Peer Review Article

Mindfulness and Behavioural Insights:

Reflections on the Meditative Brain, Systems Theory and Organisational Change

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Abstract

This paper explores the impacts of the Mindfulness-Based Behavioural Insights and Decision-Making (MBBI) programme. Combining mindfulness with behavioural insights instruction, the authors have developed the MBBI programme through a series of iterative trials over the last ten years. In addition to fusing mindfulness and behavioural insights, this programme also draws on the theories of autopoiesis, anticipatory systems, the predictive brain and constructed emotions, which all challenge the common assumption that

behavioural and emotional responses are automatic (triggered by given stimuli and not open to change through self-reflection). The paper explores the use of the MBBI in the Welsh Civil Service. Employing evidence from in-depth interviews with participants and a SenseMaker analysis, it rethinks the role of mindfulness at work, repurposes the application of behavioural insights training toward a more ethical and systemic direction, and develops a reflective approach to capability building amongst public servants.

Keywords
anticipatory systems; autopoiesis; behavioural insights; capability building; cognition; emotions; government; mindfulness; policymaking

Introduction

Mindfulness and behavioural insights have simultaneously risen to public prominence over the last decade.

Contemporary mindfulness has been defined as "the awareness that emerges through paying attention, on purpose in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). The impacts of mindfulness have been most pronounced in the fields of mental health and wellbeing (e.g., Gu et al., 2015; Lomas et al., 2017; Dunning et al., 2019; Tao et al., 2021; van Agteren et al., 2021), but their broader implications are now being explored in other policy areas, including education (e.g., Hwang et al., 2017; McCaw, 2020) and prison reform (e.g., Suarez et al., 2014; Haskin, 2017).

Meanwhile, 'behavioural insights' has developed independently from mindfulness. It involves an approach to policy design and delivery that draws on the behavioural sciences in order to account for forms of human behaviour that do not conform to neoclassical economic expectations. This approach particularly relates "to behavioural biases, the nature of rationality, habit formation, emotions and heuristics" (Pykett et al., 2016, p. 7). The field of behavioural insights has influenced thinking across most major public policy sectors (OECD, 2017; Baggio et al., 2021).

While mindfulness and behavioural insights are prominent as separate fields, there has been relatively little work on the connections and synergies between these approaches to human behaviour change (Whitehead at al, 2015). Arguably, this is surprising given that they share a common interest in challenging the idea that human beings are, for the most part, rational decision makers. In terms of practice, both fields are also concerned with the regulation of harmful cognitive processes and related behaviours.

This paper offers a critical account of a series of interconnected trials that have explored the impacts of delivering a workplace training programme that creatively combines behavioural insights with mindfulness. The programme was designed to address the limitations of existing governance systems, particularly

in dealing with complexity and addressing wicked problems (e.g., Rittel & Webber, 1973; Sydelko et al., 2021) such as climate change (e.g., Lazerus, 2009; Levin et al., 2012; Ison & Straw, 2020). It addressed these governance limitations by supporting people in countering cognitive bias and enabling reflective awareness of the inevitable partiality of understanding and judgement in policymaking and workplace relationships.

The adapted mindfulness programme described in this paper combines mindfulness practices with the emerging insights of the behavioural sciences concerning the roles of cognitive and unconscious biases/heuristics in decision-making processes. The iterative trials associated with this programme explored:

1. A rethinking of the role of mindfulness at work, considering the impacts that combining mindfulness training with behavioural insights has on the ways in which secular mindfulness could be thought about and adopted in workplaces, responding to contemporary critiques by Purser (2018) and others.

2. A repurposing of the application of behavioral insights training, identifying a more ethical and systemic direction for this. At the same time, the trials addressed some of the current limits of government systems – especially the lack of more psychologically-informed policymaking and ways of working (Dolan et al., 2010; Hallsworth et al., 2018).

3. The iterative development of an approach to improve the capabilities of public servants, understanding the extent to which contemplative (awareness-based) techniques could enhance experiential learning in relation to behavioural insights analysis.

In particular, we were interested to learn whether mindfulness could more effectively embed behavioural insights into workplaces and support the creative development of new, ethical, systemic and empowering ways of working with these scientific insights. The new, psychologically-informed approach we introduced into government involved addressing cognitive biases and implicit assumptions, supported moves toward co-production in the policy process (by enabling reflection on the inevitable partiality of single policymaker perspectives), developed collaborative and distributed leadership, and encouraged emotionally-informed decision-making (Sharp, 2018; Mair et al., 2019; Whitley et al., 2019).

As part of our trials, new forms of both mindfulness and behavioural insights training were developed, drawing on recent advances in theories of consciousness and perception, and changes in understandings of the emotion-cognition axis (e.g., Maturana, 1988; Pessoa, 2013; Clark, 2015).

While this paper describes the results of these trials, it also speaks to a series of debates surrounding the applications of both mindfulness and behavioural insights more generally. In particular, we are interested in critiques of neoliberal 'corporate mindfulness' (Forbes, 2019; Purser, 2019; Stanley, 2019); Buddhist critiques of workplace mindfulness initiatives (Tomassini, 2016; Crane,

2017); and critiques of the field of behavioural insights (Leggett, 2014; Gigerenzer, 2015; Pykett et al., 2016). While we have sympathies with all of these critical perspectives, we have chosen not to abandon mindfulness and behavioural insights thinking, but instead to address the critiques through the design and evaluation of our own programme.

This paper begins with a brief analysis of existing academic work on mindfulness in the workplace, and the use of behavioural insights. We then describe the development of the adapted mindfulness-based programme that formed the basis of our trials, explain the systems theory and neuroscience that informed it, and discuss the methods deployed to analyse the programme's impacts. The final section of this paper reviews the results of these trials and draws conclusions on the contribution of our programme to the field of workplace-based mindfulness.

Mindfulness, Behavioural Insights and the Workplace

Mindfulness and behavioural insights are two widely-discussed sets of ideas and practices in the world today. While mindfulness has ancient Buddhist origins (Maex, 2011), it is now an object of significant natural-scientific and social-scientific analyses. Mindfulness is being promoted within a bewildering array of contexts, including education (Hwang et al., 2017), health care (Segal et al., 2004), prisons (Suarez et al., 2014; Haskin, 2017), the military (Jha et al., 2015), government (Pykett et al., 2016; Bristow, 2019) and numerous self-help movements (Nehring & Frawley, 2020). The behavioural insights movement is an area of interdisciplinary inquiry that combines economics, psychology, neuroscience and different branches of the behavioural sciences (Jones et al., 2013; Oliver, 2013; Whitehead et al., 2017). Behavioural insights thinking is having an increasingly significant impact on the ways in which policymakers, corporations and non-governmental organisations comprehend human behaviour, and how it can be more effectively governed (World Bank, 2015).

It is our contention that combining mindfulness training with behavioural-insights learning offers three significant benefits: a context within which to rethink the role of mindfulness in workplaces and beyond; a framework of inquiry to repurpose the application of behavioural insights in more ethical, systemic and efficacious directions; and an approach to delivering improved public policy capabilities to address wicked problems, such as climate change.

The application of mindfulness in the workplace has been one of the most significant aspects of the secular adaptation of mindfulness practices in recent years (Good et al., 2016; Reitz et al., 2016; Tomassini, 2016; Crane, 2017; Kersemaekers et al., 2018). It includes specific applications of mindfulness in politics and public policy (Pykett et al., 2016; Bristow, 2019). The 2016 Mindfulness Initiative report, *Building a Case for Mindfulness in the Workplace*, describes mindfulness as a "promising innovation" in a series of organisations and workplaces, which is now associated with a "rapidly evolving evidence" base (Mindfulness Initiative, 2016, p. 6). There is evidence suggesting that

mindfulness might improve wellbeing and resilience (Lomas et al., 2017), relationships and collaboration (Kersemaekers et al., 2018), job and task performance, leadership qualities (Reitz et al., 2016; Arendt et al., 2019), bias avoidance in decision-making (Hafenbrack et al., 2014) and organisational transformation (Lomas et al., 2017).

However, there is also a growing recognition of the limits of mindfulness, which suggests that some authors might be over-claiming early successes, with effect sizes no higher than other traditional behavioural or cognitive-behavioural therapies (Kersemaekers et al., 2018, p. 2). Others have pointed to the use of inadequate methodological approaches in mindfulness research (e.g., Goldberg et al., 2017; Van Dam et al., 2018) and a propensity to overstate positive effects on pro-social and pro-environmental behaviours (Geiger et al., 2018; Kreplin et al., 2018). In relation to our focus in this paper, there also appears to be an evidence gap in the study of workplace mindfulness, which needs addressing through new forms of intervention and the testing of more specific, targeted and contextualised programmes (Rupprecht et al., 2018).

In a review of mindfulness in workplaces, Tomassini (2016) argues that organisational initiatives can be split into three main categories: *anti-stress remedies* (as in the case of adapted Mindfulness-Based Stress Reduction [MBSR] and Mindfulness-Based Cognitive Therapy [MBCT] initiatives); *attention arousers* (improving the focus of attention in relation to working practices); and *liberating practices* (improving individual self-reflection, but not tied to performance in the work context). The programme that we outline below has much in common with Tomassini's vision of mindfulness as a liberating practice. However, it goes beyond Tomassini's vision by exploring the use of systems theory and recent neuroscientific theories of mind, cognition and emotion. These theories suggest that experience does not just 'arrive', but is something we *proactively create* as individuals and groups.

The behavioural insights movement embodies the practical application of the emerging insights of the behavioural and psychological sciences into human decision-making (Jones et al., 2013; Oliver, 2013; Whitehead et al., 2017). As a scientific project, behavioural insights is a form of inquiry into the human condition that moves beyond idealised, theoretical accounts of human action, in order to focus on the empirical investigation of observed human behaviour. In this context, the behavioural-insights movement has become associated with the rejection of highly rational accounts of human motivation and behaviour, and it shows a renewed interest in human irrationality – or rather, it argues that the distinction between rationality and irrationality is not well founded, as empirical research demonstrates that decision-making inevitably involves limitations of time, knowledge and cognitive capacity (Simon, 1955, 1990; Tversky & Kahneman, 1974).

In the public sector, behavioural insights have been utilised in order to better understand the practices of those working within the Civil Service, and to support the development of more behaviourally-effective forms of public policy

(Oliver, 2013; Sanders et al., 2018). More recently, there has been pressure to incorporate behavioural insights learning into political and policymaking processes, acknowledging that systems of government are biased and partial. Midgley and Lindhult (2021) talk about partiality involving purpose-driven and values-informed boundary-setting, so policymakers have inevitably-incomplete understandings. Bias and partiality exist despite the stated intention of governmental systems to be objective, honest and maintain integrity (GOV.UK, 2015; Hallsworth et al., 2018; Sutherland, 2018).

Mindfulness and behavioural insights are connected in two main ways. First, they can both be thought of as modes of inquiry into the nature of the human condition, which seek to engender social improvement. Second, they both display a particular concern with forms of unconscious action that are products of automatic systems of human behaviour and decision-making (Langer, 1989; Kahneman, 2011).

The adapted mindfulness-based programme recounted in this paper specifically combined mindfulness and behavioural insights for four reasons. First, mindfulness was utilised as a practical context in and through which participants could actively experience behavioural insights (often expressed through recognition of biases, assumptions, emotional states and the limits of attention). Second, combining mindfulness with behavioural insights provided the possibility of offering more contextualised and non-therapeutic forms of mindfulness training to support reflective practice within workplace settings. This is the kind of awareness-based systems-change practice suggested by Scharmer (2007). Third, it offered an opportunity to work with novel, contemporary theories of the brain and behaviour that were able to extend, and to some degree challenge, often-ancient understandings of the human condition that inform mindfulness training. Fourth, it was hypothesised that, in generating new ways of attending to behavioural prompts and contemporary understandings of human motivation, mindfulness could support more emancipatory and ethically-attuned applications of behavioural insights.

Behavioural Insights, Mindfulness and New Theories of the Mind

Both mindfulness and behavioural insights are grounded in particular definitions of, and assumptions about, mind, cognition and perception. These theories of mind inform the frameworks that the two disciplines use to help people work with stress, mental health issues (in the case of mindfulness) and improved decision-making and behavioural public policy (in the case of behavioural insights). Arguably, both disciplines have helped address the failings of human folk psychology by offering understandings, practices and approaches that allow insight into how we as humans operate (Ward et al., 1997, p. 104). Behavioural scientists regularly contest the common lay belief that people can intuit the complex mechanisms of their own minds (Chater, 2018, p. 13). Both

mindfulness and behavioural economics attempt to address this problem, but are also somewhat-ironically limited by the theories that originally informed them. There has been a failure to adapt and further develop the ideas in the light of systems theories and the most current neuro-psychological and social-scientific theories of mind, cognition and emotion.

Standard mindfulness-based stress relief programmes describe the mind as involving a process of stimulus and response, where mindfulness changes automatic reactions so that we can be 'in the moment' and see beyond automatic thinking. By avoiding automatic responses, it is claimed, we can see what is 'really there' (CMRP, 2013). Some authors discuss mindfulness as a witnessing or meta-cognitive capacity that enables us to increase our 'direct' sense of what is going on (Williams & Penman, 2011). Segal et al. (2004) describe mindfulness as a process of re-perceiving, where we can step back and appreciate a "deep, penetrative nonconceptual seeing into the nature of mind and world" (Kabat-Zinn, 2003, p. 146). However, the idea that mindfulness enables us to 'see' the mind and world in this way is being challenged (Thompson, 2020): systems theories from the last two decades of the twentieth century (e.g., Maturana, 1988; Rosen, 1991), as well as more recent cognitive theories, such as the theory of predictive processing (e.g., Clark, 2015; Seth, 2021), suggest that our perception involves *self-fulfilling our expectations* rather than enacting automatic responses. Predictive processing theory makes similar paradigmatic assumptions to earlier systems ideas concerning the nature of human organisms, but it also offers substantially new understandings of how the brain constructs consciousness in a predictive manner.[1]

As early as 1972, Maturana and Varela advanced the proposition that all organisms, including human beings, are *autopoietic*, or self-producing. An autopoietic system has the capacity to continually reconstruct itself 'in its own image', both physiologically and psychologically. Over our lifetimes, we may renew ourselves many times, yet we keep the same biological identity (Maturana, 1988). This is well known, but the situation becomes more interesting when we understand the implications of autopoiesis for the operation of the mind: we are only able to perceive what our physiology and histories of experience allow. Logically, then, cognition cannot directly reflect a real world, but is *actively constructed internally* based on a combination of biologically-determined capabilities and subjectively-perceived past experiences. We can only see what we are already primed to expect, and the accuracy of our expectations are refined over time through processes of learning (Maturana & Varela, 1987, 1992).

Maturana (1988) also challenges the idea that cognition and emotion are separate systems within an individual. Rather, he argues that they are inextricably intertwined, so we can only 'change our minds' (move from one way

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[1] For example, Seth's (2021) understanding of the fragmentary nature of perception, and the use of Bayesian statistics to model the brain's predictions and error correction processes.

of explaining things using language to another) via our emotions, as it is these emotions that direct attention to the need for a new way of thinking. Thus, emotion is *part of* cognition, and is also constructed internally. This way of thinking about emotion now underpins many writings in contemporary neuroscience, and strong empirical evidence for it has been accumulating for decades (Barrett, 2006).

This theory has specific implications for understanding why our behavioural and emotional responses should not be considered 'automatic'. If there was an automatic, one-to-one relationship between any given stimulus and response, we would be nothing more than deterministic systems, with no capacities for learning, choice or autonomy. Even the most systemically-constrained forms of autonomy would be impossible. A function of mind, according to the theory of autopoiesis, is to provide multiple options for a behavioural and emotional response, even though what we are responding to is not actually the external world itself, but our internally-constructed expectation of what that world implies for our next actions.

Building on the above understanding, Rosen (1985, 1991) argues that the defining feature of all living systems, including human beings, is *anticipation*: i.e., we continually generate an ever-changing embodied model of what we expect in our environment. This model guides behaviour, which induces feedback from whatever we are interacting with. Critically, however, feedback can only be perceived as such, and be translated into error correction, if the organism has the capability (based on biology and previous learning) to become aware of it (Maturana, 1988).

These systems-theoretical assumptions about the mind, and how it enables us to transcend simple stimulus-response determinism, are also foundational in contemporary ideas about the predictive processing of the human brain. In predictive processing theory, which was used to inform the intervention described in this research, the mind does not react to stimuli, and nor does it simply infer the world through referencing bottom-up stimuli to schemas or associations. Instead, we make sense of the world by continuously offering multiple predictions, based on scraps of sensory information, seeking to confirm one prior prediction over another. These predictions help to fill in gaps in our internal models of the world, such that we largely perceive information that confirms our predictions, thus creating a reality we expect to see (Seth, 2021). This process is mediated through prediction errors: when we notice something that doesn't fit with our expectations, we update our mental models. However, we often miss prediction errors, leading to confirmation biases.

While the idea of 'present moment awareness' (mindfulness) has proven helpful in advancing our understanding of the capacities of perception, both systems theory and the science of mind have clearly progressed beyond it, and a new paradigm has been established. As already mentioned, systems theory and neuroscience both suggest that minds are more constructive (Rosen, 1991; Maturana & Varela, 1992) and predictive (Clark, 2015; Seth & Friston, 2016)

than they are reactive, seeing a world they expect rather than responding to a fixed reality. Compared with earlier ideas, this is a significant paradigm shift in both systems theory and the brain sciences.[2]

Proponents of the theory of autopoiesis (e.g., Maturana, 1970) and the predictive mind (e.g., Clark, 2015) both say that their ideas offer a unifying account of perception, cognition and action. These frameworks challenge dual process theory, used to explain cognitive bias, suggesting that bias is not because of automatic responsiveness (as in Kahneman's, 2011, 'fast thinking'), but is due to predictive processing and a tendency to see the reality we expect (as in confirmation bias). It also challenges the idea, commonly used in mindfulness training, that our mind or brain is a stimulus-response system: rather, the brain is a "statistical organ that actively generates explanations for the stimulus it encounters – in terms of hypotheses that are tested against sensory information" (Seth & Friston, 2016, p. 1). In this context, mindful practice becomes less about regulating reactions, and instead potentially *offers capacities to notice our predictions* (Lutz et al., 2019; Pagnoni, 2019). In seeing our predictions, there is also the potential to see how we construct our biases and partialities (Hinton, 2017).

What differentiates our work from previous research in the field is our desire to explore a fuller range of emerging insights into the blurring of the distinction between rationality and its opposite. This leads us to explore and test updated framings of 'mind' and 'perception' within the context of mindfulness and behavioural insights training applied to decision-making and collaboration in the policymaking process.

Developing and Delivering the Mindfulness-Based Behavioural Insights and Decision-Making Programme

The starting point for the design of our Mindfulness-Based Behavioural Insights and Decision-Making (MBBI) programme was a standard Mindfulness-Based Stress Reduction (MBSR) programme, and its more recent variant, the Mindfulness-Based Cognitive Therapy (MBCT) programme (Whitehead et al., 2017). In Table 1, the MBBI is compared to more traditional mindfulness-based therapeutic interventions, while Table 2 gives a breakdown of the content of an eight-week MBBI course. Notably, MBBI is much more orientated to shifts in group meaning-making, whilst also understanding the more predictive, partial and biased nature of the mind, rather than focusing on wellbeing and the regulation of reactive thinking. The content of the programme was developed iteratively over a number of years, spanning 2011 to 2020 (also see Whitehead et

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[2] It has already transformed some therapeutic interventions, such as the treatment of chronic pain: pain can sometimes be a predictive error rather than the result of on-going physical damage (Fazeli & Büchel, 2018).

al., 2015, 2017). The results that we analyse in this paper are exclusively drawn from MBBI programmes that were delivered between 2016 and 2020. By this point in time, the form and delivery of the programme was settled and consistent.

	Theoretical MBSR/MBCT	MBBI
Theoretical Model	• Neurobiology of stress and anxiety. • Cognitive Behavioural Therapy (DBT/ACT).	• Neurobiology of decision making and group work. • Rationality and behavioural economics. • Social science (cognitive/developmental psychology), progressive organisational theories, systems theories.
Delivery Method	• Evidence-based therapeutic models of delivery using combinations of individual and social (but more focused on the individual journey).	• Highly responsive, tailored to context, likely to be delivered using social/group (rather than individual) practices and conceptualisations.

Table 1: A comparison of MBSR/MBCT and MBBI programmes.

This paper draws on insights that have been developed over the last 10 years on the MBBI programme. In particular, it draws on evidence from nine MBBI interventions delivered with 175 staff working in the Welsh Government between 2016 and 2020. A 'real-world' approach to action research was used (Robson & McCartan, 2016), seeking to investigate and make change in how reasoning and decision-making take place in government. The approach was participatory, but because we were working with senior leaders with limited capacity for additional work, it was adapted to their situation.

Initially, SenseMaker analysis was used to map the systems that people were working within. SenseMaker is a distributed-ethnographic method, which gathers and collates in-depth and self-signified journal data. It has been designed to capture real-time reflections and the 'rich context narratives' that inform how people make sense of their daily lives (van der Merwe et al., 2019). The SenseMaker used in this research was designed in collaboration with the target research group, consisting of an initial full-day design workshop, and follow-up prototyping on a small group of civil servants. A final version was presented to programme participants at the first session of any given MBBI programme in the form of an app that could be downloaded onto a phone or other device. Participants were then encouraged, via email and verbal reminders, to input short narratives into the app, which offered one of two prompts:

Prompt 1: Please share a recent workplace experience when you interacted with others.

Prompt 2: Please share a recent decision that affected you personally, which illustrates what it is like to work here.

Taster and orientation session

- Introduction to themes and format of the course.
- Short attention and interoception practices.

Session 1 – Day intensive

- Introduction to relevant theories of mind and emotion, neurophysiology, decision-making theory, behavioural economics, bias.
- Introduction to basic mindfulness attention practices, body scan (interoception), relaxation and use of support app.
- Development of group reflection and trust.

Session 2 – Attention

- Theories of attention, multi-tasking, decision-making – the full cost of interruptions.
- Group check-in and reflection.
- Attention practices – pausing, noticing, extended 10-minute mindfulness practice (attention plus breathing).

Session 3 – Emotions

- Neurophysiology, latest understanding of what emotions are and why they are relevant to decision- and policymaking.
- Group check-in and reflection.
- Attention and body scan practices: developing interoceptive capability alongside attention capabilities.

Session 4 – Predictive mind/bias

- Understanding cognitive bias, inevitable partiality and decision-making in more depth. The predictive brain and constructed emotion.
- Group check-in and reflection.
- Repeating and building on practices above, opening with attention/interoception practice and reflection, integrating feedback from both. Moving into life practice, focussing attention during the day (plus body scan and repeat of attention practices).

Session 5 – The social brain

- Neurophysiology of interactions, emotions, biases and shared decision making.
- Dialogue practices (noticing how we predict and make assumptions as another talks, integrating attention/interoception practices to support noticing).
- Repetition of attention/interoception (including body scan) practices, and integration into group check-in and reflection.

Session 6 – Communication

- Meetings and team decision making, further exploration of cognitive bias in policymaking.
- Group check-in and reflection.
- Dialogue practices, dealing with difficulty, integrating relaxation, attention and interoception practices as developed in previous sessions.
- Repeat of attention/interoception practices and integration into group check-in and reflection.

Session 7 – Collaboration, organisational and cultural development

- Neurological insights and mindfulness in organisational development (including the idea of Deliberately Developmental Organisations).
- Dialogue practices, dealing with difficulty repeated, with more challenging forms of dialogue, integrating relaxation, attention and interoception practices.
- Repeat of attention and interoception practices, and integration into group check-in and reflection.

Session 8 – Leadership: course review and post-course planning

- Repeat of attention/interoception practices and integration into group check-in and reflection.
- Repetition of body scan (interoception) and attention practices, considering different forms and lengths of practice. Reflection on using practices moving forward.

Table 2: The content of an eight-week Mindfulness-Based Behavioural Insights (MBBI) course.

One hundred and twelve SenseMaker narratives were gathered. The example below demonstrates how data were visualised using SenseMaker triads (See Figure 1). Once participants had inputted a few words or sentences into the app, they were offered a series of triads, created during the design process discussed above, to use to self-signify their stories according to different themes. In the example triad below, participants were asked to place their narrative in relation to the three signifiers of "following procedure", "relating to others" and "understanding context". This led to clear patterns emerging. In this example triad, for instance, narratives are mostly clustered in the bottom left corner of the triangle, towards "relating to others" rather than following procedure or understanding context. Once a pattern has been identified, it is possible to consider it in more detail by looking at the stories behind each of the data points. SenseMaker thus offers both quantitative and qualitative detail to build a picture of civil servants' day-to-day experiences.
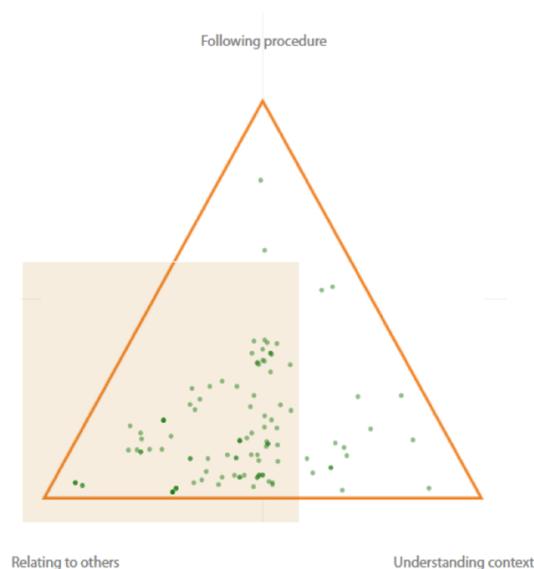

Figure 1: SenseMaker Triad example ("The most important thing in my story is…..").

In addition to the Sensemaker survey, opportunities arose during the delivery of the MBBI programme for 'deep hanging out' with participants. While informal in scope, the insights that were gained from these ethnographic opportunities were recorded within a fieldwork diary. Related diary entries offered insights into the working lives of participants and the impacts of the MBBI programme.

Initial, in-depth scoping interviews were also conducted with participants to understand their working lives, and to inform the design and delivery of the MBBI programme. In-depth interviews were additionally conducted on the completion of different MBBI programmes with selected participants. In total, over 60 semi-structured interviews were undertaken to both inform the design

and delivery of the programme and gather insights into the intervention's impacts on the participants and their work.[3]

Following the analysis of SenseMaker and field-notebook data, and the coding and analysis of interview transcripts, all the data were drawn together to identify emergent/inductive themes. These themes generally emerged from our reflections on the data, without the use of explicit theory, although (as Weimer, 1979, argues is inevitably the case) there was *implicit* theory (i.e., assumptions based on past learning and experience) informing our reflections. An exception to this generalisation was our concern with the predictive mind: a more deliberate, explicitly theory-informed attempt was made to draw out relevant insights in this context. In what follows, we outline three of the most significant themes that emerged out of the data analysis.

Combining Mindfulness and Behavioural Insights in the Workplace

Confronting Bias and Emotions

A key concern within the development and implementation of the MBBI programme was the nature of the interaction between mindfulness and behavioural insights: we wanted to see if the integration of these ideas within the training was beneficial. In general terms, participants felt that the combination of mindfulness and behavioural insights was useful in the context of the day-to-day working practices of civil servants. As one participant observed,

> "It helped me understand why my brain might, in a certain situation, take a short cut and take me down a path which, had I paused and reflected, I might have taken my brain down a different path, and that seems to me to be fundamental. Mindfulness gives me the practice to take that time, to unstress, ground myself. Give yourself the space, if you like, to unburden the cognitive load, free up your mind, start thinking about things in a different way. But it seems to me the behavioural insights, the teaching of those sorts of things are really fundamental to everybody understanding, how do I react the way that I do? How lazy actually is my mind? It takes short cuts that get me to places I don't really want to be. That is the stuff that is going to make a fundamental systemic change that the First Minister [Mark Drakeford] is pointing us to. Everyone needs to be taught the

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[3] A number of these interviews were with senior staff in the Welsh Government, including Directors and Deputy Directors responsible for leading policy delivery in the National Health Service, Social Services, Child Development, Community Regeneration, Climate Change, Finance, Local Government Management and Government Law.

behavioural insight stuff as well as the mindfulness"
(Ethnographic notes from discussion with senior civil servant, July
2019).

There appears to be something within the practice of mindfulness (and the associated "unburdening of the cognitive load") that enables the biases identified within behavioural insights to be recognised and acted upon. We have written elsewhere about the ways in which mindfulness appears to offer a practical context within which it becomes possible to notice and address normally-unconscious cognitive biases (Whitehead et al., 2015). But within the reflection above, there appears to be more to the connection between mindfulness and behavioural insights than a helpful combination of practice and theory.

The idea that mindfulness can support de-stressing activities also appears important to facilitating action on behavioural biases (Mullainathan & Shafir, 2013). However, participants indicated that the nature of the relationship between mindfulness, stress reduction and action on behavioural insights is complex. One participant observed that,

"…the minute you ask people to start touching into their own
minds, fear and anxiety comes up because it's not what people are
comfortable doing. Whether that's based on their own experience
or on a misconception, they might have some resistance to that, to
just exploring their own mind because of the negative
connotations" (Interview, UK civil servant, Sept. 2016).

Here we see explicit reference to the fact that addressing the issue of mind, behaviour and self-awareness can generate aspects of fear and anxiety as people are expected to recognise and reflect upon their own cognitive limitations and vulnerabilities. Obviously, such a process can be challenging in any context, but in a workplace, it can feel particularly threatening. However, our research indicates that mindfulness provided an effective context within which to explore potentially-troubling cognitive issues.

In addition to providing a practical and supportive context to explore behavioural biases in the workplace, it appears that the MBBI also facilitated broader shifts in how emotions are understood and acted upon. A key implication of behavioural insights training is recognition of the role of emotions in human decision-making (Kahneman, 2011; Kahneman & Klein, 2009). The MBBI programme developed an innovative take on the role of emotions, and we will discuss the implications of this later. At this point, however, it is important to acknowledge the ways in which the MBBI programme appears to have enabled a re-orientation of civil servants' relations with emotions. One MBBI programme participant made the following observations:

"People are expected to become cogs in the machine that are run
to set protocols, and life isn't like that. I never thought it was, but I
think I have really appreciated, in this recent period, that it very
definitely isn't, and that actually you can get better results for

yourself and for the organisation if you can adopt a better
approach. That's the benefit of this programme: to have that
ability to slow down and to switch off, and to create a calmer and
more reflective environment, which I have found more helpful,
which allows you to see things in perspective and to identify other
areas to work on, particularly for me that emotional component"
(Interview, senior civil servant, 2017).

The reference here to "cogs in a machine" is interesting in the sense that it
reflects how civil servants feel they are perceived – as almost automaton-like,
and devoid of emotion. The MBBI programme appeared to challenge this
conception by enabling participants to legitimately address their emotional
selves. Significantly, it would appear that framing emotions around the insights
of predictive mind theory and behavioural science (in particular, ideas about
constructed emotions from Barrett, 2006, which are consistent with the
autopoiesis, anticipatory systems and predictive mind ideas discussed earlier in
the paper) gave them greater legitimacy than may have been the case if they had
been framed only through the therapeutic mode of mindfulness.

According to participants, the lack of sensitivity to the emotional aspects of
working life was in part driven by a particular idea (or ideal) of who the civil
servant is supposed to be:

"My personal take would be that I have felt unequipped to deal
with those sorts of things because so much of my professional
training has been logic, evidence, rationality, objectivity, rules,
procedures, and it's driven out more of that emotional component"
(Interview, senior civil servant, 2017).

One participant suggested that the MBBI programme had enabled them to
develop new ways of relating to their emotions, claiming that, prior to the MBBI,
they adopted a form of emotional suppression, which appears to be the norm in
the Civil Service:

"[…] I feel a lot better at it [addressing emotions] now that I have
been on it [the MBBI programme]. I know what's going on in a
more sophisticated way. I have a narrative that enables me to
understand what's going [on], and not suppress my emotions but
notice them and decide whether I want to behave in line with them
or choose some other form of behaviour. I think I went with the
emotional suppression before, but now it's about noticing it,
understanding what it is, and deciding whether you want to go
with it or do something differently" (Interview, senior civil servant,
2017).

This shift towards acknowledging the role of emotions in decision-making,
rather than suppressing them, is a significant positive result emerging from the
MBBI programme. Suppressing emotions has been shown to *inhibit* clear
thinking rather than improve it, which overturns the dominant belief about

emotion and thought that prevailed for many years (Barrett, 2006; Gross, 2014). In this context, the MBBI programme appears to have enabled civil servants to bring theoretically-informed and non-judgmental attention to the roles of emotions in their working lives.

The Wider Working Environment and Relations with Others

In addition to the more 'internal' psychological and emotional benefits of the MBBI, it is also clear that the programme facilitated new ways of conceiving of the organisational context within which civil servants operate. Related to the work of Weick (1995), it appears that the MBBI programme enabled participants to not only understand the ways in which their internal cognitive-emotional systems produced poor working practices, but also to pay closer attention to the systemic design of their organisations and how this worked against certain behaviours. One participant observed:

> "There are analogies here to healthy food: we tell people they need to eat healthy food, maybe they even start having some healthy meals, but then they are surrounded by unhealthy food. This is particularly bad in hospitals where, until recently, there were only unhealthy vending machines. We have an organisation that wants people to pay better attention, but then puts them in a working environment where it's hard to actually pay attention. We need to create the infrastructure that nudges, that creates the behaviour" (Ethnographic notes, discussion with senior civil servant, 2017).

This reflection is interesting because it demonstrates a link between the qualities of mindfulness and behavioural insights that were promoted within the MBBI. In likening an inattentive organisation to an obesogenic environment, it reveals that the MBBI may be able to use mindfulness to draw greater attention to the often-overlooked working practices of an organisation. In making this link between a practice (inattention) and an environment (working cultures), this quotation emphasises a central aspect of behavioural insights thinking: that human biases and partialities are not only products of the internal limits of human cognitive capacities, but also arise from the systemic forces around us.[4] It appears, at least in this context, that the MBBI was able to support a practice of organisational awareness (following Weick, 1995), and also suggest a behavioural diagnostic of the problem. This insight addresses some of the critiques of mindfulness, which suggest that it makes the individual the focus of change, without reference to the social, material and cultural systems of which they are a part (Purser, 2018). Using mindfulness together with behavioural insights

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[4] Also see Midgley & Pinzón (2011) on understanding the systemic patterns of conflict and marginalization within and beyond organizations that entrench the partialities, value judgements and boundary setting of decision makers and their stakeholders.

appears to help people appreciate themselves as embedded in, and not separate from, their wider context.

We do not have space within this paper for an in-depth exploration of all the organisational practices and cultures in the Welsh Civil Service that work against the effective use of attention, and support biased/partial thinking and action. One participant's reflection does, however, provide a glimpse of what these cultures may look like:

> "We go on courses on how to have a difficult conversation, and you get a checklist, but that is not the same thing as having a culture in which difficult, clear conversations are expected by the individual, or the other half of that clear conversation, so I think we shy away from it, making the problems worse because you create an organisation where no one expects to have clear conversations. I also think the same is true of developmental and more positive conversations. I don't think we are very good at that either" (Interview, senior civil servant, 2017).

In this observation, the participant reflects upon the perennial problem of having difficult conversations with work colleagues. These forms of conversation are often seen as problematic, as they are associated with the surfacing of emotions, which many civil servants try to suppress in the workplace, and because they involve dealing with difficulty. The MBBI programme appears to have played a role in enabling participants to become more aware of the problems associated with not having clear conversations, and the ongoing biases, problematic assumptions and misapprehensions that this can perpetuate. It gave them new understandings of 'negative' emotions, together with practices that facilitated the more regular instigation of clear interpersonal interactions.

The MBBI and the Predictive Mind

A distinctive feature of the MBBI was the introduction of new approaches to understanding emotions and the mind. At the heart of this aspect of the programme was a desire to move away from framings of human behaviour that are based on stimulus and response systems. The aim was to explore the capacity of mindfulness to enhance the precision of our predictions, improve our capacity to update our existing inferences, and mitigate bias and partiality. While it is a challenge to disentangle the precise impacts of this aspect of the MBBI from its broader impacts (at least without overtly prompting those we interviewed), the results indicate that the programme was successful in enabling participants to begin to understand their behaviours using a more predictive frame. As part of one SenseMaker narrative response, an MBBI participant reflected:

> "I often multitask when trying to listen (e.g., writing notes, thinking about something else, even using my phone) and also have a habit of anticipating what the person is going to say or trying to jump to the conclusion they might be reaching. My

> practice involves trying to focus entirely on the person talking, focus on the words (not what they are going to say next or how I might intervene), making eye contact where appropriate, etc. I find it difficult in the moment, but it is quite rewarding. I am transforming the purpose of the interaction, so I am receiving more, not distracting myself so much, and not seeking to impose my own interpretation as much" (SenseMaker narrative, 2017).

Within this account, we can see evidence of the MBBI starting to transform the "purpose of interaction[s]" for this participant, from one of unreflective anticipation, to one of closer attention and reflection, so that problematic anticipations can at least be recognised. While such a transformation may have occurred using the long-established frameworks of cognition and emotion found within many mindfulness and behavioural insights texts, this participant seems to describe more open engagements with prediction. In this context, it appears that, rather than trying to address a specific bias or compulsive response, there is a genuine interest in observing and regulating predictive responses in general.

Another participant described the predictive mind element of MBBI as a particularly thought-provoking aspect of the programme, which made them more open and less controlling in their leadership style:

> "That session you did about the brain: you know, the brain being a box and the external world not being real. I thought that was quite thought provoking. Having spent 35 years running about the place, it's been really important to have that space and enough of an understanding as to why things might work…[I have become] a bit less of a perfectionist, a bit less of a control freak, a bit less obsessive, a bit less pass/fail" (Interview, senior civil servant, 2017).

One participant observed how the predictive component of the programme had helped them challenge themselves and their assumptions of others, enabling different, more useful pre-conceptions to colour an interaction:

> "I found the session on making assumptions and on how the brain fills in detail that is not really there very useful, because it has helped guard against making easy but untested assumptions. In terms of interactions with others, it has made me think about how my assumptions about a person's motivations and objectives may sometimes flow from what I think I know about their situation" (Interview, Welsh Government lawyer, 2020).

Note that, in the sentence before the quotation, we said "different, more useful" rather than "fewer" pre-conceptions. It is tempting to believe that our understanding is becoming more objective, or more reflective of the real world, but this would be a return to the old idea of moving towards seeing what is 'really there', which we know from the systems and neuroscientific research discussed earlier needs to be replaced by a more systemic understanding of the

anticipatory or predictive mind. In our view, the programme helps the person to be more open to error correcting their predictions, and of course error correction is only possible if there are other predictions that can be made based on further, initially-latent pre-conceptions that make errors in the initial prediction visible.

Another more systems-philosophical way to explain this is that, when we take any perspective, there are unseen assumptions being made. In a reflective moment, we are able to reveal these assumptions, but in doing so we make further invisible assumptions (Fuenmayor, 1990). Theoretically, we could continue critiquing our assumptions (pre-conceptions) infinitely, always knowing there are more to uncover, but in practice there are limits to the time we have available for this kind of repeated critique (Ulrich, 1994). So, it's not a matter of eliminating all pre-conceptions, but only a matter of eliminating (or suspending action upon) those pre-conceptions that a greater openness to questioning and error correction reveal to be problematic or doubtful. Questioning and error correction involves the invocation of a new framing based on different pre-conceptions, which at some future time might in turn be problematised (Midgley, 2000).

Interestingly, it appears that understanding the ways in which predictive responses operate has been used by participants to better understand the unexpected reactions of others to themselves:

> "The epiphany of the course for me was that a person's approach to a particular matter is heavily influenced by their experiences, culture, etc. When that is in play in the development of policy, for example, and where (due to lack of resources or time) that policy is not properly peer reviewed, it can be the case that the policy may reflect (even subconsciously) the values, etc., of the person who has developed it. Confirmation bias will mean that (unless alive to it) a person will always look for things that support rather than detract from a person's position. It has often puzzled me that (as I have a Civil Service and professional obligation to do), [when] I ask questions that test the policy, I can sometimes get a visceral reaction from the other person. The epiphany for me on the course was that this might not be because I'm challenging the policy or legislation, but because their view is coloured by their background, so they feel it personally" (Ethnographic notes, internal discussions with senior civil servant, 2019).

The full implications of new theories of mind and emotion for both mindfulness and behavioural insights thinking are still to be determined. However, what our MBBI trials appear to reveal is that these theories can be explicitly explored within the existing frameworks of mindfulness and behavioural insights training, as long as there is a willingness to step aside from the assumption that mindfulness enables people to see things 'as they really are', and go beyond the belief that behavioural insights can be reduced to a universal set of biased responses to reality. In the context of the reflections of the

participants on our MBBI programmes, it appears that these theories provided useful frames through which they could interpret their relationships with themselves, others and organisations.

MBBI and the Development of Ethical and Empowering Ways of Working

The third main theme pertaining to the impacts of the MBBI programme related to the ethical and empowering practices of policymakers. In this context, we were particularly interested in the critiques that have been levelled against behavioural public policy (those policies which derive directly from behavioural insights thinking) (Jones et al., 2013; Whitehead et al., 2017). These critiques have argued that, once acquired by policymakers, behavioural insights thinking can lead to a potentially unethical exploitation of unconscious bias, which can bypass the informed consent of citizens and their active engagement in the policy process. Although we have not been able to trace the impacts of the MBBI programme on specific policy areas, we have gathered evidence which begins to suggest that it can lead to approaches to policymaking and delivery that seek to be more empowering towards citizens. In this way, behaviourally-informed public policy can become less ethically problematic. One MBBI participant observed,

> "I have been trying much more to be more empathetic and [to] understand the difficulties others have and allow that they are as ambitious and keen to succeed as I am, so that it is not that they are lazy and idle and unbothered, it's that they are facing genuine difficulties. So, I find it has shifted my perspective quite considerably" (Interview, senior civil servant, 2017).

It appears that certain qualities of the MBBI programme make participants less likely to unilaterally diagnose the behavioural failings of their colleagues and the public without considering the latters' perspectives. This, in turn, allows them to devise policy responses with more nuanced understandings of others. It is perhaps the emphasis that the programme places on the experience of behavioural predictions, biases and partialities that enables greater insight into the need for perspective-taking—a skill that Churchman (1979), Checkland & Poulter (2006) and Cabrera et al. (2015) identify as core to systems thinking. Other participants appeared to support this insight:

> "The team I am in were already struggling (pre-Covid). If that person is at a senior level, then that has an effect all the way through the organisation. Mindfulness and behavioural economics [insights] help me step back and be reflective, look at what is going on, take a pause. When I meet someone, I tend not to make assumptions. I know that they are different, and this difference is something to be curious about" (Interview, senior civil servant, 2020).

While we would not agree that all assumptions can be suspended, awareness of the need for curiosity about other perspectives is important. The MBBI programme has been adapted to support the training of civil servants during the Covid-19 crisis. In this context, it appears that, despite the pressures that Covid has imposed, the MBBI has still enhanced curiosity. This kind of inter-subjective curiosity is very different from the forms of off-the-shelf behavioural public policies (such as nudges) that are often associated with behavioural insights thinking. While it seems likely that mindfulness may support a more curiosity-orientated approach to behavioural public policy, it is also possible that the emphasis the MBBI places on systemic theories of the predictive mind and constructed emotions have encouraged a more open engagement with the nature of human experience.

It is clear from the following reflection that the MBBI has certainly supported new forms of strategic thinking about the policymaking process as a whole inside the Welsh government:

> "There's a whole literature on change and how you create the conditions for change, and we are trying to change things all the time. In terms of out there, it's reinforced some of the stuff [that] I suppose to some extent we already know, or we think we know about how we promote engagement with change, and how we overcome people's reluctance and fear of change, so I think in terms of our policymaking process, irrespective of the specific policy that we are talking about, it's made me think a lot more about how we engage with others in it" (Interview, senior civil servant, 2017).

This strategic rethinking of the policymaking and delivery process appears to support a more trusting and empowering vision of government. As one MBBI participant stated in relation to the benefits of the programme:

> "I would be trying to link the benefits, perhaps some of the benefits of organisational letting go and being more trusting and needing less bureaucracy and fewer rules, but more of a high-trust, enabling environment for people to thrive in, because it works for me, has worked for me, so why would I assume that other people need to be controlled? Why can't I assume that other people have the same view of their work as I do of mine, which is the desire to do a good job, to be trusted, to be given space to be offered support, be allowed to fail a little bit, as long as I learn from it, to be allowed to develop key relationships?" (Interview, senior civil servant, 2017).

The emphasis being placed here on being "allowed to fail" is potentially significant. We cannot yet be sure why the MBBI programme appears to inculcate a desire for a more open and empowering form of government. It does, however, appear that, through the practical experience of highly-personalised behavioural insights, it can instigate forms of genuine interest in the behavioural

experiences of others. Participants also appear to recognise that this behavioural curiosity is best fulfilled by a more open, empowering, and ultimately empathetic style of government. This is in sharp contrast to the more manipulative forms of government that have historically been associated with behaviour change.

Conclusion

In this paper, we have outlined the MBBI programme that we have been developing over a period of ten years. On the basis of the delivery of this programme to approximately 175 civil servants working in the Welsh Government, we have reported on some promising early results. The programme successfully combines mindfulness practices with behavioural insights theory, and in so doing, rethinks the role of mindfulness at work. It appears that this combination provides a meaningful and supportive workplace training context within which to learn about and experience key insights into human thought and behaviour.

Building on previous work on mindfulness and organisations, our research also considered the impacts that the MBBI programme had on organisational awareness and working practices. Crucially, it appears that the MBBI helped participants to identify the organisational structures, processes and cultures that keep biases, problematic partialities and poor decision-making in place. Thus, the civil servants involved in our study avoided seeing behavioural bias and partiality as challenges that only exist at the individual level, and the programme supported a more systemic approach to the application of behavioural insights —i.e., it fostered awareness-based practices to help people consider the need for wider system change. Indeed, our analysis of the MBBI indicates that our approach to mindfulness and behavioural insights may facilitate a more ethical form of behavioural public policy than earlier nudge approaches. This ethical orientation appears to have derived from the empathy with others and behavioural curiosity (as opposed to problem fixing) that the MBBI stimulated in participants.

A novel aspect of the MBBI was the introduction of theories of the predictive brain and emotion, which sought to challenge the established models of mind and emotionality evident in both the mindfulness and behavioural insights orthodoxies. Our results suggest that predictive theories of the brain and emotion may be able to augment, rather than undermine, mindfulness practices and behavioural insights theories. In particular, it appears that greater awareness of predictive cognition and the contextual interpretation of emotional responses provided participants with more nuanced understandings of the complexities of partialities and biases in themselves and others. Also, the MBBI programme seems to have provided a suitable container within which civil servants could explore the roles of emotions in the workplace, rather than ignoring and/or suppressing these emotions. In short, the MBBI offered an approach to capability building amongst civil servants that emphasised ongoing reflective practice on predictions and emotions.

The MBBI programme is a relatively new innovation in workplace-based mindfulness training, and this approach is now being built into programmes to support the development of systems thinking capabilities in leadership practice (e.g., Birmingham Leadership Institute, 2022). Our early work, reported in this paper, suggests that the programme offers fresh ways of integrating mindfulness into workplace contexts, and provides a creative framework for challenging established assumptions of mind and behaviour that currently characterise mindfulness and behavioural insights thinking. It also promotes a more systemic approach to policymaking and organisational change.

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