sampling approach—either at the methodological level or in relation to the impact on the participants.	7	23
IMMEDIATE MANAGER		29	429
Change management	Clarity in goals, why changes are implemented and the manager's ability to include the employees in change initiatives, follow up on and evaluate change initiatives	23	83
Conflict management	The manager's way of handling problems and issues that arise where his or her action is needed. Taking action and solving the issues is a way that suits the employees.	15	47
Development	The managers priority of development of the employees, either by personally taking an active role in aiding the employees in developing their skills—professional or personal.	13	40
Feedback	The extent to which the employees experience the manager gives feedback about the employees performance as well as the expectations of the employees. Theme also includes the value that the employees see the manager places of mutual	14	36

Name	Description	Files	Reference
	feedback.		
Management protects	The manager protects the employees from the top and senior management of the organisation by shielding them from information and/or by defending the interest of the employees in the work group.	3	4
Manager responsibilities	Responsibilities and remit of the manager. The employees' understanding of what the role entails or which tasks belong to the manager and which fall outside. Employee might mention that it is unclear what the manager's responsibility is and what their role entails.	3	6
Personal relation	The accessibility of the manager being approachable and/or visibility. The experience that the manager shows an interest in the employees	23	83
Recognition	The manager shows recognition for and values the job that the employees perform and their contribution to the organisation..	13	28
Task management	Organisation of work tasks and flows. The way the manager delegates tasks and the timing in the distribution. The overview they have over the total pool of tasks.	25	102
JOB FACTORS (INTRINSIC)		27	287
Administrative tasks	Administrative tasks that have to be handled as part of the job. Mentions of their nature, relevance and impact on the daily work of the participants.	6	18
Conflicting demands	The experience that there are demands on the employee that are at odds, difficult or impossible to reconcile	7	12
Decision authority	The ability to make decision about how and when tasks are performed	6	29
Engagement-commitment	Employee stresses how important the job is and how committed they are to it	2	2
Job organisation	Themes related to the planning and organisation or work or tasks within or between units.	9	25
Personal and professional development	Opportunities (or lack thereof) for developing professional or personal skills in the job. Availability of further training and management's support for attend training courses	8	19
Professional relations	Relations to students or others to which the employees provide a service. The impact negative or positive that this relation has on the employees.	1	2
Ressources and responsibilities	The balance between the resources made available to the employees and the responsibilities/demands placed on them	9	21
Risk of assault	Experiences (or perceived risk) of being in situations that can be perceived as threatening.	3	3
Skill discretion and variety	Whether the job requires skills and presents the employees with variety.	16	46
Workload	Mentions of work load: quantity, quality and time pressure. Equivalent to the Demands dimension in the job demands control model.	26	109
Physical work environment	A catch all category for any theme related to the physical work environment	7	8
PROCESS			
Agency	Top level node	1	1
	Employee mentions or draws attention to the fact	3	4

Name	Description	Files	Reference
	that they have agency and might outline ways of thinking about solutions or actions		
Agency is outside our reach	When employees after being probed about things they can do, refute the notion that any agency is within their reach.	2	3
Circular probe—facilitator	Facilitator probes the work group to get them to reflect on how they can affect the situation through actions.	8	40
Circular probe manager	Manager probes the employees about the perspective and how they see that a given situation can be affected by their actions.	5	8
Comparing T1-T2	Either comparing T1 to T2 or making a statement to a change that has happened—positive or negative	10	33
Employee reflection	Goes beyond stating the current state of affairs. Reflects on at the process level—how things are and how it affects him/her, the group or the organisation. Often this will form part of an instance of sensemaking, but coded as 'reflection' if the process falls otherwise fall short meeting the criteria for 'sensemaking'	16	88
Employee request dialogue with management	Employees asks or initiates a dialogue with management during the feedback conference.	1	3
Management close down topic	The manager closes down a topic or a proposal with arguments as to why it is not possible to follow the actions proposed by the employees or a disavowing their point of view	7	13
Management reflection	Management reflects on an activity or state of affairs and its consequences in a way that goes stating how things are.	17	58
Manager double loop learning	Evidence of double loop learning. The manager—explicitly talks about the models/thinking that has governed how a particular issue has been perceived thus and re-evaluating these governing constraints.	2	4
Manager encourages action from employees	Manager ask employees a direct question regarding an issue or encourages them to take action / reflect on an issue	10	22
Problem formulation	A participant explicitly formulate a specific problem to be solved based on the exchange in the feedback conference or the data presented.	8	13
Process not leading to actions	Comments on the process not addressing the main issue or that it is difficult to address the issue because of anonymity or risk of exposure.	1	5
Questionnaire-Method	Comments on either the method, the questionnaire or how the results reflect their reality	10	28
Reflection-idea dismissed	Reflection or idea presented by one member of the work group is dismissed (as unrealistic, problematic, etc) by another member of the group.	1	1
Sensemaking	Section contains part of an exchange which is characterised as sensemaking as per the definition state elsewhere in the thesis.	17	239
SOLUTIONS		12	35
Employee solution	A concrete solution or action to an issue raised is proposed by a participant.	11	26

Name	Description	Files	Reference
Management solution	The manager proposes a solution to a stated problem.	7	9
TOP MANAGEMENT & ORGANISATION		29	891
Change, continuity and stability	Mentions of organisational changes and the effect it has had on the employees.	20	88
Collaboration employees-management	Mentions of the communication between top management and the employees. Sub topics include:—whether management ask for input from the employees and whether they harness the knowledge of the employees,—whether top management are open to suggestions and ideas	14	32
Collaboration with other functions	Collaboration and interaction with other units or functions in the organisation.	14	74
Confidence in top management	Whether the employees feel they can trust the top management to follow up on initiatives that they honour their commitments and appear trustworthy to the employees.	11	38
Culture	Comments on the general culture of the organisation and its impact on the work groups and the job performed.	1	1
Decision processes	Decision processes in the organisation and at the management level are perceived as either non-transparent or forced upon employees—a fear that management does have or take in employees' knowledge. Employee might ascribe certain intentions to management based on perceived behaviour	13	80
Decisive management	Management is competent and take decisions and intervene when necessary.	3	5
Distance and visibility	Employees mention issues around distance to top management, its visibility and the relation to top management. Are they approachable Is it clear what they are doing and what their roles are?	21	77
Ethical issues	Experience that some ethics of the organisation conflicts with the persons own standards	7	18
Goals and strategy	The clarity of goals, strategy and vision of the organisation. The extent to which the overall strategic direction is clear to the employees as well as the its relation to the core tasks of the employees.	20	90
Information-communication	The level of information in the organisation more broadly. Do the employees know where to find relevant information that affects their jobs. Does the organisation use appropriate channels for information the employees and is information made available in a timely manner.	23	110
Job security	The extent to which the employees feel they can keep their job. Theme includes comments related to organisational changes and changes in the environment that necessities cutbacks, restructuring and strategic changes that can render some job functions irrelevant.	13	29
Management competence	The level of competency among the top management. Their ability to do and focus on the right things and get the backing of employees.	9	31
Management layers—cohesion	Coordination between levels of management and whether the structure and roles of these is clear. Disagreement between levels or perceived differences in actions.	18	46

Name	Description	Files	Reference
Position in organisation	Integration and position of own unit or part of the organisation in the wider organisation. Includes identity of own department and its role in the organisation	9	31
Recognition from org. top management	The extent to which the top management shows appreciation, respect and recognition for the employees and the job/ role the perform	7	22
Salary	Salary and remuneration—fairness and transparency in the way bonuses are handled as well as the perception of the general level of salary.	11	28
Transparency	Transparency in the organisation. The extent to which the employees experience that the management is transparent about goals and agenda.	8	26
Wasteful-bureaucratic procedures	Procedures that are seen as unnecessarily bureaucratic, cumbersome and wasteful. Moreover, the extent to which procedures are introduced seemingly without regard to implications for the employees and their time /ressources.	7	42
Working conditions	Working conditions (structure, processes access to equipment and resources) that are needed to be effective in the job.	6	22

Appendix E: Hierarchical Linear Regression Plots

The appendix contains regression plots for the following mean mood and the following focal variables

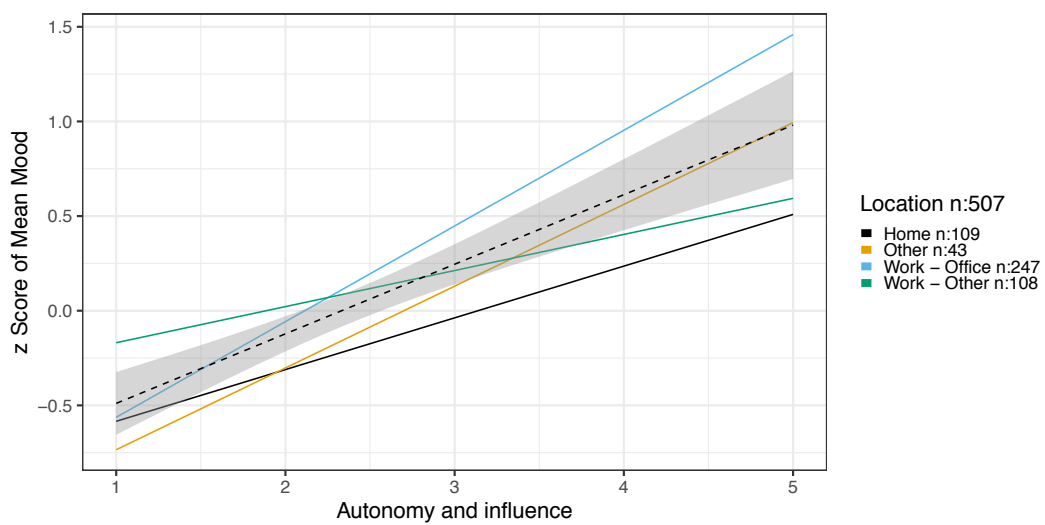
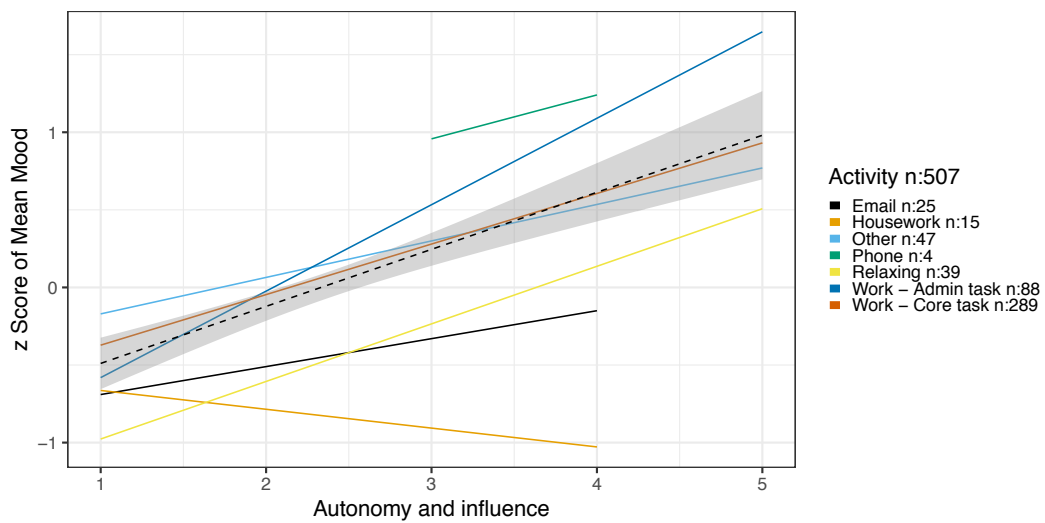
- The PWE factors:
 - D1
 - D2
 - D3
 - D4
- Intrinsic job factors:
 - Autonomy and influence
 - Personal development
 - Demand level
 - Variety
 - Work load
- Job satisfaction

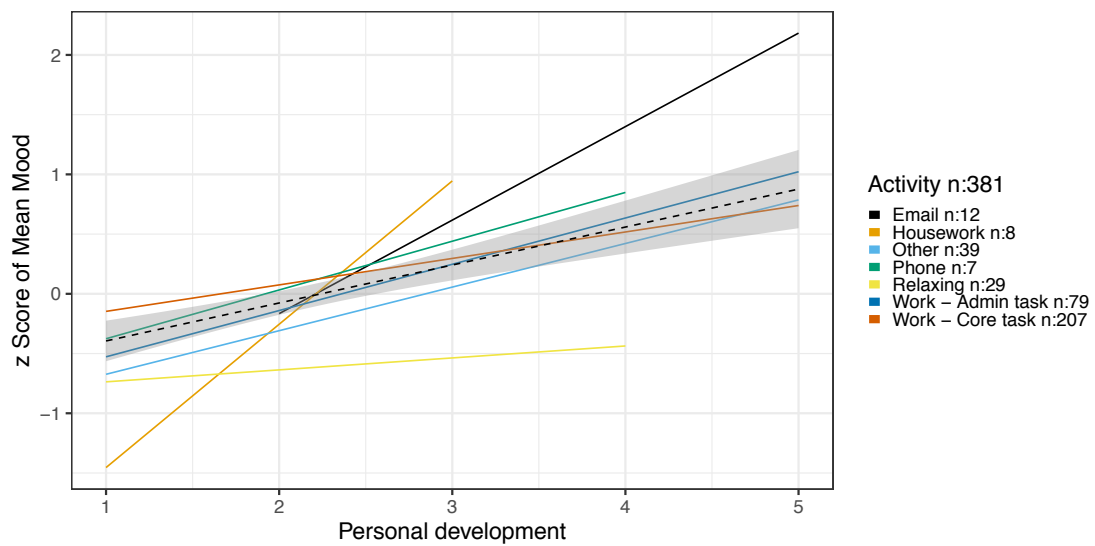
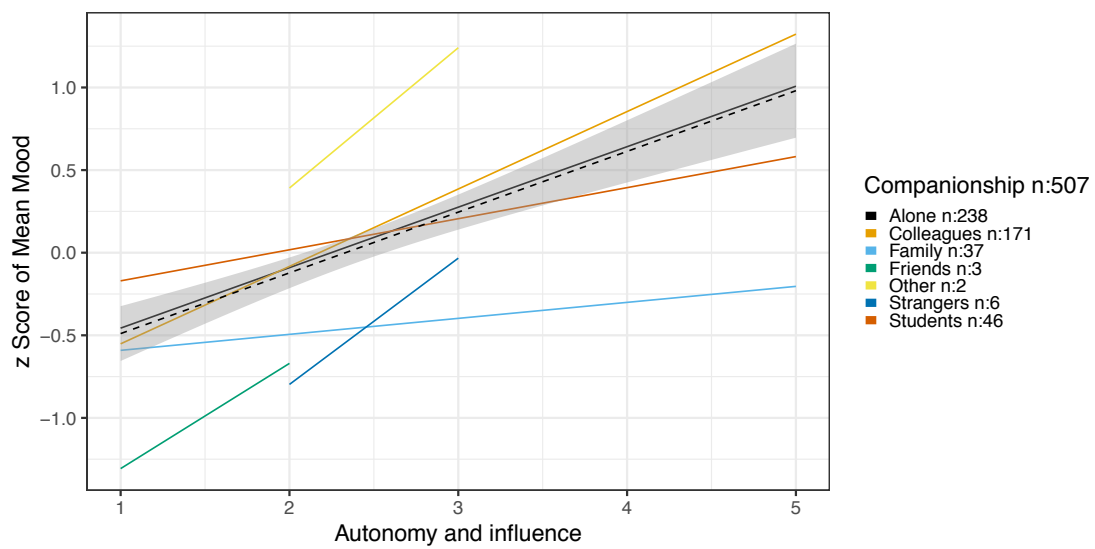
Plots are based on Hierarchical Linear Regression performed in R using the 'lm' function.

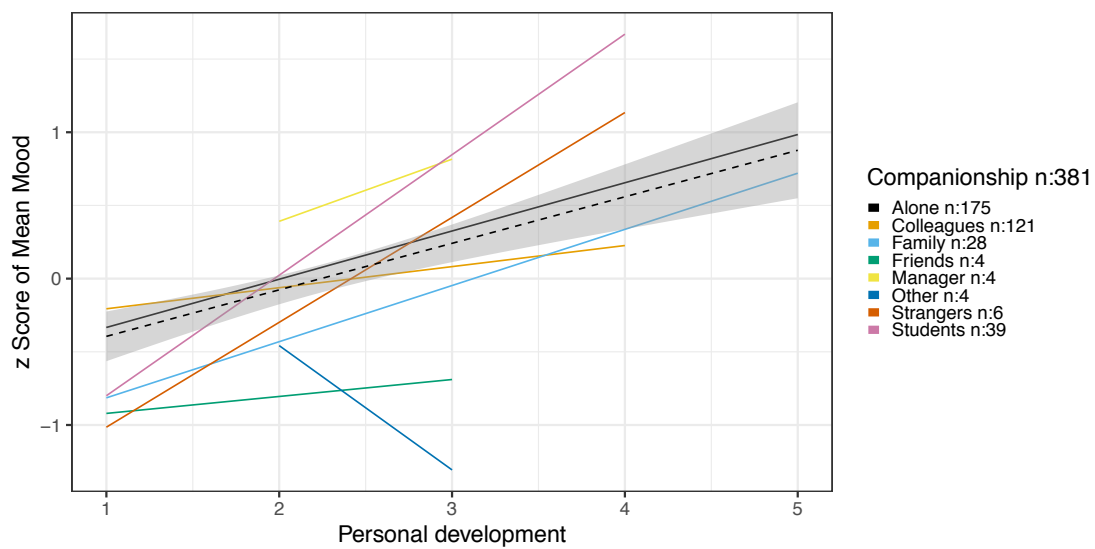
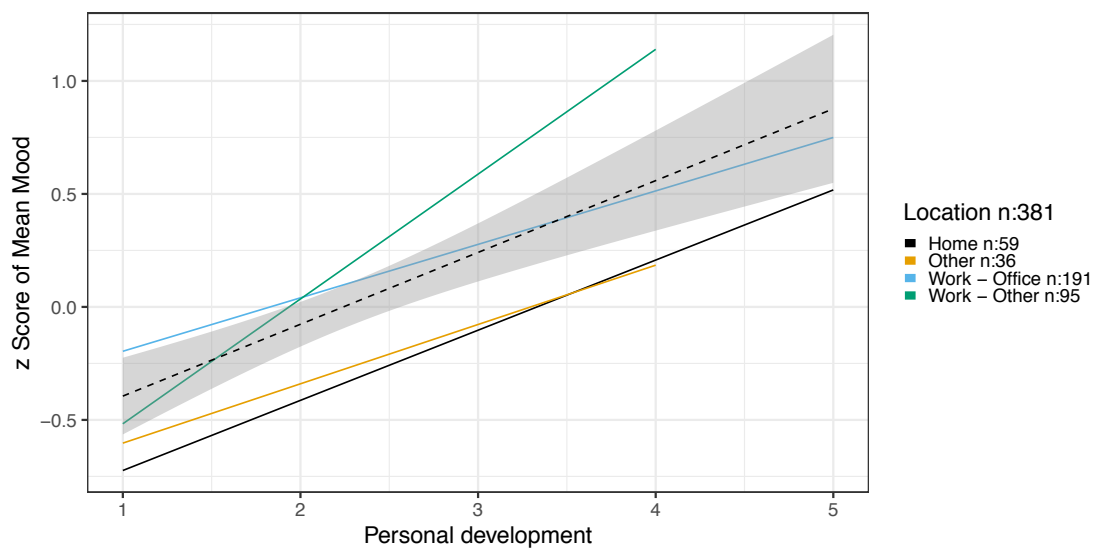
Mean Mood~**Focal variable X Activity**

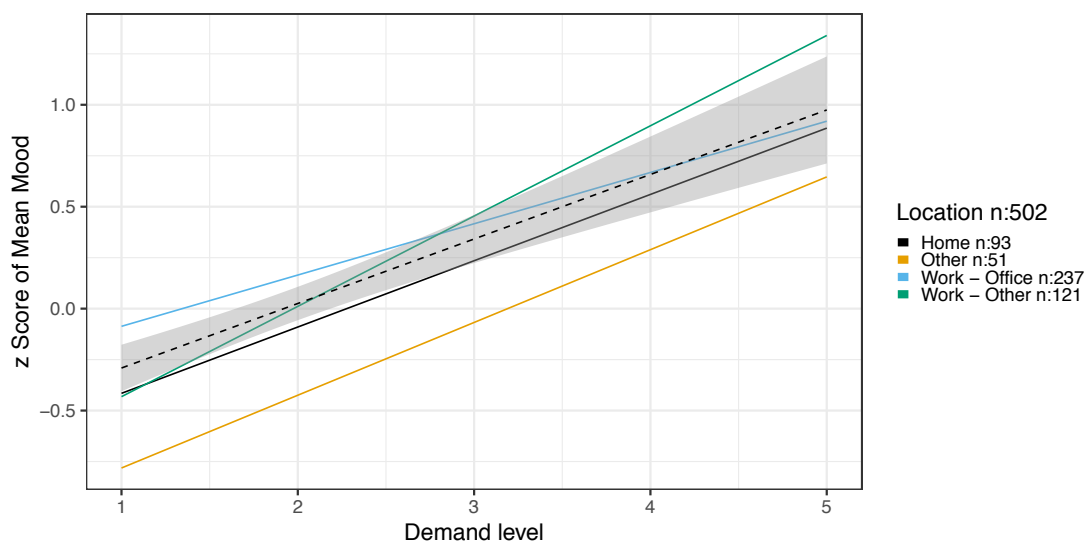
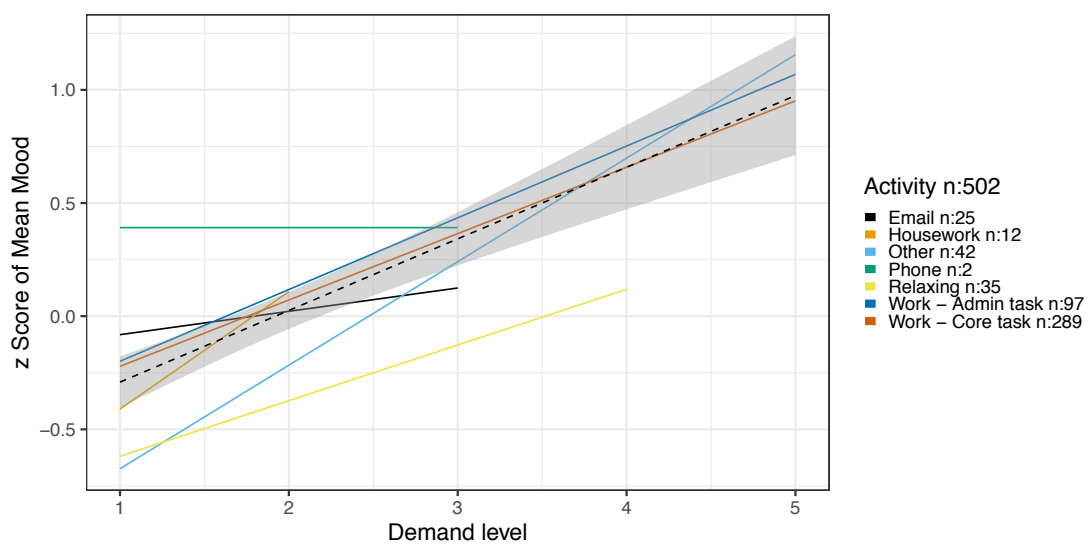
Mean Mood~**Focal variable X Location**

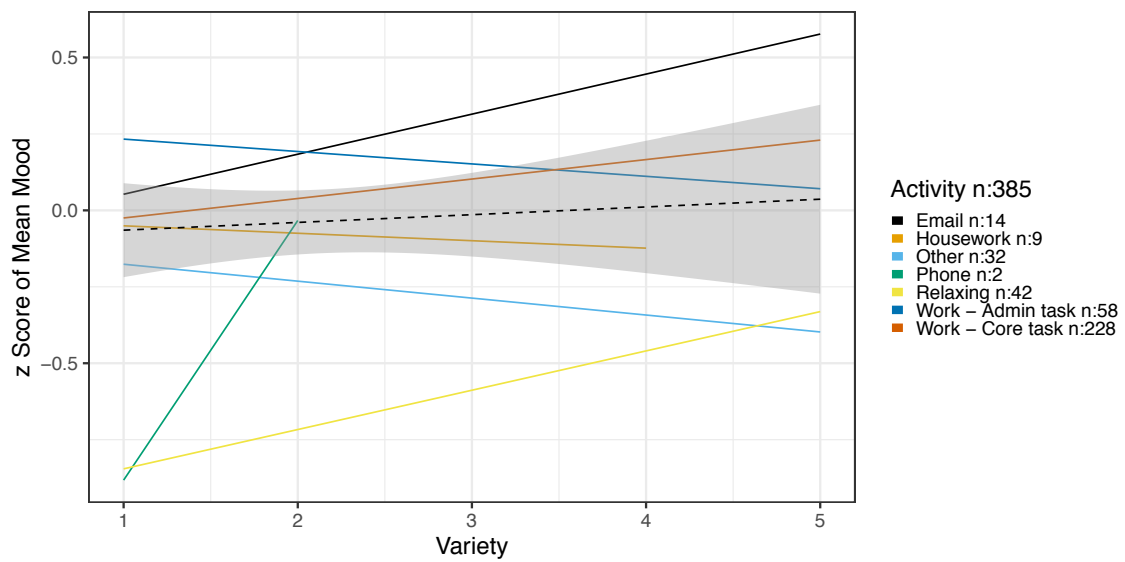
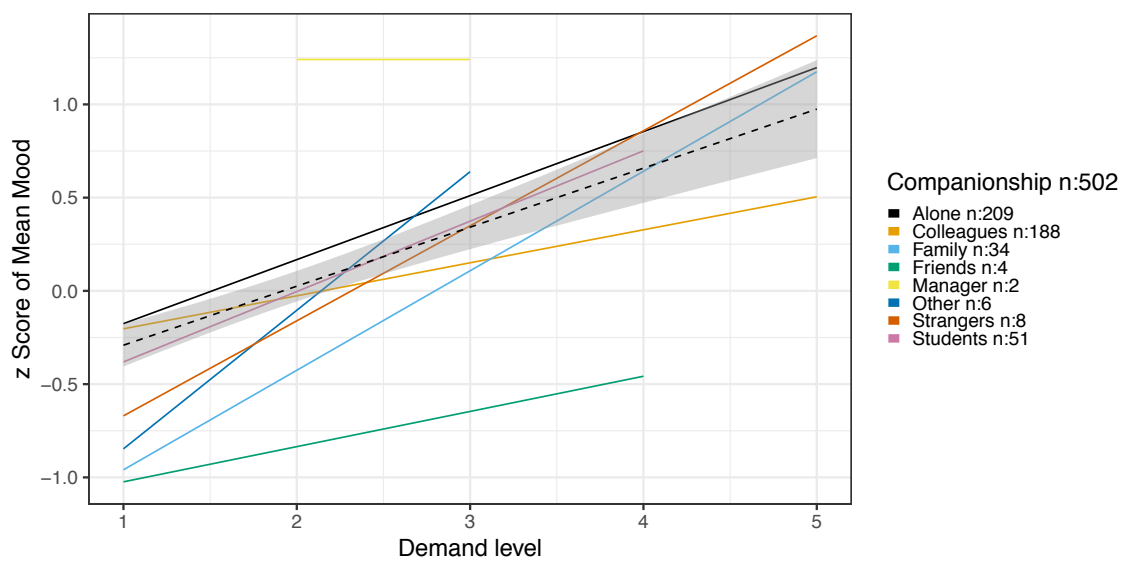
Mean Mood~**Focal variable X Companionship**

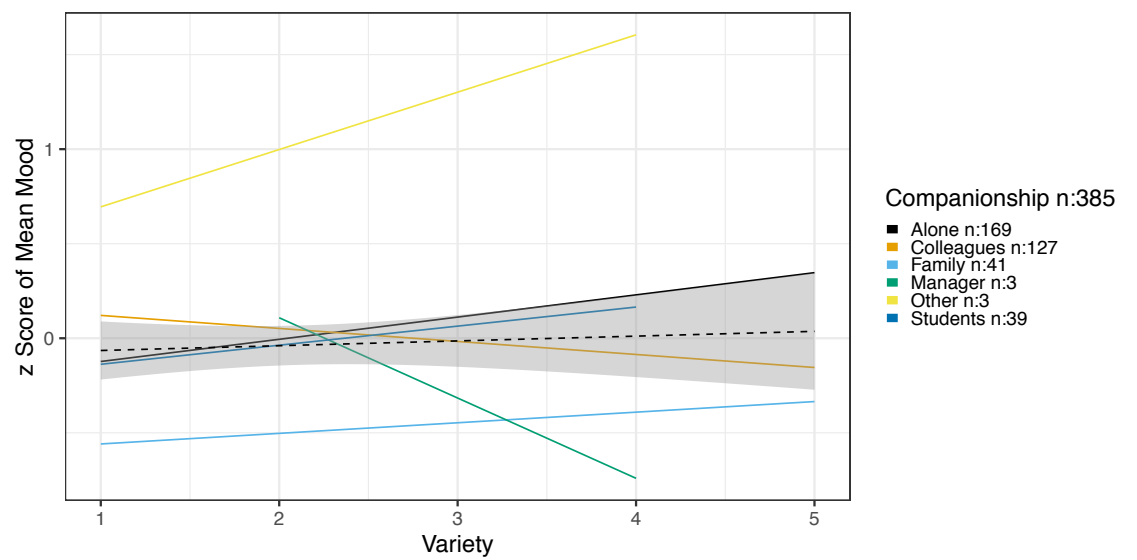
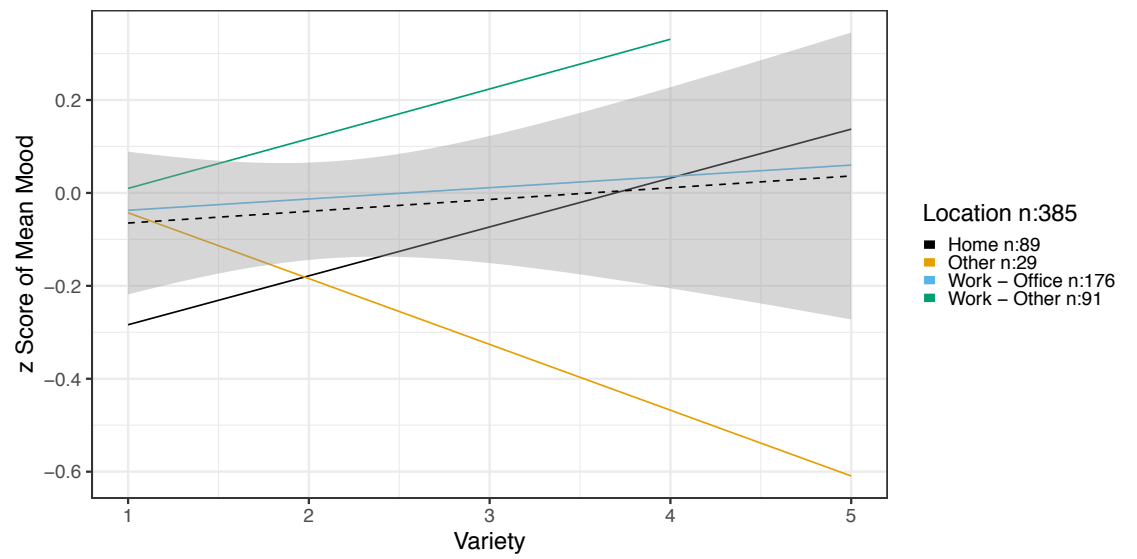


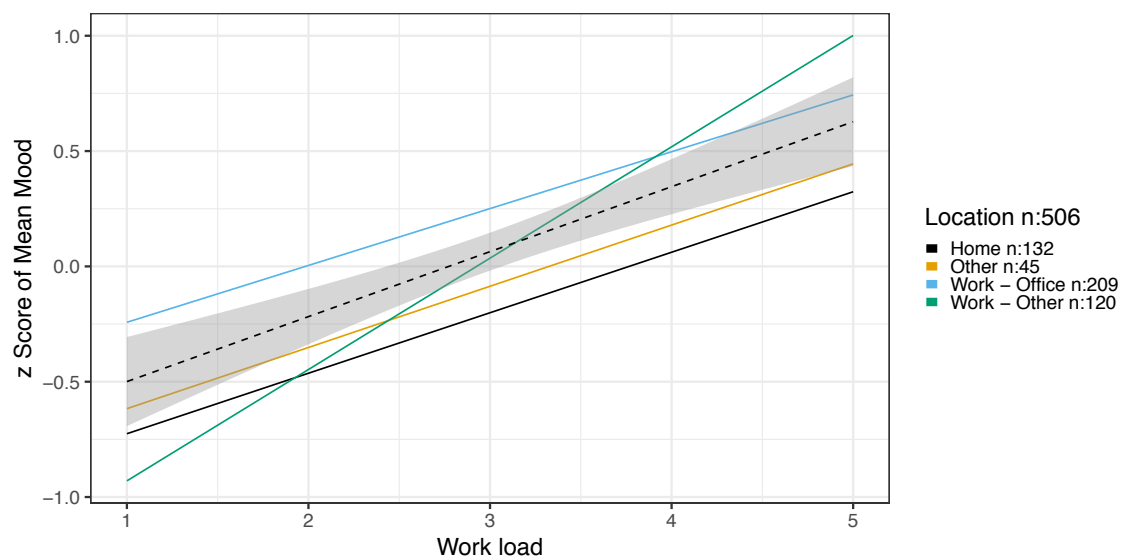
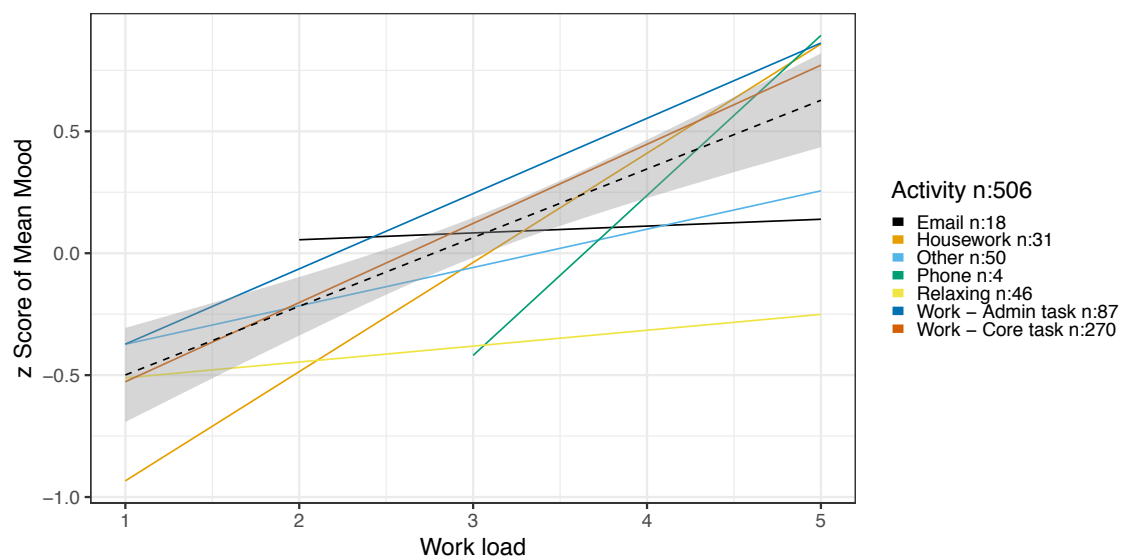


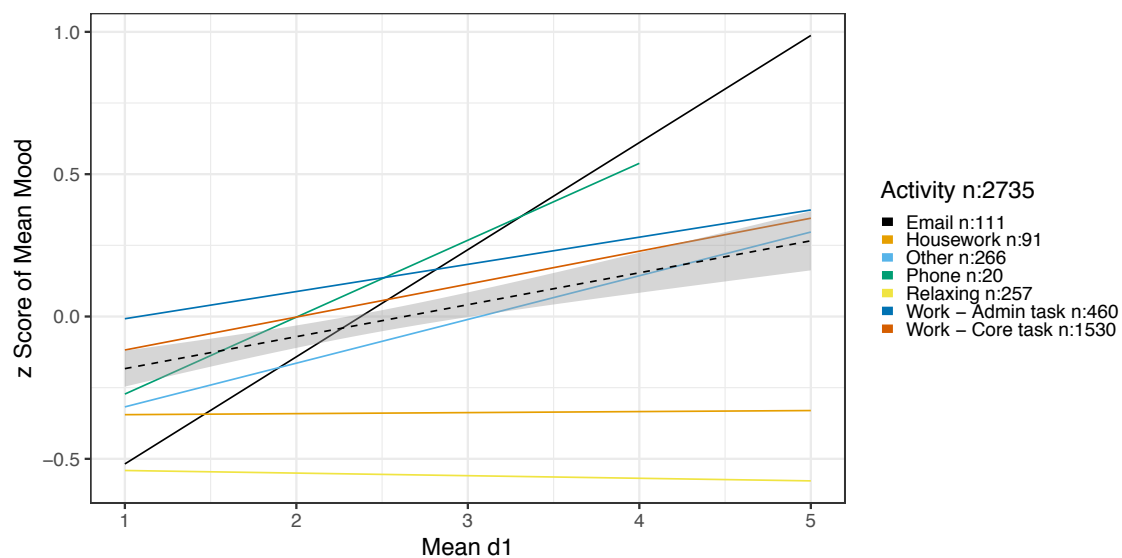
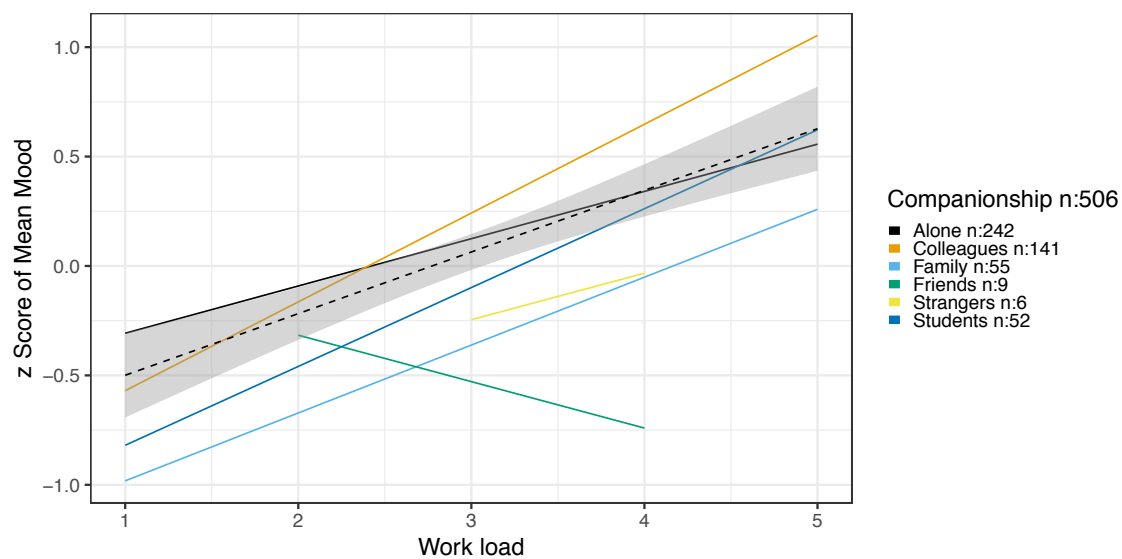


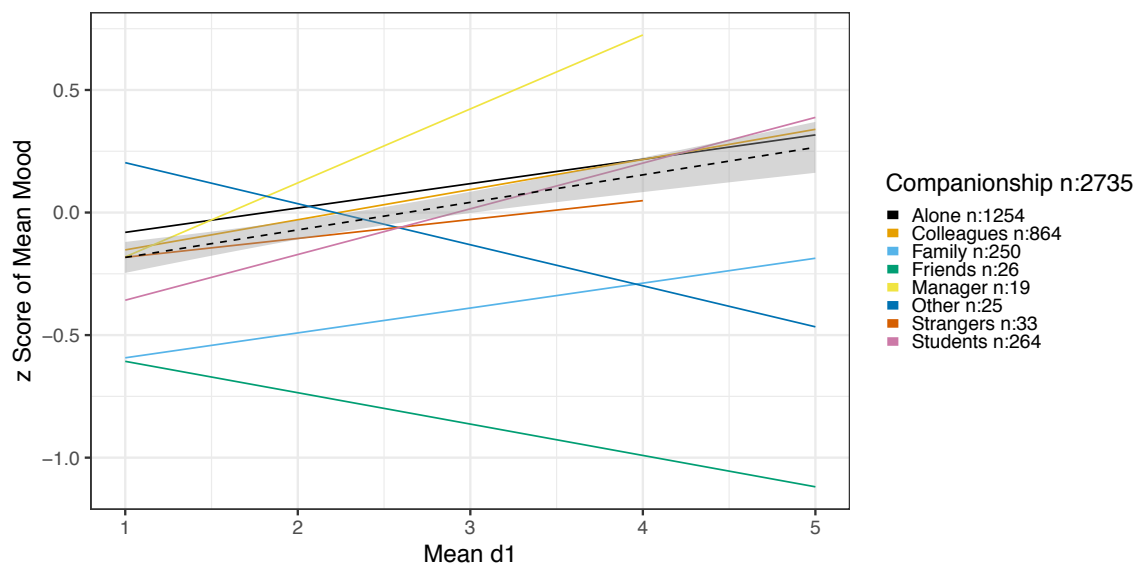
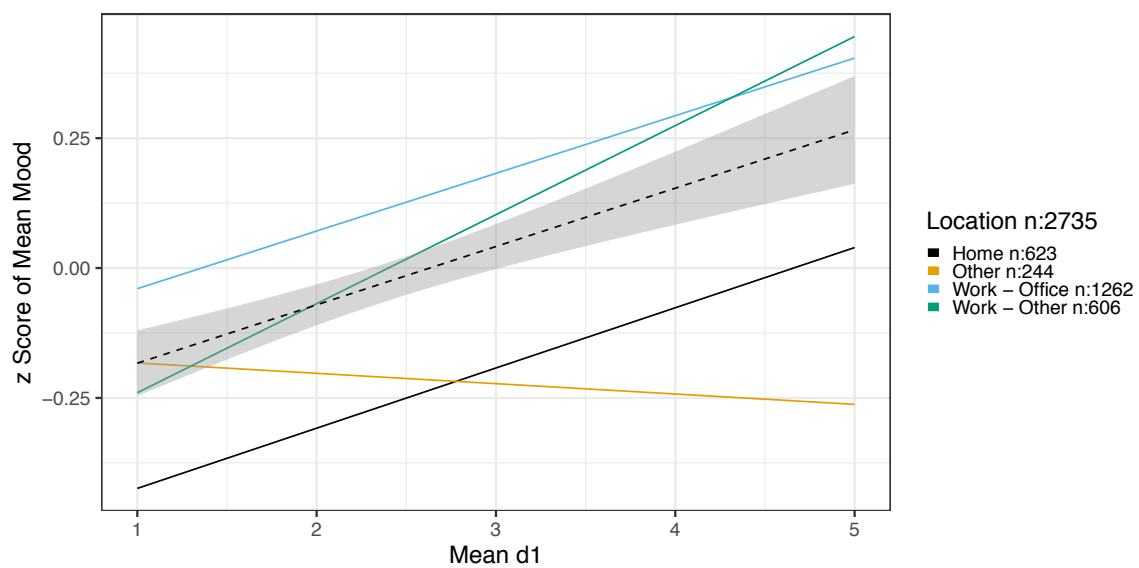


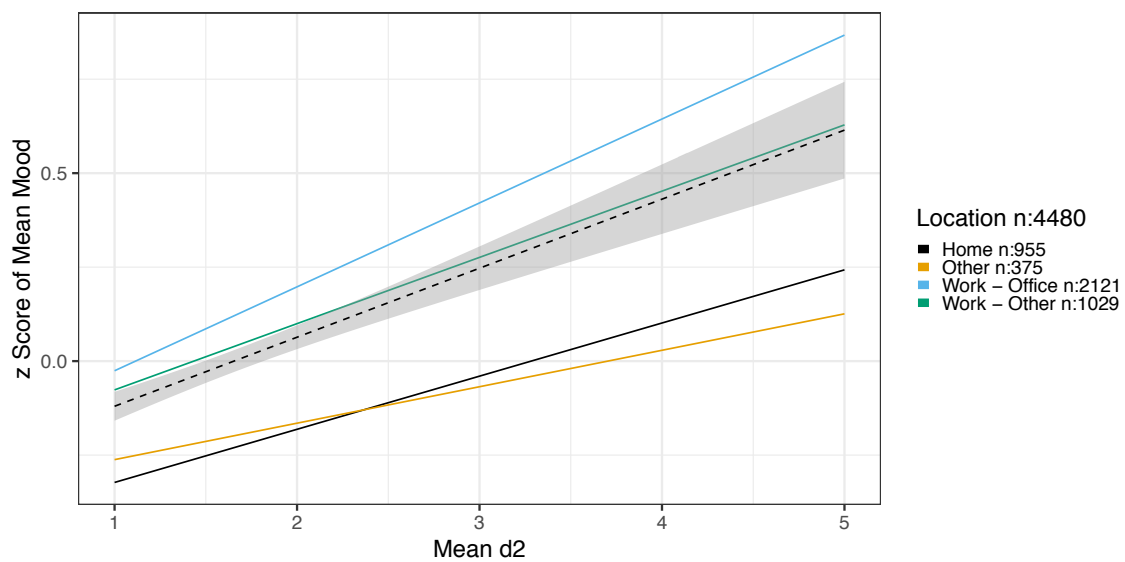
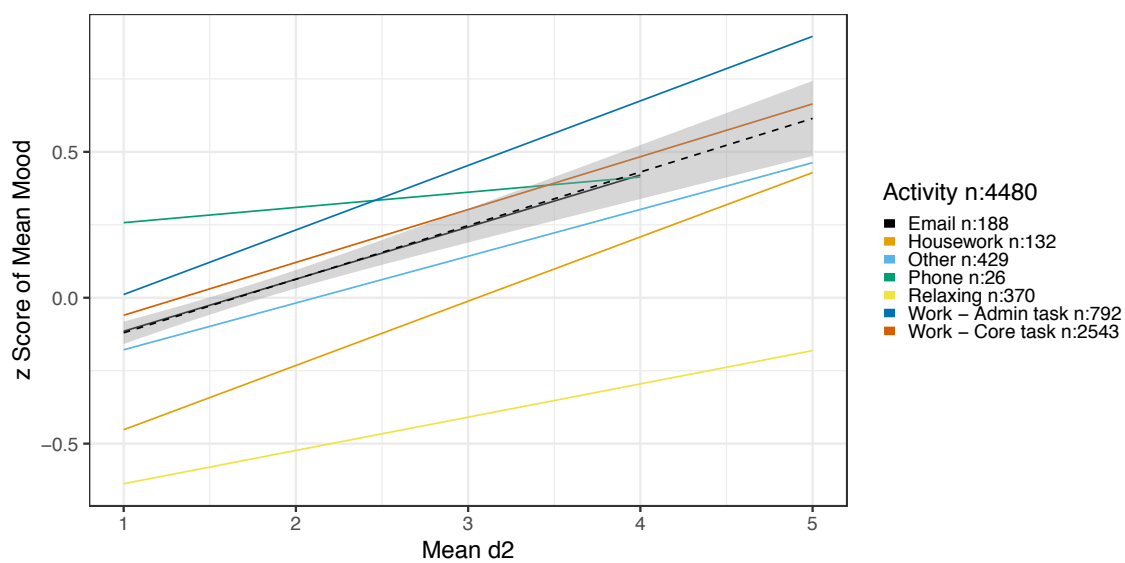


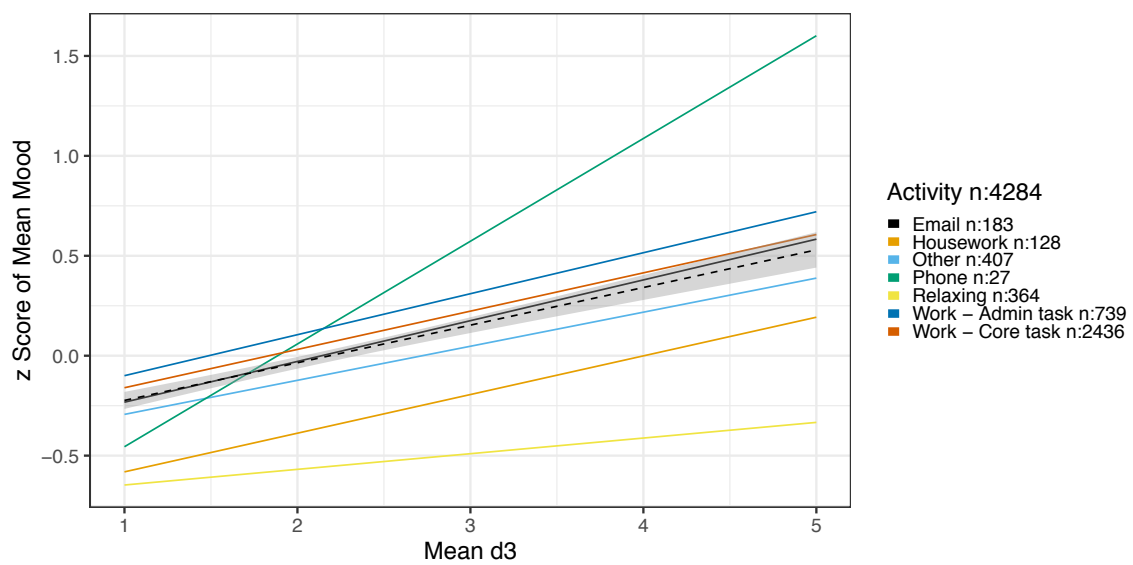
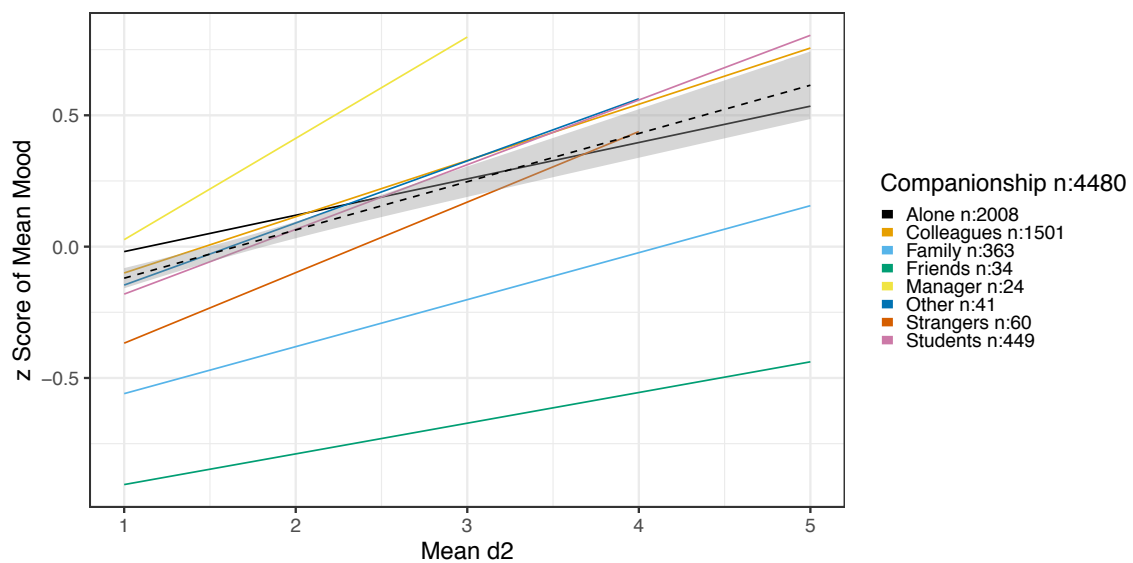


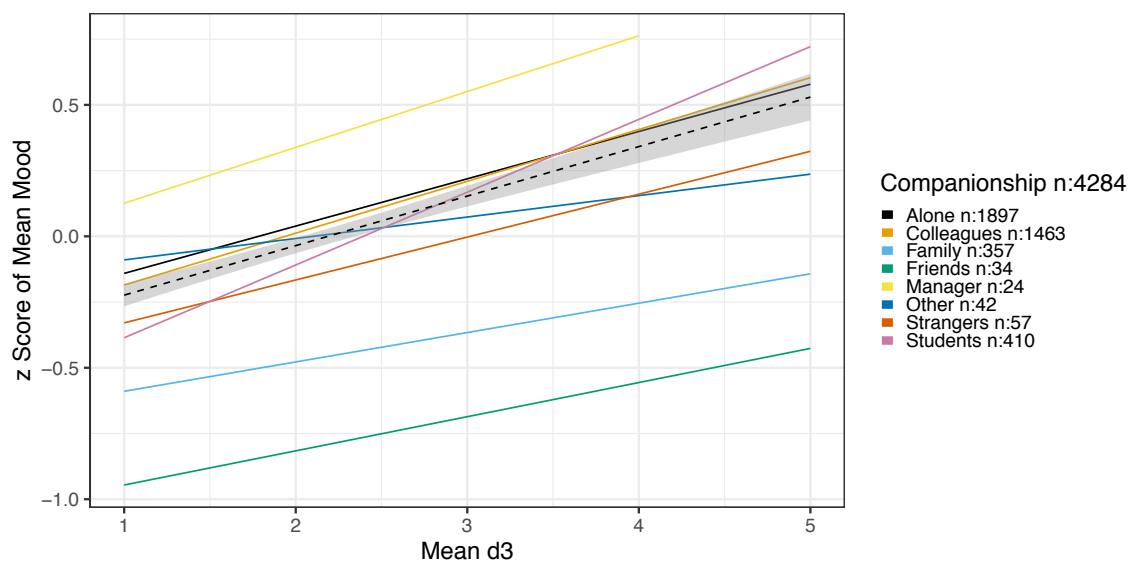
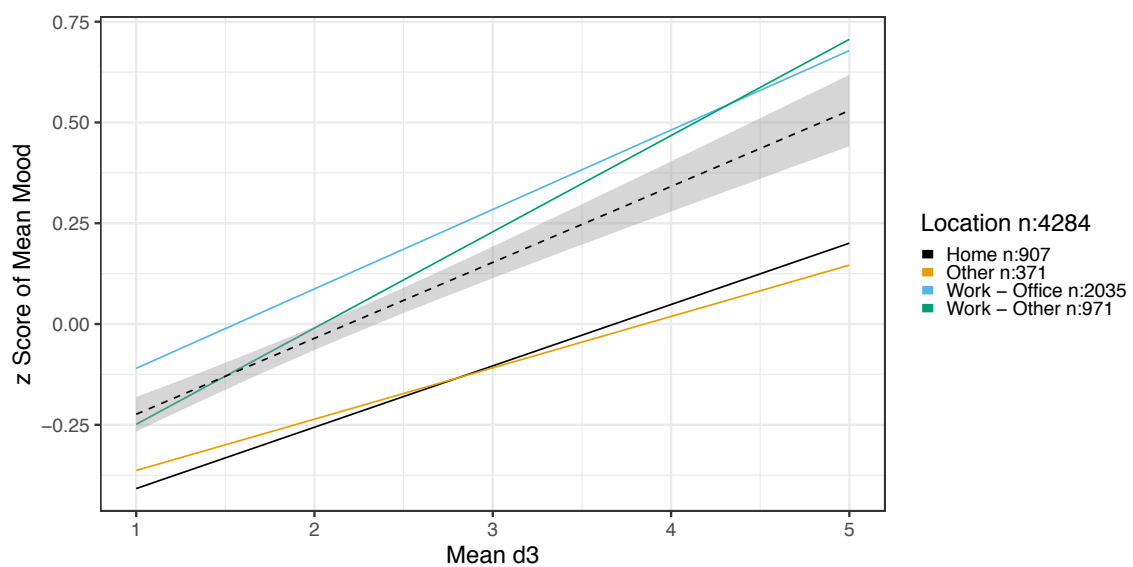


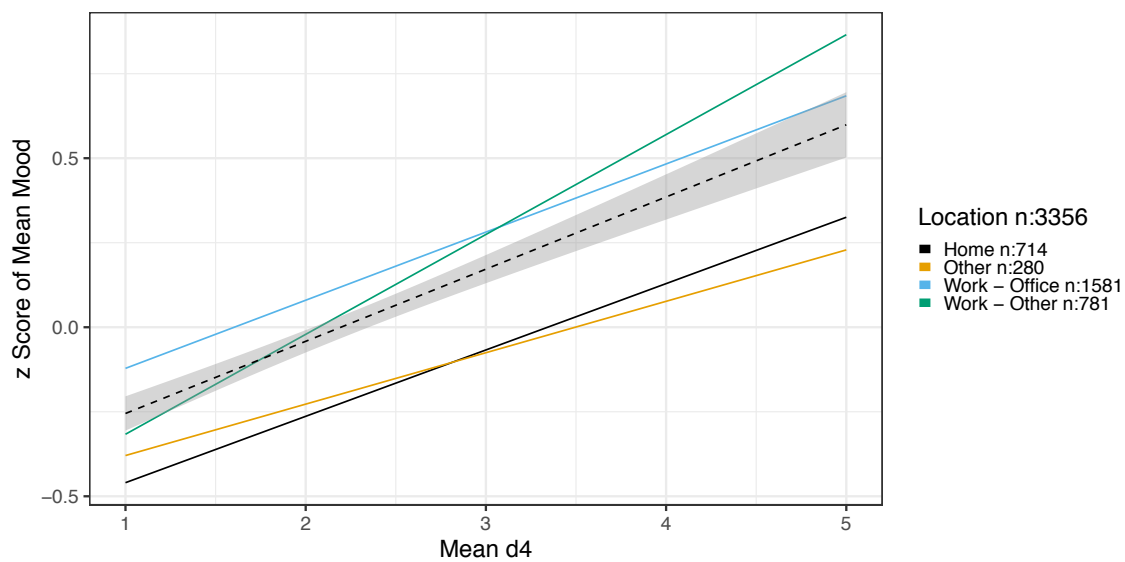
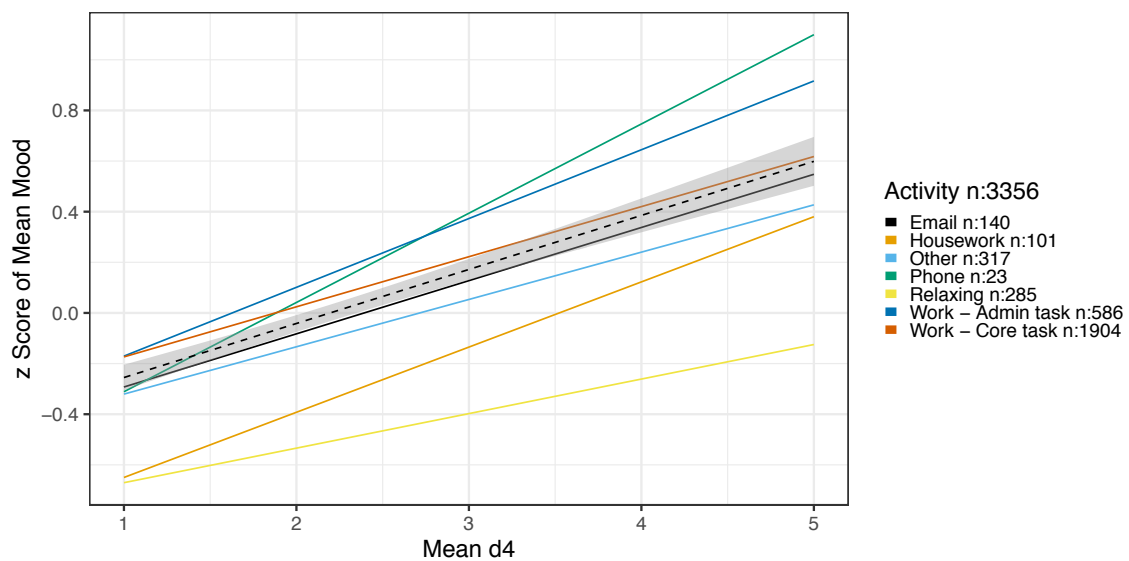


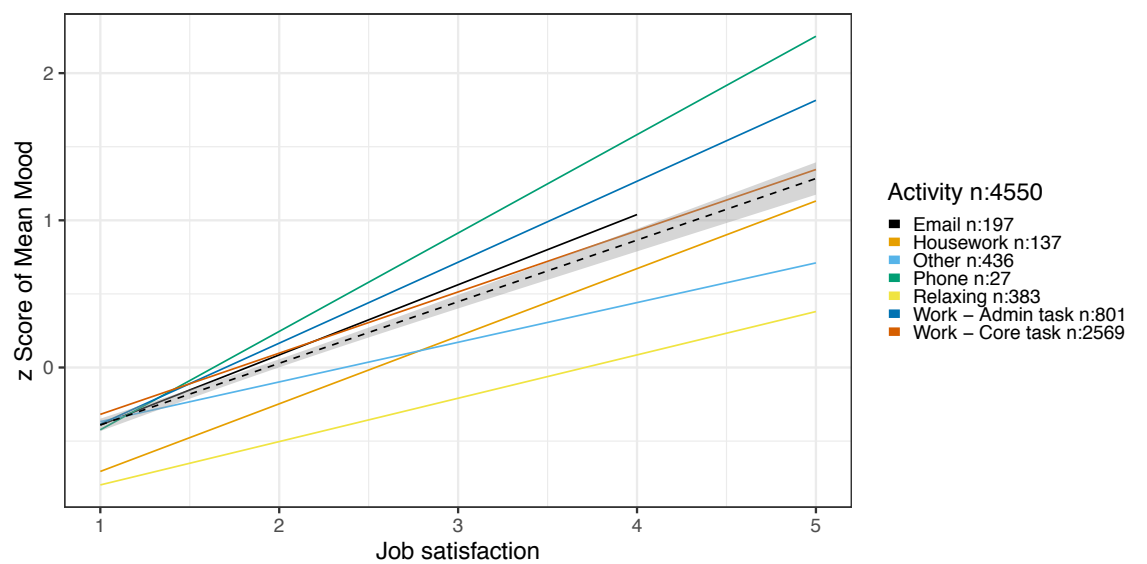
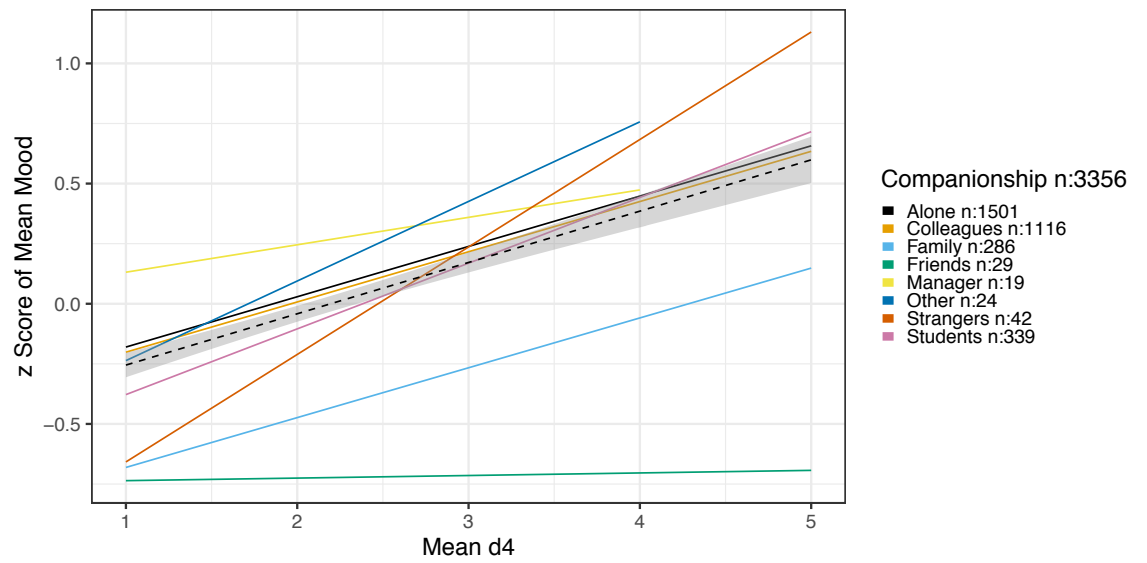


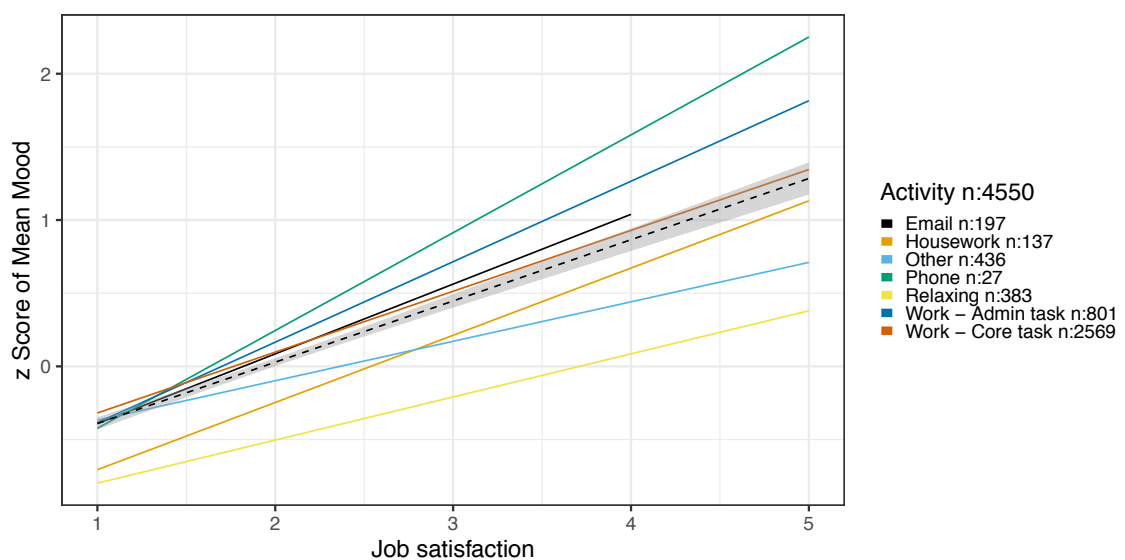
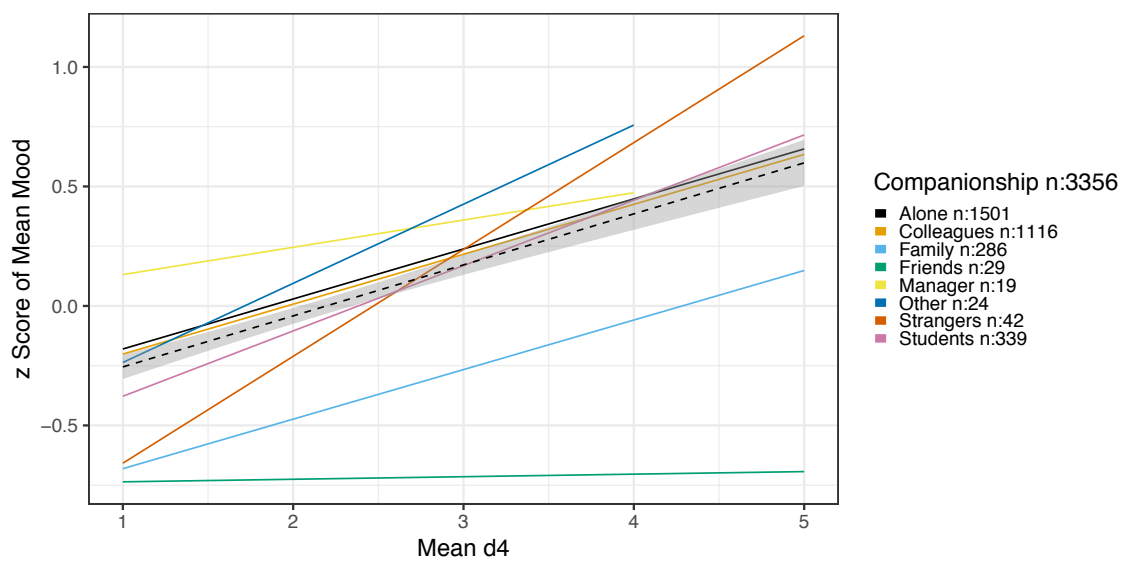


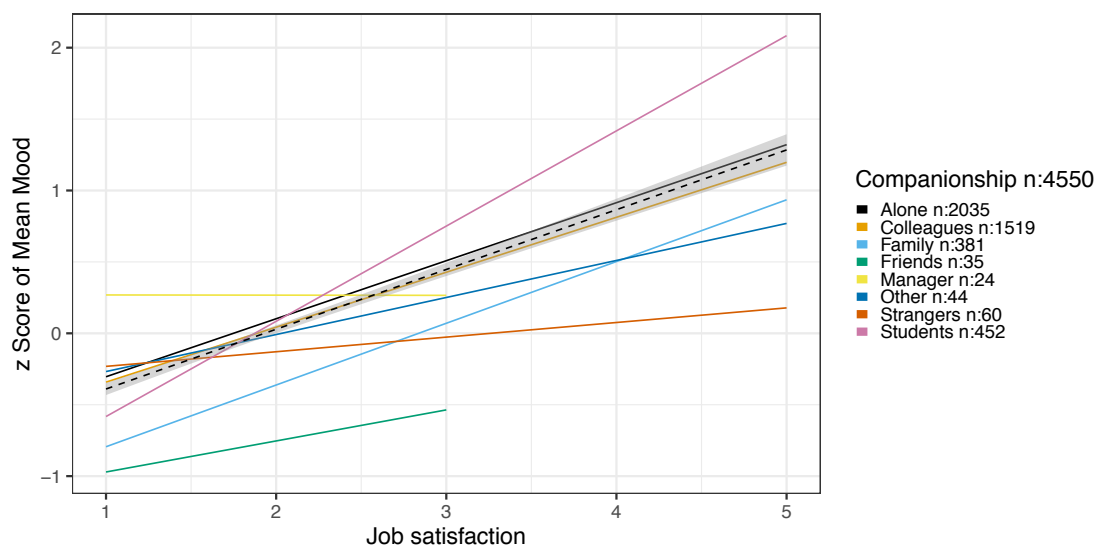
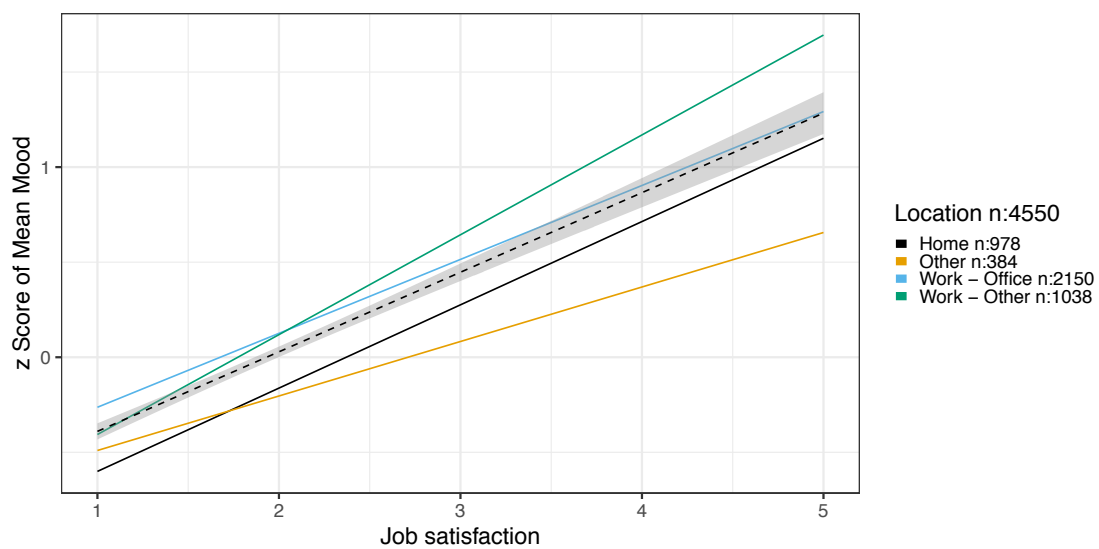












Appendix F: Correlation matrix for all variables

Correlation matrix Pearson's r	Mean Mood (z score)	Job Satis- faction	I feel relaxed	I am worried	I feel content	I feel stressed
Job Satisfaction	.331					
I feel relaxed	.767	.242				
I am worried	.806	.220	.390			
I feel content	.749	.379	.519	.466		
I feel stressed	.818	.219	.448	.685	.426	
Mean_D1	.113	.187	.060	.089	.130	.082
Mean_D2	.142	.195	.110	.084	.177	.084
Mean_D3	.193	.193	.090	.171	.209	.149
Mean_D4	.218	.185	.153	.166	.200	.167
Acceptance	.140	.252	.133	.042	.199	.081
Autonomy and Influence	.296	.289	.235	.232	.261	.215
Change Management	.145	.072	.061	.123	.169	.117
Clarity of goals	.150	.276	.097	.126	.135	.117
Confidence in Top Management	.109	.171	.097	.076	.109	.062
Conflict Management	.220	.226	.094	.200	.221	.183
Continuity and Coherence	.046	.114	.013	.016	.067	.049
Culture and Adaptation	.163	.246	.042	.173	.178	.137
Demand Level	.320	.087	.196	.291	.188	.315
Feedback	.207	.224	.098	.157	.244	.163
Groupthink	.212	.201	.144	.147	.261	.133
Image of Top Management	.120	.194	.065	.091	.137	.095
Information	.217	.280	.153	.156	.256	.114
Job Security	.194	.163	.080	.185	.167	.185
Meaning and Commitment	.162	.247	.108	.118	.265	.027
Offensive Treatment	.079	.151	.029	.082	.101	.046
Openness and Support	.148	.205	.146	.053	.184	.090
Personal Development	.272	.349	.188	.155	.311	.214
Personal Relation	.244	.236	.130	.217	.259	.174
Professional Ethics	.173	.223	.090	.128	.182	.151
Professional Relations	.144	.153	.056	.119	.194	.108
Recognition and Acceptance	.170	.239	.069	.195	.159	.132
Responsibilities and Resources	.281	.248	.215	.184	.284	.186
Risk of Assault	.104	.004	.066	.083	.128	.058
Salary	.270	.124	.253	.177	.184	.221
Sense of Belonging	.143	.256	.138	.073	.156	.073
Status and Career	.068	.074	.059	.035	.057	.065
Task Management	.179	.184	.082	.142	.217	.123
Team Coherence	.162	.206	.114	.107	.217	.092
Variety	.025	.207	.012	.016	.116	-.049
Work Load	.272	.063	.258	.205	.099	.262
Working Conditions	.223	.143	.081	.239	.219	.195

Adjusted probability values (*p*)

	Mean Mood (z score)	Job Satis- faction	I feel relaxed	I am worried	I feel content	I feel stressed
Job Satisfaction	.000					
I feel relaxed	.000	.000				
I am worried	.000	.000	.000			
I feel content	.000	.000	.000	.000		
I feel stressed	.000	.000	.000	.000	.000	
Mean_D1	.000	.000	.868	.002	.000	.011
Mean_D2	.000	.000	.000	.000	.000	.000
Mean_D3	.000	.000	.000	.000	.000	.000
Mean_D4	.000	.000	.000	.000	.000	.000
Acceptance	.118	.000	.224	1.000	.000	1.000
Autonomy and Influence	.000	.000	.000	.000	.000	.001
Change Management	.025	1.000	1.000	.268	.001	.518
Clarity of goals	.682	.000	1.000	1.000	1.000	1.000
Confidence in Top Management	1.000	.815	1.000	1.000	1.000	1.000
Conflict Management	.000	.000	1.000	.000	.000	.002
Continuity and Coherence	1.000	1.000	1.000	1.000	1.000	1.000
Culture and Adaptation	.065	.000	1.000	.025	.015	.640
Demand Level	.000	1.000	.006	.000	.014	.000
Feedback	.001	.000	1.000	.122	.000	.072
Groupthink	.000	.000	.140	.111	.000	.404
Image of Top Management	1.000	.036	1.000	1.000	1.000	1.000
Information	.004	.000	.796	.660	.000	1.000
Job Security	.026	.346	1.000	.059	.249	.056
Meaning and Commitment	.239	.000	1.000	1.000	.000	1.000
Offensive Treatment	1.000	.002	1.000	1.000	.975	1.000
Openness and Support	.028	.000	.037	1.000	.000	1.000
Personal Development	.000	.000	.126	1.000	.000	.015
Personal Relation	.000	.000	.049	.000	.000	.000
Professional Ethics	.157	.002	1.000	1.000	.076	.764
Professional Relations	.882	.456	1.000	1.000	.014	1.000
Recognition and Acceptance	.045	.000	1.000	.004	.126	1.000
Responsibilities and Resources	.000	.001	.020	.215	.000	.187
Risk of Assault	1.000	1.000	1.000	1.000	1.000	1.000
Salary	.000	1.000	.000	.050	.027	.001
Sense of Belonging	.065	.000	.104	1.000	.014	1.000
Status and Career	1.000	1.000	1.000	1.000	1.000	1.000
Task Management	.000	.000	1.000	.017	.000	.148
Team Coherence	.007	.000	1.000	1.000	.000	1.000
Variety	1.000	.027	1.000	1.000	1.000	1.000
Work Load	.000	1.000	.000	.002	1.000	.000
Working Conditions	.229	1.000	1.000	.086	.290	1.000

Number of observations (N)	Mean Mood (z score)	Job Satisfaction	I feel relaxed	I am worried	I feel content	I feel stressed
Job Satisfaction	4545					
I feel relaxed	4576	4550				
I am worried	4576	4545	4576			
I feel content	4576	4545	4576	4576		
I feel stressed	4576	4545	4576	4576	4576	
Mean_D1	2731	2720	2735	2731	2731	2731
Mean_D2	4476	4452	4480	4476	4476	4476
Mean_D3	4280	4257	4284	4280	4280	4280
Mean_D4	3355	3333	3356	3355	3355	3355
Acceptance	700	694	701	700	700	700
Autonomy and Influence	507	499	507	507	507	507
Change Management	793	791	795	793	793	793
Clarity of goals	457	456	458	457	457	457
Confidence in Top Management	339	338	339	339	339	339
Conflict Management	631	627	631	631	631	631
Continuity and Coherence	533	529	534	533	533	533
Culture and Adaptation	556	553	557	556	556	556
Demand Level	502	499	502	502	502	502
Feedback	549	545	549	549	549	549
Groupthink	640	636	640	640	640	640
Image of Top Management	422	421	423	422	422	422
Information	424	423	424	424	424	424
Job Security	438	434	438	438	438	438
Meaning and Commitment	469	466	469	469	469	469
Offensive Treatment	944	938	944	944	944	944
Openness and Support	745	742	745	745	745	745
Personal Development	381	380	381	381	381	381
Personal Relation	908	905	908	908	908	908
Professional Ethics	437	435	438	437	437	437
Professional Relations	470	470	472	470	470	470
Recognition and Acceptance	533	528	535	533	533	533
Responsibilities and Resources	366	362	366	366	366	366
Risk of Assault	376	375	376	376	376	376
Salary	485	483	485	485	485	485
Sense of Belonging	725	721	726	725	725	725
Status and Career	478	477	480	478	478	478
Task Management	866	861	866	866	866	866
Team Coherence	722	721	724	722	722	722
Variety	384	384	385	384	384	384
Work Load	506	503	506	506	506	506
Working Conditions	246	243	246	246	246	246

Appendix G: Factorial ANOVA

Call: lmerTest::lmer(DV ~ METHOD * COMPLETION_TIME + (1 | PARTICIPANT),data=temp)

DV	effect	Sum Sq	NumDF	DenDF	F value	Pr(>F)	partial_eta
Mean_D1	METHOD	1.12	1.00	139	9.24	.000	.590
Mean_D1	COMPLETION_TIME	.71	1.00	139	5.87	.020	.380
Mean_D1	METHOD:COMPLETION_TIME	.06	1.00	139	.50	.480	.030
Mean_D2	METHOD	.28	1.00	140	3.61	.060	.960
Mean_D2	COMPLETION_TIME	.01	1.00	140	.14	.710	.040
Mean_D2	METHOD:COMPLETION_TIME	.00	1.00	140	.02	.900	.000
Mean_D3	METHOD	.58	1.00	140	6.00	.020	.370
Mean_D3	COMPLETION_TIME	.33	1.00	140	3.45	.070	.210
Mean_D3	METHOD:COMPLETION_TIME	.63	1.00	140	6.59	.010	.410
Mean_D4	METHOD	.50	1.00	138	7.72	.010	.650
Mean_D4	COMPLETION_TIME	.01	1.00	138	.19	.660	.020
Mean_D4	METHOD:COMPLETION_TIME	.25	1.00	138	3.96	.050	.330
Acceptance	METHOD	.38	1.00	130	3.77	.050	.930
Acceptance	COMPLETION_TIME	.02	1.00	130	.23	.630	.060
Acceptance	METHOD:COMPLETION_TIME	.01	1.00	130	.06	.800	.020
Autonomy and Influence	METHOD	.91	1.00	127	7.19	.010	.710
Autonomy and Influence	COMPLETION_TIME	.13	1.00	127	1.01	.320	.100
Autonomy and Influence	METHOD:COMPLETION_TIME	.25	1.00	127	1.94	.170	.190
Change Management	METHOD	.53	1.00	128	2.62	.110	.740
Change Management	COMPLETION_TIME	.19	1.00	128	.93	.340	.260
Change Management	METHOD:COMPLETION_TIME	.00	1.00	128	.01	.920	.000
Clarity of goals	METHOD	1.16	1.00	121	5.52	.020	.760
Clarity of goals	COMPLETION_TIME	.36	1.00	121	1.71	.190	.240
Clarity of goals	METHOD:COMPLETION_TIME	.01	1.00	121	.03	.870	.000

Confidence in Top Management	METHOD	2.01	1.00	116	7.63	.010	.480
Confidence in Top Management	COMPLETION_TIME	2.16	1.00	116	8.19	.000	.520
Confidence in Top Management	METHOD:COMPLETION_TIME	.02	1.00	116	.08	.780	.010
Conflict Management	METHOD	1.49	1.00	130	7.57	.010	.530
Conflict Management	COMPLETION_TIME	.76	1.00	130	3.86	.050	.270
Conflict Management	METHOD:COMPLETION_TIME	.57	1.00	130	2.89	.090	.200
Continuity and Coherence	METHOD	1.62	1.00	127	6.55	.010	.440
Continuity and Coherence	COMPLETION_TIME	1.97	1.00	127	7.96	.010	.540
Continuity and Coherence	METHOD:COMPLETION_TIME	.07	1.00	127	.28	.600	.020
Culture and Adaptation	METHOD	.31	1.00	127	1.09	.300	.420
Culture and Adaptation	COMPLETION_TIME	.19	1.00	127	.68	.410	.260
Culture and Adaptation	METHOD:COMPLETION_TIME	.23	1.00	127	.83	.360	.320
Demand Level	METHOD	1.15	1.00	123	5.11	.030	.860
Demand Level	COMPLETION_TIME	.04	1.00	123	.18	.670	.030
Demand Level	METHOD:COMPLETION_TIME	.15	1.00	123	.66	.420	.110
Feedback	METHOD	2.46	1.00	125	9.49	.000	.700
Feedback	COMPLETION_TIME	.13	1.00	125	.50	.480	.040
Feedback	METHOD:COMPLETION_TIME	.93	1.00	125	3.57	.060	.260
Groupthink	METHOD	.25	1.00	133	1.26	.260	.690
Groupthink	COMPLETION_TIME	.04	1.00	133	.22	.640	.120
Groupthink	METHOD:COMPLETION_TIME	.07	1.00	133	.33	.560	.180
Image of Top Management	METHOD	1.69	1.00	121	6.05	.020	.520
Image of Top Management	COMPLETION_TIME	1.50	1.00	121	5.36	.020	.460
Image of Top Management	METHOD:COMPLETION_TIME	.06	1.00	121	.21	.650	.020
Information	METHOD	2.19	1.00	129	6.69	.010	.980
Information	COMPLETION_TIME	.02	1.00	129	.07	.790	.010
Information	METHOD:COMPLETION_TIME	.03	1.00	129	.10	.760	.010
Job Security	METHOD	.06	1.00	122	.16	.690	.270
Job Security	COMPLETION_TIME	.15	1.00	122	.39	.530	.670
Job Security	METHOD:COMPLETION_TIME	.01	1.00	122	.04	.850	.060
Meaning and Commitment	METHOD	.04	1.00	129	.27	.600	.060
Meaning and Commitment	COMPLETION_TIME	.58	1.00	129	4.33	.040	.940

Meaning and Commitment	METHOD:COMPLETION_TIME	.00	1.00	129	.00	.980	.000
Offensive Treatment	METHOD	.10	1.00	134	.65	.420	.850
Offensive Treatment	COMPLETION_TIME	.02	1.00	134	.10	.750	.130
Offensive Treatment	METHOD:COMPLETION_TIME	.00	1.00	134	.02	.890	.020
Openness and Support	METHOD	.40	1.00	131	2.44	.120	.810
Openness and Support	COMPLETION_TIME	.02	1.00	131	.14	.710	.050
Openness and Support	METHOD:COMPLETION_TIME	.07	1.00	131	.43	.510	.140
Personal Development	METHOD	.08	1.00	126	.37	.550	.050
Personal Development	COMPLETION_TIME	.69	1.00	126	3.20	.080	.430
Personal Development	METHOD:COMPLETION_TIME	.82	1.00	126	3.81	.050	.520
Personal Relation	METHOD	1.13	1.00	132	8.14	.010	.450
Personal Relation	COMPLETION_TIME	.22	1.00	132	1.61	.210	.090
Personal Relation	METHOD:COMPLETION_TIME	1.14	1.00	132	8.23	.000	.460
Professional Ethics	METHOD	2.23	1.00	114	7.91	.010	.700
Professional Ethics	COMPLETION_TIME	.00	1.00	114	.01	.910	.000
Professional Ethics	METHOD:COMPLETION_TIME	.97	1.00	114	3.44	.070	.300
Professional Relations	METHOD	.01	1.00	119	.08	.780	.380
Professional Relations	COMPLETION_TIME	.00	1.00	119	.02	.890	.100
Professional Relations	METHOD:COMPLETION_TIME	.02	1.00	119	.11	.740	.530
Recognition and Acceptance	METHOD	2.36	1.00	126	7.93	.010	.960
Recognition and Acceptance	COMPLETION_TIME	.00	1.00	126	.00	.970	.000
Recognition and Acceptance	METHOD:COMPLETION_TIME	.09	1.00	126	.30	.590	.040
Responsibilities and Resources	METHOD	.29	1.00	113	1.13	.290	.180
Responsibilities and Resources	COMPLETION_TIME	.69	1.00	113	2.71	.100	.430
Responsibilities and Resources	METHOD:COMPLETION_TIME	.62	1.00	113	2.43	.120	.390
Risk of Assault	METHOD	.08	1.00	123	.50	.480	.160
Risk of Assault	COMPLETION_TIME	.42	1.00	123	2.58	.110	.820
Risk of Assault	METHOD:COMPLETION_TIME	.01	1.00	123	.06	.800	.020
Salary	METHOD	.40	1.00	124	1.26	.260	.780
Salary	COMPLETION_TIME	.00	1.00	124	.01	.920	.010
Salary	METHOD:COMPLETION_TIME	.11	1.00	124	.34	.560	.210
Sense of Belonging	METHOD	.58	1.00	129	5.11	.030	.700

Sense of Belonging	COMPLETION_TIME	.04	1.00	129	.35	.560	.050
Sense of Belonging	METHOD:COMPLETION_TIME	.21	1.00	129	1.81	.180	.250
Status and Career	METHOD	.37	1.00	127	.80	.370	.600
Status and Career	COMPLETION_TIME	.23	1.00	127	.49	.480	.370
Status and Career	METHOD:COMPLETION_TIME	.02	1.00	127	.04	.840	.030
Task Management	METHOD	.08	1.00	127	.46	.500	.080
Task Management	COMPLETION_TIME	.50	1.00	127	2.82	.100	.460
Task Management	METHOD:COMPLETION_TIME	.50	1.00	127	2.82	.100	.460
Tea Coherence	METHOD	.85	1.00	130	5.08	.030	.900
Tea Coherence	COMPLETION_TIME	.01	1.00	130	.05	.820	.010
Tea Coherence	METHOD:COMPLETION_TIME	.09	1.00	130	.54	.460	.100
Variety	METHOD	.31	1.00	118	1.11	.290	.290
Variety	COMPLETION_TIME	.75	1.00	118	2.71	.100	.700
Variety	METHOD:COMPLETION_TIME	.01	1.00	118	.03	.870	.010
Work Load	METHOD	3.32	1.00	128	15.57	.000	.780
Work Load	COMPLETION_TIME	.56	1.00	128	2.61	.110	.130
Work Load	METHOD:COMPLETION_TIME	.37	1.00	128	1.73	.190	.090
Working Conditions	METHOD	2.13	1.00	108	6.51	.010	.580
Working Conditions	COMPLETION_TIME	.16	1.00	108	.49	.490	.040
Working Conditions	METHOD:COMPLETION_TIME	1.36	1.00	108	4.16	.040	.370

Statistic	Mean	SD	Mean	SD	Mean	SD	Mean	SD	N	N	N	N
METHOD	ESM	ESM	ESM	ESM	QUEST	QUEST	QUEST	QUEST	ESM	ESM	QUEST	QUEST
COMPLETION_TIME	T1	T1	T2	T2	T1	T1	T2	T2	T1	T2	T1	T2
Mean_D1	2.49	0.54	2.33	0.56	2.27	0.66	2.11	0.58	110	97	81	68
Mean_D2	1.67	0.44	1.67	0.39	1.62	0.50	1.57	0.37	110	97	81	68
Mean_D3	2.11	0.68	1.96	0.62	1.95	0.57	1.82	0.52	110	97	81	68
Mean_D4	2.23	0.43	2.19	0.46	2.06	0.47	2.07	0.46	110	97	81	68
Acceptance	1.71	0.53	1.70	0.44	1.60	0.57	1.60	0.44	110	97	81	68
Autonomy and Influence	2.43	0.69	2.31	0.69	2.12	0.73	2.12	0.59	110	97	81	68
Change Management	2.27	0.69	2.19	0.64	2.20	0.72	2.04	0.67	110	97	81	68

Clarity of goals	2.55	0.60	2.41	0.76	2.37	0.85	2.18	0.67	110	97	81	68
Confidence in Top Management	2.70	0.95	2.44	0.79	2.44	0.84	2.15	0.65	110	97	81	68
Conflict Management	2.23	0.84	2.06	0.77	2.03	0.61	1.84	0.59	110	97	81	68
Continuity and Coherence	3.03	0.78	2.76	0.72	2.76	0.82	2.44	0.70	110	97	81	68
Culture and Adaptation	1.72	0.72	1.70	0.65	1.62	0.73	1.62	0.69	110	97	81	68
Demand Level	2.11	0.78	1.91	0.80	1.78	0.70	1.71	0.70	110	97	81	68
Feedback	2.22	0.92	2.09	0.83	1.97	0.66	1.88	0.64	110	97	81	68
Groupthink	1.73	0.63	1.77	0.67	1.67	0.65	1.65	0.52	110	97	81	68
Image of Top Management	2.50	0.77	2.35	0.84	2.29	0.81	2.04	0.67	110	97	81	68
Information	2.46	0.78	2.30	0.70	2.17	0.79	2.07	0.86	110	97	81	68
Job Security	2.03	0.86	2.05	0.94	2.14	0.72	2.06	0.81	110	97	81	68
Meaning and Commitment	1.78	0.54	1.97	0.64	1.93	0.59	1.97	0.59	110	97	81	68
Offensive Treatment	1.45	0.56	1.38	0.54	1.53	0.61	1.43	0.51	110	97	81	68
Openness and Support	2.03	0.64	1.97	0.59	1.89	0.71	1.91	0.70	110	97	81	68
Personal Development	2.20	0.71	2.28	0.80	2.31	0.90	2.39	0.89	110	97	81	68
Personal Relation	2.05	0.73	1.88	0.69	1.80	0.60	1.72	0.57	110	97	81	68
Professional Ethics	1.88	0.82	1.72	0.77	1.51	0.71	1.48	0.77	110	97	81	68
Professional Relations	1.63	0.59	1.58	0.46	1.68	0.50	1.60	0.53	110	97	81	68
Recognition and Acceptance	1.96	0.86	1.83	0.87	1.61	0.64	1.57	0.60	110	97	81	68
Responsibilities and Resources	2.20	0.77	2.08	0.80	1.97	0.65	2.06	0.68	110	97	81	68
Risk of Assault	1.40	0.72	1.37	0.56	1.28	0.33	1.33	0.36	110	97	81	68
Salary	3.13	1.03	3.02	1.11	2.89	1.10	2.82	1.04	110	97	81	68
Sense of Belonging	1.69	0.48	1.75	0.53	1.63	0.62	1.53	0.53	110	97	81	68
Status and Career	2.41	0.88	2.25	0.92	2.35	0.80	2.27	0.81	110	97	81	68
Task Management	2.11	0.87	1.80	0.79	2.01	0.76	1.84	0.72	110	97	81	68
Tea Coherence	1.53	0.52	1.52	0.50	1.44	0.52	1.35	0.38	110	97	81	68
Variety	2.00	0.76	2.19	0.76	1.98	0.78	2.08	0.79	110	97	81	68
Work Load	3.14	0.69	2.95	0.76	2.66	0.85	2.54	0.79	110	97	81	68
Working Conditions	2.41	1.01	2.10	0.85	1.95	0.73	1.88	0.82	110	97	81	68

Appendix H: Internal reliability for PWE scales (ESM condition)

	Dmension	raw_alpha	std.alpha	G6(sm)	average_r	S/N	ase	mean	sd	CI.2.5%	CI.50%	CI.97.5%
1	Acceptance	0.74	0.75	0.68	0.50	3.03	0.03	1.70	0.49	0.65	0.73	0.81
2	Autonomy and Influence	0.73	0.73	0.69	0.41	2.74	0.03	2.38	0.69	0.59	0.73	0.80
3	Change Management	0.71	0.73	0.74	0.40	2.68	0.03	2.22	0.67	0.57	0.71	0.79
4	Clarity of goals	0.53	0.53	0.45	0.27	1.11	0.05	2.47	0.69	0.38	0.53	0.65
5	Confidence in Top Management	0.68	0.69	0.62	0.43	2.24	0.04	2.57	0.89	0.50	0.67	0.80
6	Conflict Management	0.90	0.90	0.88	0.68	8.55	0.01	2.15	0.80	0.85	0.90	0.93
7	Continuity and Coherence	0.62	0.62	0.59	0.29	1.61	0.04	2.89	0.77	0.48	0.62	0.76
8	Culture and Adaptation	0.68	0.68	0.60	0.41	2.11	0.04	1.71	0.68	0.49	0.67	0.78
9	Demand Level	0.46	0.47	0.41	0.18	0.89	0.06	2.01	0.80	0.28	0.47	0.60
10	Feedback	0.77	0.77	0.71	0.53	3.40	0.03	2.16	0.88	0.67	0.77	0.84
11	Groupthink	0.61	0.61	0.53	0.34	1.56	0.05	1.74	0.64	0.39	0.60	0.74
12	Image of Top Management	0.67	0.68	0.61	0.42	2.17	0.04	2.42	0.81	0.54	0.68	0.77
13	Information	0.61	0.60	0.52	0.33	1.50	0.05	2.38	0.74	0.43	0.61	0.71
14	Job Security	0.80	0.80	0.79	0.57	3.92	0.02	2.04	0.89	0.66	0.80	0.89
15	Meaning and Commitment	0.54	0.58	0.54	0.26	1.39	0.05	1.87	0.60	0.32	0.55	0.69
16	Offensive Treatment	0.74	0.81	0.81	0.52	4.29	0.02	1.41	0.55	0.54	0.74	0.85
17	Openness and Support	0.70	0.70	0.61	0.44	2.33	0.04	2.00	0.61	0.60	0.70	0.77
18	Personal Development	0.74	0.74	0.67	0.48	2.81	0.03	2.23	0.75	0.55	0.73	0.83
19	Personal Relation	0.85	0.85	0.83	0.59	5.64	0.01	1.97	0.71	0.79	0.85	0.88
20	Professional Ethics	0.57	0.57	0.49	0.30	1.31	0.05	1.80	0.80	0.39	0.57	0.66
21	Professional Relations	0.27	0.33	0.28	0.11	0.49	0.08	1.61	0.53	0.02	0.27	0.41
22	Recognition and Acceptance	0.83	0.86	0.81	0.66	5.93	0.02	1.89	0.86	0.77	0.84	0.90
23	Responsibilities and Resources	0.54	0.54	0.46	0.28	1.19	0.06	2.13	0.78	0.35	0.55	0.67
24	Risk of Assault	0.22	0.32	0.27	0.14	0.47	0.04	1.46	0.73	-0.01	0.23	0.44
25	Salary	0.85	0.85	0.83	0.66	5.88	0.02	3.09	1.07	0.79	0.85	0.91
26	Sense of Belonging	0.65	0.65	0.56	0.38	1.85	0.04	1.71	0.50	0.50	0.64	0.77
27	Status and Career	-0.03	0.07	0.20	0.02	0.08	0.12	2.34	0.89	-0.52	-0.10	0.24
28	Task Management	0.86	0.86	0.83	0.61	6.29	0.02	1.97	0.84	0.81	0.86	0.90

29	Team Coherence	0.68	0.69	0.60	0.42	2.19	0.04	1.52	0.50	0.40	0.68	0.80
30	Variety	0.49	0.52	0.44	0.27	1.09	0.06	2.08	0.76	0.29	0.50	0.64
31	Working Conditions	0.43	0.45	0.29	0.29	0.83	0.07	2.25	0.95	0.18	0.42	0.64
32	Work Load	0.82	0.82	0.82	0.53	4.59	0.02	3.06	0.73	0.75	0.81	0.87

Appendix I: Feedback conference detail

ESM condition	T1		T2		Differences T1-T2			Time lag T1-T2 (days)
	Date	Word count	Length (minutes)	Date	Word count	Length (minutes)	Δ Word count T1- T2	
Group 1	30/09/15	26245	148	11/05/16	12907	126	13338	224
Group 2	05/10/15	17238	137	16/08/16	11439	146	5799	316
Group 3	01/12/15	14717	87	01/11/16	17301	138	-2584	336
Group 4	09/09/16	14367	150	25/10/17	10094	114	4273	411
Group 5	23/09/16	17157	147	20/11/17	10097	112	7060	423
Group 6	04/11/16	12485	146	02/11/17	6132	140	6353	363
	Mean (SD)	17035 (4860)	136 (24)		11328 (3694)	129 (14)	5707 (5124)	346 (73)
QUEST condition	Date	Word count	Length (minutes)	Date	Word count	Length (minutes)	Δ Word count T1- T2	Time lag T1-T2 (days)
Group 7	25/08/15	18586	159	24/08/16	16512	134	2074	365
Group 8	04/09/15	14718	130	10/05/16	9135	111	5583	249
Group 9	22/10/15	16956	130	02/06/16	11695	102	5261	224
Group 10	16/11/16	11500	117	08/03/18	12652	102	-1152	477
	Mean (SD)	15440 (3068)	134 (18)		12499 (3060)	112 (15)	2942 (3155)	329 (116)

Appendix J: Questionnaire for psychosocial work environment

Instructions displayed above each question in both the ESM and QUEST condition:

Please consider the following statement and select the answer that best describes your experience. If the statement is without relevance to you—or if you prefer not to answer— please select the option: ‘Not applicable’

Answer options given: 1) Strongly agree; 2) agree; 3) neither agree nor disagree; 4) disagree; 5) strongly disagree; 6) Not applicable

Question #	English text	Scale	Grouping variable	REVERSAL
17	The top management provides the employees with the necessary information about the organisation's objectives	Clarity of goals	H1: Management & Organisation	No
22	It is difficult to find out what the organisation's objectives actually are	Clarity of goals	H1: Management & Organisation	Yes
26	I believe that the majority of employees support the goals and objectives of the organisation	Clarity of goals	H1: Management & Organisation	No
14	I have strong faith in the top management's abilities to realise its visions	Confidence in Top Management	H1: Management & Organisation	No
24	It is too easy for our top management to break its promises	Confidence in Top Management	H1: Management & Organisation	Yes
29	There is high mutual agreement in our top management with regards to goals, priorities and resources	Confidence in Top Management	H1: Management & Organisation	No
6	There have been too many changes in the organisation lately	Continuity and Coherence	H1: Management & Organisation	Yes
8	I think our organisation is changing at an appropriate pace	Continuity and Coherence	H1: Management & Organisation	No
20	Our organisation is in need of change and renewal	Continuity and Coherence	H1: Management & Organisation	Yes
25	The employees support most of the changes that are implemented in our organisation	Continuity and Coherence	H1: Management & Organisation	No
11	I feel pressured by colleagues and/or the management to think or behave in a certain way	Culture and Adaptation	H1: Management & Organisation	Yes
15	In our organisation we have a culture and an attitude that makes it more difficult for me to carry out my tasks properly	Culture and Adaptation	H1: Management & Organisation	Yes
19	I am comfortable with the tone and social conventions we have in our work place	Culture and Adaptation	H1: Management & Organisation	No
5	Our top management has clear ideas and visions for the future	Image of Top Management	H1: Management & Organisation	No

9	The top management does not have the support and respect of its employees?	Image of Top Management	H1: Management & Organisation	Yes
18	The top management has the necessary level of competence and drive	Image of Top Management	H1: Management & Organisation	No
1	I have access to the information I need in order to do my job	Information	H1: Management & Organisation	No
3	I often have to push to receive the necessary information on time	Information	H1: Management & Organisation	Yes
27	It often the case that I receive delayed or inaccurate information	Information	H1: Management & Organisation	Yes
2	I have secure conditions of employment	Job Security	H1: Management & Organisation	No
7	It is likely that I will lose my job within the next year or so	Job Security	H1: Management & Organisation	Yes
28	I expect to be able to keep my job for as long as I want	Job Security	H1: Management & Organisation	No
4	I am sometimes given tasks that are against my conscience	Professional Ethics	H1: Management & Organisation	Yes
10	I find it difficult to defend the ethics and morals of the organisation on certain issues	Professional Ethics	H1: Management & Organisation	Yes
23	My view on ethics and morals is not quite the same as that of the organisation	Professional Ethics	H1: Management & Organisation	Yes
12	On the whole, my salary is appropriate for the job I have	Salary	H1: Management & Organisation	No
13	I am paid less than most others with similar tasks and responsibilities	Salary	H1: Management & Organisation	Yes
16	The pay supplement that I receive on top of my basic salary is too small (e.g. bonus or additional benefits)	Salary	H1: Management & Organisation	Yes
21	I have the resources (e.g. equipment, tools, budgets, access to assistance) that I need to carry out my job satisfactory	Working Conditions	H1: Management & Organisation	No
30	I could do more during a work day if my working conditions were better	Working Conditions	H1: Management & Organisation	Yes
37	I feel that my colleagues accept me and respect my abilities and skills	Acceptance	H2: My Colleagues	No
41	My colleagues are kind towards me	Acceptance	H2: My Colleagues	No
46	My colleagues are capable and competent	Acceptance	H2: My Colleagues	No
31	My colleagues and I manage to benefit from disagreement and differences within our group	Groupthink	H2: My Colleagues	No
33	I prefer to keep quiet if I have a different opinion than my colleagues	Groupthink	H2: My Colleagues	Yes
49	If I disagree with my colleagues I risk being "left in the cold" or "being put in my place"	Groupthink	H2: My Colleagues	Yes
36	I have been exposed to serious harassment from one or more persons in my workplace	Offensive Treatment	H2: My Colleagues	Yes
38	I have witnessed others being exposed to serious bullying and harassment from colleagues or management	Offensive Treatment	H2: My Colleagues	Yes
39	Any kind of serious bullying or harassment is unthinkable in our workplace	Offensive Treatment	H2: My Colleagues	No
48	My colleagues treat me badly (e.g. continuous teasing or physical assaults)	Offensive Treatment	H2: My Colleagues	Yes
34	If I am going through a difficult time, I can talk to my colleagues about it	Openness and Support	H2: My Colleagues	No

44	My colleagues show an interest in me as a person	Openness and Support	H2: My Colleagues	No
47	My colleagues are prepared to help me when necessary	Openness and Support	H2: My Colleagues	No
32	I feel that I get on well with my colleagues	Sense of Belonging	H2: My Colleagues	No
43	I almost always look forward to seeing my colleagues	Sense of Belonging	H2: My Colleagues	No
45	My colleagues always greet me when they or I arrive at work	Sense of Belonging	H2: My Colleagues	No
35	I think there are too many intrigues and conflicts among my colleagues	Team Coherence	H2: My Colleagues	Yes
40	I feel left out in my group of colleagues	Team Coherence	H2: My Colleagues	Yes
42	My colleagues and I have a good sense of team spirit	Team Coherence	H2: My Colleagues	No
62	My manager is not very goal-directed in his/her way of changing things	Change Management	H3: My Manager	Yes
64	My manager does not have much scope for planning and initiating changes him/herself	Change Management	H3: My Manager	Yes
65	My manager is good at implementing changes and new ideas	Change Management	H3: My Manager	No
70	My manager gives importance to acting in understanding with the employees when changes are imminent	Change Management	H3: My Manager	No
50	My manager is good at mediating in conflicts and creating solutions that everyone can live with	Conflict Management	H3: My Manager	No
51	My manager is good at making people co-operate	Conflict Management	H3: My Manager	No
69	My manager creates more conflicts than he/she solves	Conflict Management	H3: My Manager	Yes
71	My manager acts with appropriate speed and efficiency in situations of conflicts	Conflict Management	H3: My Manager	No
52	My manager gives criticism and praise in a way that motivates and encourages me to put more effort into my work	Feedback	H3: My Manager	No
55	My manager is not interested in listening to the employees' perception of things	Feedback	H3: My Manager	Yes
60	My manager responds positively to criticism from the employees	Feedback	H3: My Manager	No
56	My manager helps getting things done	Personal Relation	H3: My Manager	No
57	My manager shows consideration and empathy	Personal Relation	H3: My Manager	No
59	My manager is attentive and listening	Personal Relation	H3: My Manager	No
63	I have more conflicts with my manager than I would like	Personal Relation	H3: My Manager	Yes
61	I often feel disrespected or belittled when I have spoken with my manager	Recognition and Acceptance	H3: My Manager	Yes
67	I sometimes miss that my manager appreciate my effort	Recognition and Acceptance	H3: My Manager	Yes
68	I know that my manager notices and appreciates my contribution	Recognition and Acceptance	H3: My Manager	No
53	My manager's way of managing tasks gives rise to frustration and/or conflicts among the employees	Task Management	H3: My Manager	Yes

54	My manager has a good overview of the tasks and distributes them with fairness	Task Management	H3: My Manager	No
58	It is often the case that my manager does not start or follow up on a task in time	Task Management	H3: My Manager	Yes
66	My manager does not consider the individual's competences and experience when distributing tasks	Task Management	H3: My Manager	Yes
72	I have a lot of autonomy with regard to my area of work	Autonomy and Influence	H4: My Job	No
73	It is up to me how I plan my work	Autonomy and Influence	H4: My Job	No
89	I have the opportunity to take part in decisions that affect me	Autonomy and Influence	H4: My Job	No
107	I have the freedom to make my own decisions	Autonomy and Influence	H4: My Job	No
85	I often have conflicting and incompatible demands in my job	Demand Level	H4: My Job	Yes
90	My job is so demanding that I do not have the energy to enjoy my spare time	Demand Level	H4: My Job	Yes
93	My responsibility for other people and/or materials weighs very heavy on me	Demand Level	H4: My Job	Yes
103	I feel that I need training/education in order to be able to handle the demands of my job	Demand Level	H4: My Job	Yes
87	I find it difficult to see a deeper meaning in my job	Meaning and Commitment	H4: My Job	Yes
94	I think my job is very exiting and important	Meaning and Commitment	H4: My Job	No
102	My job demands a lot of skill	Meaning and Commitment	H4: My Job	No
105	I often become so engrossed in my work that I forget the time	Meaning and Commitment	H4: My Job	No
76	I have the opportunity to obtain greater responsibility as I learn more	Personal Development	H4: My Job	No
79	My job gives me good opportunities to develop my skills and competencies	Personal Development	H4: My Job	No
106	I have plenty of opportunities to learn new things in my job	Personal Development	H4: My Job	No
78	In general I feel liked and respected by our customers	Professional Relations	H4: My Job	No
92	Some customers make my life so difficult that I think about it during my spare time	Professional Relations	H4: My Job	Yes
96	My job demands much more customer contact than I would actually like	Professional Relations	H4: My Job	Yes
100	My contact with customers is usually a source of pleasure and inspiration to me	Professional Relations	H4: My Job	No
77	I have the necessary freedom of action within my area of responsibility	Responsibilities and Resources	H4: My Job	No
86	My formal status and competences are too small compared to my actual responsibility	Responsibilities and Resources	H4: My Job	Yes
91	I have the financial conditions and resources needed to carry out my job	Responsibilities and Resources	H4: My Job	No
97	I feel unsafe because of the risk of random assaults or threats against myself or my family	Risk of Assault	H4: My Job	Yes
98	I am often exposed to threats of violence from people that I deal with in my work	Risk of Assault	H4: My Job	Yes

101	I am at no risk of being exposed to violence, threats or similar assaults in my job	Risk of Assault	H4: My Job	No
74	I am not satisfied with the status I have achieved in my job	Status and Career	H4: My Job	Yes
75	It bothers me if other people think that my job is unimportant or not interesting	Status and Career	H4: My Job	Yes
80	I am not satisfied with the opportunities for promotion/advancement the organisation can offer me	Status and Career	H4: My Job	Yes
82	I have achieved the status and the results in my work life that I would like	Status and Career	H4: My Job	No
81	My job is monotonous and repetitive	Variety	H4: My Job	Yes
83	I am constantly required to generate new ideas and solve new problems in my job	Variety	H4: My Job	No
84	My job has a lot of variety	Variety	H4: My Job	No
88	Most of the time I have sufficient time to carry out my tasks at work	Work Load	H4: My Job	No
95	I have to work very hard	Work Load	H4: My Job	Yes
99	I have to work very fast	Work Load	H4: My Job	Yes
104	My workload is manageable	Work Load	H4: My Job	No

Appendix K: Questionnaire for job satisfaction

Instructions displayed above each question in both the ESM and QUEST condition:

Please consider the following statement and select the answer that best describes your experience. If the statement is without relevance to you—or if you prefer not to answer— please select the option: 'Not applicable'

Answer options given: 1) Strongly agree; 2) agree; 3) neither agree nor disagree; 4) disagree; 5) strongly disagree; 6) Not applicable

Q1 My job is good

Q2 My job is undesirable (reversed)

Q3 My job is better than most

Q4 My job makes me content

Q5 My job is excellent

Q6 My job is enjoyable

Q7 My job is poor (reversed)

Appendix L: ESM questions -mood, activity, location and companionship

ESM mood questions

Introductory text to mood questions: Please consider the following statements and indicate how you are feeling right now:

I feel relaxed

I feel worried

I feel content

I feel stressed

Answer options: 1) Not at all; 2) A little; 3) Somewhat; 4) Very much

ESM activity

Question text: What best describes what you are doing right now?

Answer options: 1) administrative tasks 2) work—core task 3) on the phone 3) email 4) housework 5) relaxing 6) other.

ESM location

Question text: Where are you right now?

Answer options: 1) work—in my office; 2) work—elsewhere; 3) home; 4) other.

ESM companionship

Questions text: Who are you with?

Answer options: 1) co-workers; 2) manager; 3) friends; 3) family; 4) alone; 5) students; 6) other.