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Role of Agile Mindfulness in Wellbeing of Agile Team Members

Research-in-progress

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Abstract

Today, agile approach is arguably the most-widely-used project management method in software development industry. The dynamic nature of agile methods however is putting an overwhelming pressure on agile team members which in turn might negatively influence their overall agile wellbeing. Drawing on IT mindfulness as a theoretical foundation, this research-in-progress develops a conceptual model to examine the potential impact of agile mindfulness, in conjunction with agile identity, on the agile wellbeing of individuals in information system development projects. The findings of this research, upon completion, will contribute to IS literature by providing an evidence-based theoretical understanding of the relationship between agile mindfulness, agile identity, and agile wellbeing. The findings could also help agile teams to understand what improves agile wellbeing of team members, and in turn help them maintain, promote, and enhance it.

Keywords
IT Mindfulness, IT Identity, Agile Teams, Agile Wellbeing

1   Introduction

While not a silver bullet, agile approaches have proven to be successful in effective management and delivery of projects concerned with developing dynamic, uncertain, and fast-changing software products and Information Systems (IS) related artefacts (Venkatesh et al. 2020). However, the dynamic nature of agile methods demands frequent delivery of working software increments in short iterations, constant close collaboration with the customer on daily basis, short feedback loops, and openness to changing requirements even late in the project (McAvoy et al. 2013; Venkatesh et al. 2020) – which in turn not only can put overwhelming pressure on individuals in the agile teams, but also could prevent them from thoughtful working, continuous learning, seeking alternative to routines, and exhibiting innovation (Dernbecher and Beck 2017). These all could eventually result in job burnout (Moore 2000), performance deficiencies (Maier et al. 2019; Sarabadani et al. 2018), withdrawal from task (Gardner 2012; Pearsall et al. 2009), dissatisfaction (Connolly and Rush 2019), negative emotions such as anxiety and frustration (Sarabadani et al. 2020), and even diminished mental functioning (Ellis 2006).

M*indfulness* is a recommended practice to overcome, or at least mitigate, the negative consequences of working under pressure (Langer 2016; Langer 1989). It refers to "an individual's continuous scrutiny and refinement of expectations based on new experiences, appreciation of subtleties, and identification of novel aspects of context that can improve foresight and functioning" (Thatcher et al. 2018b, p.832). Evidence from various literature suggest that mindfulness positively relates to good health (Christopher et al. 2006; Shapiro et al. 2008), mental wellbeing (Kabat-Zinn 2009), and quality of attention (Weick and Sutcliffe 2006) at individual level; as well as to group decision-making (Fiol and O'Connor 2003), learning (Levinthal and Rerup 2006; Rerup 2005), and safety (Vogus and Sutcliffe 2007) at organisational level (Thatcher et al. 2018b).

Given its benefits to individuals and organisations, mindfulness has increasingly attracted the attention of IS scholars across various domains (Dernbecher and Beck 2017). In particular, IS research note the close relevance of mindfulness to agile software development (ASD) (e.g., Butler and Gray 2006), yet little is known about the application of mindfulness in agile information systems development (ISD), especially at individual level (den Heijer et al. 2017; Dernbecher and Beck 2017). According to a fairly recent systematic review study on mindfulness in IS (Dernbecher and Beck 2017), while a handful of papers have dealt with questions on the intersection of mindfulness and agile project management, none of which have empirically explained if, and how, mindful use and application of agile methods by individual team members influence their performance and wellbeing in agile projects. Hitherto, one of the reasons behind the lack of research on mindful use of agile by team members was the absence of a valid and well-established instrument to measure the concept of mindfulness in IT context. Recently however, Thatcher et al. (2018b) developed a set of multi-dimensional hierarchical scales to empirically measure the concept of *IT mindfulness* and examine the extent to which individuals use an IT artefact (soft or hard) in a mindful manner. This recent development in the literature provides the opportunity for further scrutiny into the application of mindfulness concept in agile software development. Therefore, In the present research, we adopt Thatcher's measurement scale, and contextualise it in agile domain, to empirically examine if *agile mindfulness* has an impact on the *agile wellbeing* of project team members (in terms of agile performance, burnout, satisfaction, deep use, and innovation). More specifically, our research seeks to answer this research question: *Does, and how, agile mindfulness influence the agile wellbeing of individuals in agile projects?*

In answering the above research question, we also take into consideration the potential interaction between agile mindfulness and *agile identity,* and their combined impact on overall wellbeing of agile team members. This research-in-progress elaborates on the conceptualization and theoretical development of our research model and outlines the plan for the remainder of this study.

2   Theoretical Ground and Hypothesis Development

2.1   Mindfulness in Agile ISD

While the concept of mindfulness has its original roots in Buddhism spirituality (Kohls et al. 2009) and meditation in practice (Hayes and Shenk 2004), a multitude of evidence suggests that "some non-meditative methods can be considered mindfulness techniques" (McAvoy et al. 2013, p.157) where "any method that increases attention to the present moment and an attitude of acceptance is a mindfulness method" (Hayes and Shenk 2004, p. 250). IS research, therefore, contend that

mindfulness is an appropriate theoretical lens to examine ASD (Matook and Kautz 2008; Vidgen and Wang 2009; McAvoy et al. 2013) given that mindfulness is a process to promote attention to detail, willingness to consider alternatives, responsiveness to change, openness to novelty, and orientation in the present which all exhibit similarities to the principle, values and goals of agile ISD (as per agile manifesto[1]) (Matook and Kautz 2008). In a case study research to formulate the enablers and inhibitors of agility and emergent capabilities of agile teams, Vidgen and Wang (2009) argue that in order to optimise self-organising teams (one of the principles of agile ISD), a truly agile team must embrace mindfulness and cautiously avoid "mechanical use of cognitive and emotionally rigid, rule-based behaviours" (which is the definition of *mindlessness* as articulated by Butler and Gray (2006, p. 215). In another case study, McAvoy et al. (2013) differentiate "doing agile" from "being agile" where by the latter they refer to mindfulness. They argue that "*doing* agile denotes the use of agile practices [such as Scrum or eXtreme Programming] to address [traditional] ISD process inefficiencies, whereas *being* agile focuses on the underlying behaviours from which agility, or a lack thereof, is founded" (McAvoy et al. 2013, p.156). 'Doing agile' is not equivalent to, nor is a warranty for, 'being agile'. While many agile teams and individual members, implement the agile practices adequately successful (so doing agile well), researchers have detected mindless behaviours in the agile teams, with deteriorating impact on ISD process, for example in requirement gathering, documentation, and use (so not being agile) (McAvoy et al. 2013).

While IS literature acknowledge the lack of mindfulness (or in other words, existence of mindlessness) in implementation of agile approaches, and that "[exercising] mindful behaviour as part of an ASD approach may contribute to successful ISD" (Matook and Kautz 2008, p. 646) at both individual and collective levels (Vidgen and Wang 2009), empirical examination of the relationship between mindfulness and the success and wellbeing of agile team members at individual level remains underdone and is limited to few case studies (Matook and Kautz 2008; Vidgen and Wang 2009; McAvoy et al. 2013). In the present research, therefore, we seek to expand the existing knowledge by investigating if practicing mindfulness by agile team members leads to better outcome for them in terms of several factors (which overall, we label them as *agile wellbeing* in this research). Hence, we posit:

> **H1.** *The more individuals use agile mindfully, the more likely they are to experience higher overall agile wellbeing.*

We use the term 'agile wellbeing' merely as a label (or an umbrella term) to refer to five reflective factors that, according to close literature in IS, are associated to mindfulness – with no intention or claim to conceptualize the notion of agile wellbeing in this study (which could be a full topic for a separate research). These factors are performance, burnout, deep use, innovative use, and satisfaction tailored to the context of agile ISD. We adopt performance and burnout from Maier et al. (2019) who study IT mindfulness in context of technostress, deep use and innovative use from Thatcher et al. (2018b), and satisfaction from Connolly and Rush (2019) who examine IT mindfulness again in technostress domain.

As discussed in the introduction section, the definition, measurement and operationalisation of 'agile mindfulness' in our research is grounded in IT mindfulness construct introduced by Thatcher et al. (2018b) who provide a domain-specific individual-level measure of mindfulness, by conceptualizing IT mindfulness as "*a dynamic IT-specific trait, evident when working with IT, whereby the user focuses on the present, pays attention to detail, exhibits a willingness to consider other uses, and expresses genuine interest in investigating IT features and failures*". They view IT mindfulness as a superordinate, second-order construct consisting of four dimensions of *alertness to distinction*, *awareness of multiple perspectives*, *openness to novelty*, and *orientation in the present*. Accordingly, we adopt agile mindfulness, as the extent to which individual team members use agile mindfully considering its four dimensions.

2.2   Role of Agile Identity

As a psychodynamic construct in nature, formation of mindfulness is likely to be manipulated by, and interplay with, a range of cognitive factors and drivers. In particular, Thatcher et al. (2018a) note the relevance of IT mindfulness and IT identity as the implications of the growing cognition and embeddedness of IT in our lives. In the context of our study, we therefore consider the potential interaction between agile mindfulness and *agile identity*. We refer to agile identity as the manifestation of *IT identity* in agile system development context. IT identity, first conceptualised by

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[1] Agile Manifesto: www.agilemanifesto.org

Carter and Grover in 2015, is a standalone and timely new form of identity in today world of IT ubiquity. It is defined as "the extent to which an individual views use of an IT [artefact] as integral to his or her sense of self" (Carter and Grover 2015, p. 2). Carter and Grover (2015) maintain that individuals consider IT as an integral part of the self that directs their behavioural outcomes, and those who self-identify more with an IT are expected to engage more in IT use behaviours. IT identity is a higher-order construct comprising of three dimensions of *relatedness*, *emotional energy*, and *dependence*. Based on IT identity, we contextualize agile identity as the extent to which an individual self-identifies with agile methodologies with regard to its three dimensions. Accordingly, in the context of agile, *relatedness* manifests as feelings of connectedness with agile methods, *emotional energy* is an individual's strong feelings of emotional attachment and eagerness in relation to agile methods, and *dependence* is defined as an individual's sense of reliance upon agile methods.

Extent literature supports that IT identity can enrich our understanding and prediction of individuals' thoughts as well as behaviors within different social and technological contexts (Gong et al. 2020; Mosafer and Sarabadani 2021; Ogbanufe and Gerhart 2020; Polites et al. 2018). With agile approaches being an embedded part of day-to-day life of agile team members, the extent to which they view agile as integral to their sense of self can influence the extent to which they use agile mindfully. In this research, we intend to empirically examine this premise, so we posit:

> **H2.** *The more individuals self-identify with agile, the more likely they are to use agile mindfully.*

The findings of numerous studies in various social contexts show that IT identity plays a significant role in prediction of individuals' cognitions, behaviours, actions and outputs. For instance, self-identification with a technology at workplace (e.g., AI systems) is found to increases the performance of employees (Alahmad and Robert 2020). Likewise, employees' self-identification with enterprise social media encourages co-worker support which subsequently results in increased job satisfaction and performance (Alahmad et al. 2018). In a similar vein, IT identity is found to positively influence extended, integrative, and emergent use (Hassandoust 2017), enhanced use (Esmaeilzadeh 2020), deep use and individual performance (Ogbanufe and Gerhart 2020). We therefore propose that the extent to which people working in agile projects self-identify themselves with agile (aka agile identity) is expected to be positively associated with the agile wellbeing factors considered in our research (performance, burnout, satisfaction, deep use, and innovative use). Therefore, we hypothesize:

> **H3.** *The more individuals self-identify with agile, the more likely they are to experience higher overall agile wellbeing.*

2.3   Determinants of Agile Mindfulness and Identity

In conceptualization of IT identity and its nomological net, Carter and Grover (2015) postulate that the extent to with people self-identify themselves with an IT artefact depends on how they see themselves capable in using IT (self-efficacy), the net benefits and enjoyment they receive from using the IT artefact (actualized rewards), and the extent to which they associate past interactions with use of IT artefact across a variety of situations (embeddedness). Empirical evidence in the literature support these relationships (Alahmad and Robert 2020; Balapour et al. 2019; Eidhof 2018; Esmaeilzadeh 2020; Gong et al. 2020). Applying these premises in agile ISD, we therefore propose that agile self-efficacy (an individual's beliefs about his or her capabilities to use agile methods), agile actualised reward (an individual's perceptions of the net benefits and enjoyment of using agile methods) and agile embeddedness (The extent to which an individual associates past interactions with use of agile methods across a variety of situations) are significantly associated to agile identity. We posit that:

> **H4.** *The higher perception of agile self-efficacy, agile actualised reward, and agile embeddedness by individuals, the more likely they are to self-identify with agile.*

Lastly, we propose that, theoretically, it sounds reasonable that agile self-efficacy, actualised rewards, and embeddedness could have a potential impact of mindful engagement with agile ISD. The reason is that these three factors collectively form the notion of past experience with an IT artefact (Carter and Grover 2015). Those individuals with a positive and pleasant experience with a phenomenon, are more likely to engage with the phenomenon with higher continuous attention to detail and higher vigilance to minimise errors and respond effectively to unexpected changes, i.e., more mindful engagement. So, we propose:

> **H5.** *The higher perception of agile self-efficacy, agile actualised reward, and agile embeddedness by individuals, the more likely they are to use agile mindfully.*

Figure 1 shows the conceptual model of the present study in which the hypothesized relationships are illustrated.
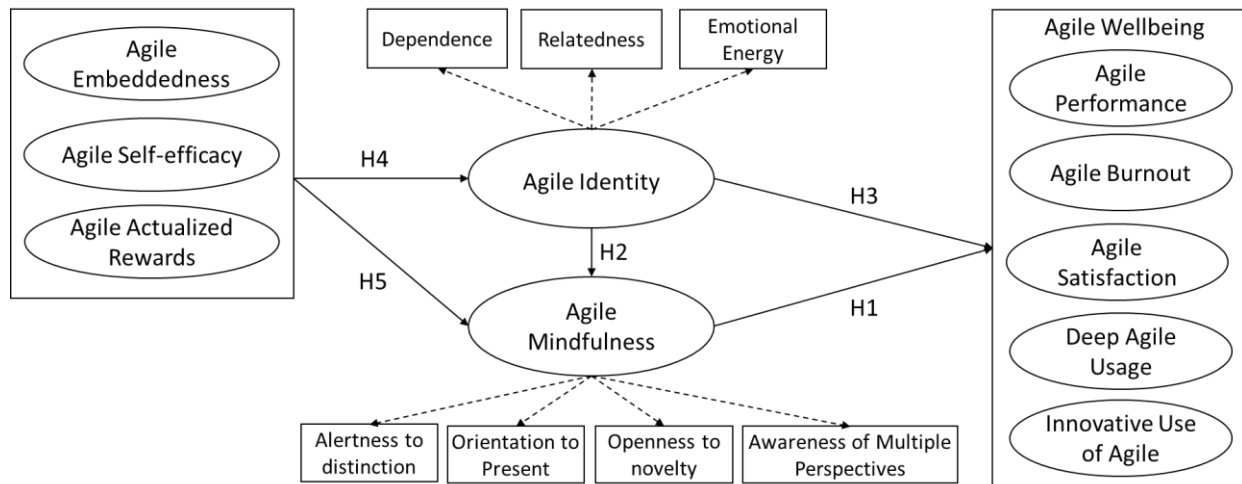
Figure 1. Research Model

3 Possible Research Methodology

In order to test the proposed research hypotheses, a survey will be administered among agile team members (developers, project managers, business analysts, product owners, Scrum masters, etc) using Qualtrics panels to collect the required data. All principal constructs will be operationalized by adapting previously validated measures in the literature. In developing the survey items, we will adapt and contextualize possible measurement scales of IT identity (Carter 2013), IT mindfulness (Thatcher et al. 2018b), self-efficacy (Compeau et al. 1999), embeddedness (Zhang et al. 2009), and actualized rewards (Bhattacherjee and Premkumar 2004; Rai et al. 2002; Venkatesh and Bala 2008). In order to measure agile wellbeing, we will adapt scales from Maier et al. (2019), Maslach et al. (1986) and Torkzadeh and Doll (1999) for agile performance and burnout, from Thatcher et al. (2018b), Burton-Jones and Straub (2006), and Ahuja and Thatcher (2005) for deep use and innovative use, and from Connolly and Rush (2019) for satisfaction. We will adopt procedures proposed by Burleson et al. (2019) to ensure the collected data in our survey is of high quality. PLS-SEM (Chin 1998; Chin and Newsted 1999) will be used to validate the measurement model as well as to examine the structural model and test the hypotheses.

4 Conclusion

In this research-in-progress paper, we proposed a research model to investigate the role of agile mindfulness and agile identity in overall wellbeing of agile team members, in terms of performance, burnout, satisfaction, deep usage, and innovative usage. This research, upon completion, has implications both in theory and practice. The study has a potential to extend the application of IT identity and IT mindfulness theoretical lenses into the context of agile ISD and examine the influence of agile identity and agile mindfulness on overall wellbeing of agile team members. Additionally, the findings of the present study sheds light on the interplay between agile identity and agile mindfulness. Practically, the study has also potentials to help agile teams achieve and maintain a higher level of agile wellbeing through promoting the practice of mindfulness in agile process.

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