Uniwersytet Ekonomiczny w Krakowie

Dziedzina nauki: nauki społeczne
Dyscyplina naukowa: nauki o zarządzaniu i jakości

Mgr. Anna Thompson

THE BENEFITS OF THE REGULAR PRACTICE OF MINDFULNESS TECHNIQUES ON INNOVATIVE WORK BEHAVIOR

WPŁYW REGULARNYCH PRAKTYK TECHNIK UWAŻNOŚCI NA INNOWACYJNE ZACHOWANIA W PRACY

PhD Dissertation

Promotor: Prof. UEK dr hab. dr h.c. Piotr Buła
Promotor pomocniczy: dr Agnieszka Żak

Kraków, 2025

Table of Contents

INTRODUCTION

The rate of environmental, societal and technological change accelerates every year. Change brings challenges and opportunities. The challenges may be overcome and opportunities maximized by the deliberate application of innovation (Bocken, Rana & Short, 2015; Iddris, 2016). Innovation may mean a completely new solution, or a new combination of existing solutions, or the application of an existing solution in a new way (Drucker, 1985). In the business context, organizations need to continuously scan their perimeter for change in order to understand it and respond with the right innovation. This is the only way they can maximize the opportunities that change creates to secure a sustained, competitive advantage and market position (Dediu, Leka, & Jau, 2018; Schumpeter, 1939; Tushman & O'Reilly, 1996).

Within the organization, the scanning of the perimeter, identification of challenges and opportunities, evaluation of the appropriate response, its development and implementation relies on individual employees (Nonaka & Takeuchi, 1995). To optimize the development of the innovative responses and solutions, the organization must develop and nurture the innovative capabilities of its employees, in particular as manifested in the form of innovative work behaviour (Janssen, 2001; Steel, Rinne & Fairweather, 2012). But how?

For over two decades interest has been steadily rising around the activation of to-date-unexplored methodologies and techniques in order to support the development and nourishment of employees' individual capabilities. One such technique is mindfulness, and mindful meditation in particular. Most commonly associated with Buddism and Hinduism (Baas, Nevicka, & Ten Velden, 2014; Kabat-Zinn, 1994), mindful meditation has a long history also in the west of being used by individuals as a personal resource to lower stress and anxiety, develop self-compassion and resilience, and ultimately reach a state of fulfilment (Bodhi, 2000; Brown, Ryan & Cresswell, 2007; Grossman, 2008; Kabat-Zinn, 1994). Its effectiveness has been shown to be comparable to the impact of behavioural treatments and psychotherapy (Sedlmeier, Eberth, Schwartz, Zimmermann, Haarig, Jaeger & Kunze, 2012).

While many studies have sought to understand the impact of mindfulness techniques, including meditation, on job rated competences, such as job engagement, motivation, ability to cope with job demands and stress (Lomas, Medina, Ivtzan, Rupprecht, Hart & Eiroa-Orosa, 2017; Martin-Hernandez, Ramos, Zornoza, Lira & Peiro, 2020; Mesmer-Magnus,

Manapragada, Viswesvaran & Allen, 2017; Syper-Jędrzejak & Bednarska-Wnuk, 2019), none have investigated the impact of mindful meditation or other mindfulness techniques on innovative work behaviour, in its three dimensions of idea generation, idea promotion and idea implementation. The research study conducted for the purposes of this dissertation offers several contributions to academic literature by looking at the impact of mindful meditation on wellness as well as innovative work behaviour of employees of a global corporate organization, whose role requires them to engage in innovative work behaviour. The study identifies which dimensions of innovative work behaviour are sensitive to mindfulness interventions, and brings in to-date scientific findings to propose the source of the impact.

Through a thorough literature review a clear area of study – the research gap, was identified. While there is much academic research on the positive effect of mindful meditation on wellbeing as well as on engagement and performance (e.g. Bakker & Schaufeli, 2008; Brown & Ryan, 2003; Dane & Drummel, 2014), no studies were found to have been published on the effects of meditation on the longer-term and sustained ability of individuals to generate ideas as well as to promote and implement these ideas.

In today's global marketplace, some jobs actually require those that perform them to be competent in idea generation, idea implementation and idea promotion. In gauging the impact of mindfulness meditation on the three facets of innovative work behaviour, an effort was made to engage a population for whom innovative work behaviour is part of their standard daily work. Thus, objective of the research was to determine the impact of the regular practice of mindfulness techniques (mindful meditation) on innovative work behaviour within an organization that requires innovation capability to maintain its competitive advantage. The research was conducted on a professional group whose role includes in engagement in innovative work behaviour, namely enterprise process architects. An enterprise process architect is an IT professional who ensures an organization's IT strategy is aligned with its business goals. The architect analyzes business processes and the external environment to define business needs[1].

[1] A detailed overview of the enterprise process architect role, skills and qualifications, career path and certification, may be viewed here: https://www.leanix.net/en/wiki/ea/enterprise-architect#:~:text=An%20enterprise%20architect%20is%20an,needs%2C%20and%20the%20external%20environment.

To investigate the longer-term impact of mindfulness meditation on innovative work behaviour, the study participants – both those who chose to meditate during the study and those who chose not to, were asked to regularly respond to two questionnaires. One to gauge their wellness, the second to gauge their innovative work behaviour. Finally, the study sought to confirm that the benefits of mindful meditation on wellness and innovative work behaviour aggregate and can be habituated (Hodgins & Adair, 2010; Walach et al., 2006); to this end the study population was asked to meditate from three to six months and to respond to questionnaires repeatedly to document the effects of meditation on their wellness and innovative work behaviour over the duration of the study.

The research questions were formulated to corroborate to-date scientific findings and to then take a further step to investigate the impact of mindfulness meditation on the three dimensions of innovative work behaviour.

Table I.1. Research questions and related hypotheses of this study

Research questions	**Hypotheses**	
	Long-term meditators	**To-date non-meditators**
Q1: Does the practice of mindful meditation have a positive impact on wellness?	H1: The assessment of wellness by long-term meditators will not change over the course of the study.	H2: The assessment of wellness by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
Q2: Does the practice of mindful meditation have a positive impact on innovative work behavior?	H3: The assessment of innovative work behavior by long-term meditators will not change over the course of the study	H4: The assessment of innovative work behavior by to-date non-meditators will improve over the course of the study.
	H5: The assessment of innovative work behavior of architects will be higher initially and improve more than of non-architects over the course of the study.	
Q3: Does the practice of mindful meditation have a positive impact on all three facets of innovative work behavior, i.e. idea generation, idea	H6: The assessment of all three dimensions of innovative work behavior by long-term meditators will not change over the course of the study.	H7: The assessment of all three dimensions of innovative work by to-date non-meditators who choose to meditate during the study will improve over the course of the study.

implementation, and idea promoti33on?	H8: The assessment of all three dimensions of innovative work behavior of architects will improve more than of non-architects over the course of the study

Source: Own compilation.

As can be seen in Table I.1 above, the first research question asks "Does the practice of mindful meditation have a positive impact on wellness?" By testing two hypotheses, namely "The assessment of wellness by long-term mediators will not change over the course of the study" and "The assessment of wellness by to-date non-meditators will improve over the course of the study" it sought to corroborate to-date academic findings within the context of the current study. Building on the foundation of the findings to the first question, the second research question inquires "Does the practice of mindful meditation have a positive impact on innovative work behaviour?". This query, explicitly about innovative work behaviour, is supported by three hypotheses: "The assessment of innovative work behaviour by long-term meditators will not change over the course of the study", "The assessment of innovative work behaviour by to-date non-meditators will improve over the course of the study", and going a step farther into the specificity of the surveyed population, the third hypothesis states: "The assessment of innovative work behaviour of architects will be higher initially and improve more than of non-architects over the course of the study." The third research question seeks to analyse the impact of mindful meditation on the three different dimensions of innovative work behaviour by asking "Does the practice of mindful meditation have a positive impact on all three facets of innovative work behaviour, i.e. idea generation, idea implementation, and idea promotion?" This last question is supported by three hypotheses: "The assessment of all three dimensions of innovative work behaviour by long-term meditators will not change over the course of the study", "The assessment of all three dimensions of innovative work behaviour by to-date non-meditators who choose to mediate during the study will improve over the course of the study," and looking more closely specifically at the population that is the focus of the research, the last hypotheses to the third research question states "The assessment of all three dimensions of innovative work behaviour of architects will improve more than of non-architects over the course of the study."

This dissertation seeks to contribute to to-date academic research on the topic of the impact of mindfulness techniques on job performance, and in particular on innovative work behaviour. It first provides a broad context for the topic of application of mindful meditation

in organizations to drive innovative work behaviour by employees whose role explicitly requires such behaviour. It considers how innovation needs to be implemented and supported across the multiple levels of the organization. Chapter 2 focuses on innovative work behaviour, starting with the individual employee and personal innovation competence, to understand what competences as well as personal characteristics are expressed when an employee engages in innovative work behaviour. The concept of mindfulness and of mindfulness meditation and its effects on practitioners are explored in Chapter 3, which closes with a mapping of to-date academically identified effects of mindfulness training against the dimensions of innovative work behaviour. Chapter 4 lays out in detail the study design and methodology, as well as the formulated research questions and the underlying hypotheses. The gathered data is analysed and interpreted in Chapter 5, while Chapter 6 considers the theoretical contribution and practical implications of the study findings. Chapter 7 closes with an overview of the limitations of the study and of its contribution.

This Dissertation would not have been completed without the supervision and diligent instructions provided by Prof. UEK dr hab. dr h.c. Piotr Buła, associate professor, as well as the guidance and support of dr Agnieszka Zak. The herein Study would not have been possible without the approval and support of Andre Cichowlas, Head of Global Delivery at Capgemini, and Kai Schroeder, Head of Global Architect Community at Capgemini, who consented for Capgemini employees, in particular enterprise process architects, to participate in the Study.

CHAPTER 1

INNOVATION AS A CORE STRATEGIC CAPABILITY OF TODAY'S GLOBAL ORGANIZATIONS

"Perpetual and pervasive innovation is the key to long-term sustainable success in the relentless competition for customers." Stephen Shapiro

Innovation is crucial to determining the competitiveness, viability and success of organizations (Bocken et al., 2015). It is the key to organizations' ability to successfully respond to, influence and shape rapid changes in their business environment (Iddris, 2016). Innovation is the primary means of ensuring that organizations remain relevant in the face of market changes. The extant literature demonstrates that innovation is positively associated with organizational performance (Damanpour, 1991; Jiménez-Jiménez & Sanz-Valle, 2011; Thornhill, 2006). It enables organizations to operate more effectively (Janssen, 2003), to adapt more flexibly to a broader business environment (Khan, 2018; Schaltegger, Ludeke-Freund & Hansen, 2012), and to demonstrate greater resilience in the face of crises (Dediu et al., 2018; Tushman & O'Reilly, 1996). Thus, it ensures organizations' continued relevance and longevity (Romanelli & Tushman, 1994).

Innovation may be the key to understanding why some firms, regions and countries perform better than others. It drives structural changes in production and demand, and ultimately, organizational and institutional change. Organizations that adopt innovative practices tend to exhibit higher productivity and income levels than those that do not (Drucker, 1985). This implies that firms that are successful in their pursuit of innovation will flourish, whereas their less capable competitors will experience difficulties.

Innovation is not a fortuitous occurrence. It is a structured and systematic process that requires discipline and can be learned and practiced (Drucker, 1985). While innovation processes undoubtedly benefit from collaboration (John-Steiner, 2000; Sawyer, 2003), it is the individual who is the catalyst for new knowledge in real-life networks (Nonaka & Takeuchi, 1995). Thus, the organizational innovation capability is contingent upon employees activating their individual innovative potential in their diverse roles within the organizational structure (Steel et al., 2012), necessitating that organizations cultivate and

facilitate the individual innovative capabilities of their employees if they desire to maximize the business value of innovation (Kraśnicka & Wronka-Pośpiech, 2014).

1.1 Definition of innovation

At the individual level, innovation is the consequence of the convergence of an individual's domain-relevant knowledge, creativity-relevant skills, and motivation (Amabile, 2012; Boden, 2004). Innovation is not a spontaneous occurrence. It occurs when the optimal combination of knowledge, skills, motivation, and attitudes enables an individual to implement a novel and creative idea. Once catalyzed, innovation is a collaborative process through which ideas are transformed into a product or other end result (Sawyer, 2006).

Researchers argue that although creativity and innovation have been interchangeably used (Axtell et al., 2000), creativity refers more specifically to the generation of new ideas, as the ability to come up with ideas or artefacts that are new, surprising and valuable (Boden, 1990). Amabile (1996) described creativity as the intersection of an individual's domain-relevant skills, creativity-relevant skills, and motivation. Her work demonstrated that creativity does not occur spontaneously or randomly, but happens instead when the appropriate combinations of knowledge, skill, and motivation enable an individual to create new ideas (Amabile, 1996).

Innovation is the successful exploitation of new ideas. All innovation begins with creative ideas. Creativity is however a necessary but not a sufficient condition for innovation (Kaufman, 2009). As Amabile states, innovative performance is the successful implementation of creative ideas (Amabile, 1988). More specifically, the crafting, often reworking, of creative problem solutions into new products, processes, or services is the process we refer to as innovation (Jelinek & Schoonhoven, 1990; Nyström, 1979). Thus a research design may be viewed as creative, but the production of the research to implement this design and produce a journal article is the process of innovation. While innovation at work may require creativity, it can just as easily be argued that innovative work behavior (IWB) can appear even without the need to create something completely novel. More specifically, if an employee were to implement a work practice observed in another unit, but that would be new for his or her department, it could be argued that IWB has been observed, but not necessarily creativity in the true sense of the word (Anderson et al., 2004; Dediu et al., 2018).

At the organizational level, innovation can manifest as introduction of new commodities, technological change in the production of existing commodities, the opening up of new markets or sources of supply, the taylorization of work, improved material handling and the establishment of new business organizations (Schumpeter, 1934). Innovation introduces something new, novel or advanced with the intention of creating economic value or business benefit (Hirsch & Kearney, 2014; Schumpeter, 1939). It may result in the destruction of existing markets and the creation of new ones (Fagerberg, 2009; Hirsch & Kearney, 2014; Schumpeter, 1934; Schumpeter, 1939). Thus, from an economic standpoint, innovation can be defined as the successful development of a competitive advantage.

The innovating employee and the innovating organization leverage change as an opportunity for either a different business model or a different service offering (Drucker, 1985; Fagerberg, 2009; Shapiro, Carlson, Astin & Freedman, 2006). It is incumbent upon the innovating employee and organization to proactively seek out sources of innovation, changes and the symptoms that indicate opportunities for successful innovation, and then seize these opportunities. A few innovations constitute a significant change in themselves. The Wright brothers' airplane provides an illustrative example. Such occurrences, however, are the exception rather than the rule. The majority of successful innovations are relatively mundane. Usually, individuals and organizations exploit changes which, and as a general rule, have already occurred or are already underway.

Consequently, the discipline of innovation entails a methodical investigation of the domains of change that frequently present opportunities for innovation (Drucker, 1985). This investigation is not easy. Occurrences of innovation are not continuous, nor are they evenly distributed over time. Rather, they are concentrated in specific sectors and their surrounding areas (Schumpeter, 1939). Furthermore, it is not possible to accurately predict the cost and performance of an intervention to change, or the reaction of users to it (Timmons, 1989). This inevitably involves processes of learning through either experimentation (trial and error) or improved understanding (theory). Additionally, it includes purposive experimentation through competition among alternative products, systems, processes, and services, as well as the technical and organizational processes that deliver them (Mowery & Rosenberg, 1979).

1.2 Innovation in global organizations

In the contemporary, globalized, dynamic and demanding context of the modern organization, there is a clear and urgent need for conditions that facilitate the flourishing of innovation in a sustainable manner (Martin-Hernandez et al., 2020). Innovation has become a key component of organizational strategy, and often comprise the core of organizational capabilities, this is in particular true of organizations focused on new technologies in the ICT sector. The term organizational innovation is defined as the organization's capacity to absorb an idea or behavior that is new to the organization. This may be internal, originating from within the organization itself, or external, acquired from external sources. This approach defines an innovative organization as one that is intelligent and creative (Glynn 1996; Woodman, Sawyer & Griffin, 1993), capable of effective learning (Argyris & Schön 1978; Senge 1990), and capable of creating and adapting new knowledge (Nonaka 1994; Nonaka & Takeuchi 1995). Organizations with a high level of organizational innovation are able to more rapidly adapt in response to market changes, which means they are able to continuously adapt and thus maintain a competitive advantage.

Cohen and Levinthal (1990) argue that an organization’s ability to exploit outside sources of knowledge is crucial for a company to be innovative. They further suggest that an organization’s ability to use external knowledge is mainly a function of the company’s level of prior related knowledge, which is required for the company to be able to recognize the value of new information and seek to assimilate it and apply it to commercial ends (Cohen & Levinthal, 1990). For example, a company that engages in product development will have high absorptive capacity in the product development domain. A company focused on product marketing rather than product development will have low absorptive capacity in the product development domain. Thus, the former will be easily able to assess and apply new information crucial to product development, while the latter will not (Silva & Davis, 2011).

Beyond innovation in product development, innovation can also involve innovation in processes, including changes and improvement to methods. These contribute to increases in productivity. Which lowers cost and helps to increase demand. Innovation also encompasses service innovation. While progressive innovation is predominant, radical innovation opens up new markets. These lead to increases in effective demand which encourages increases in investment and employment. Innovation in management and work

organization, and the exploitation of human resources, together with the capacity to anticipate techniques centers on people, culture, structure, process and technology.

A number of characteristics inherent to organizational operations serve to constrain the potential value of innovation. Firstly, the previously discussed absorptive capacity of a given organization is a prerequisite for successful innovation, but it also restricts which ideas can be relevant to a given organization. Secondly, not all organizations are pursuing a strategy where innovation is likely to prove valuable in enhancing organizational performance (Miles & Snow, 1978). The value of creativity and innovation is contingent upon the organization's ability to succeed through the production of innovative products. These are of less value in organizations where success is contingent upon cost control or risk mitigation. There is minimal value in innovative products that disrupt the utilization of capital assets for the organization (Dean & Sharfman, 1996). Innovative products can frequently be imitated, whereas an established and successful product may act as a deterrent for a company to pursue the launch of a risky new product (Assink, 2006). The difficulty of protecting creative work can also limit its potential value. The economic gains derived from innovative efforts frequently accrue to second or third order movers. Moreover, innovative endeavors have the potential to disrupt the organizational structure, leading to a loss of focus and ultimately impeding organizational performance. This is particularly the case when they require a modification of outmoded operating models or the introduction of new internal or external infrastructure (Assink, 2006).

Success in business today demands constant innovation. Generating fresh solutions to problems and the ability to inherit new products or services for a changing market are part of the intellectual capital market that gives an enterprise its competitive edge. In a dynamic environment, success comes from looking for the next opportunity and having the ability to find hidden connections and insights into new products or services, desired by the customer. While brain power is the most valuable resource, great ideas are in short supply. Successful entrepreneurs place high premium on attracting and keeping talent because wealth flows directly from innovation. Creativity is the root of innovation. It is a process and a skill which can be developed and managed throughout the entire enterprise. One of the first steps in creating a culture of innovation is unleashing the creativity in employees. Creative ideas alone are not enough. Process organization and culture help to maximize organization's creative assets. This is innovation capability helps to pull together the best thinking within an organization. Shapiro argues that perpetual and pervasive innovation is the key to long-

term sustainable success in the relentless competition for customers. To survive any competition, the organization must rapidly and repeatedly re-invent itself, by continuously fostering creative ideas, incorporating them into your processes and leveraging as the organization responds to changing market and consumer demands (Shapiro et al., 2015).

1.3 Levers for innovation in global organizations

The implementation of organizational innovation and the underlying absorptive capacity necessitates the establishment of a structured framework and the undertaking of systematic actions. Such actions cannot be left to chance; they must be learned and practised (Drucker, 1985). It is of paramount importance to investigate the factors that motivate or enable individual innovative behaviour. The resulting process knowledge constitutes an integral part of the organizational innovation capability, which is contingent upon individuals working in a multitude of teams and roles across the organizational structure (Pavitt, 2006; Schumpeter, 1939; Steel et al., 2012). The concept of collective knowledge posits that it exists not within individuals, but between them. Individuals operate within teams or groups, which collectively constitute an organizational entity. The translation of the sum of individuals' knowledge into collective knowledge can be facilitated through structured processes (Glynn, 1996).

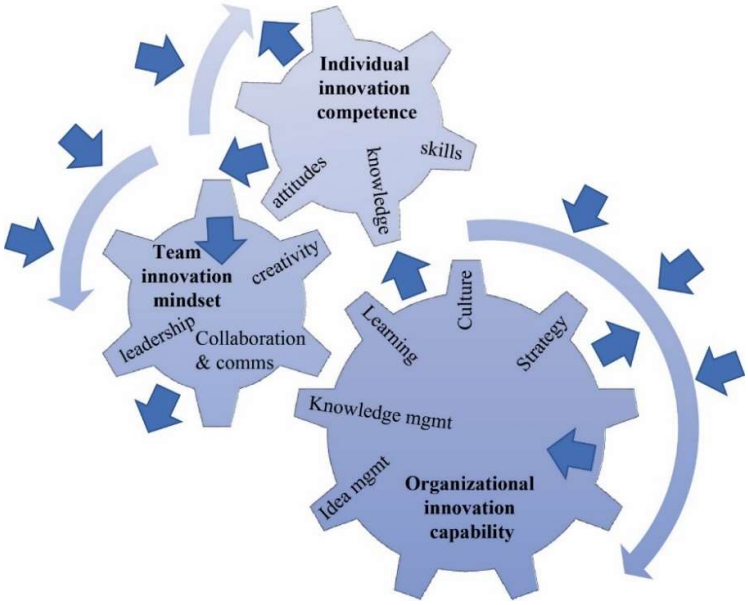

Figure 1.1 Interaction between three sets of variables that contribute to organizational innovation by enabling it to exploit internal and external changes

Source: Own compilation based on literature cited in the dissertation.

At the group or team level (middle cogwheel), innovation is a product of creativity (Amabile, 1988; Amabile, Schatzel, Moneta & Kramer, 2004), collaboration and communication (Hunter, Bedell & Mumford, 2007; Soosay, Hyland & Ferrer, 2008; Vega-Jurado, Gutiérrez-Gracia & Fernández de Lucio, 2009), and leadership (Aragon-Correra, Carela-Morales & Cordon-Pozo, 2007; Lawson & Samson, 2001; Mumford, Scott, Gaddis & Strange, 2002;). At the individual level (third cogwheel), personal innovation competency is developed through the nurturing and mobilization of knowledge (Plucker & Renzulli, 1999), skills (Weisberg, 2006), and motivation or attitudes (Jaussi, Randel, & Dionne, 2007).

Levers for innovation at organizational level

As previously stated, organizational innovation is a systematic process that requires a structured and disciplined approach. It is imperative that organizations view innovation as a pivotal element of their strategic framework if they aspire to leverage it to achieve success in the market. Organizational culture, as the enactment of the strategy by the individual functions as well as the individual employees, must be conducive to innovation, encouraging and nurturing it from inception to outcome. This process, the enactment of absorptive capacity, is supported by three essential pillars: idea management, knowledge management and organizational learning. These pillars are key to optimizing the organization's innovation capital.

Innovation Strategy

It is imperative that innovation constitutes a fundamental element of the organization's strategy, both in terms of explicit and implicit considerations. What specific forms of innovation is the company seeking to achieve? The development of new products is a typical consequence of the innovation process. Other potential outcomes include process innovation, marketing innovation, business model innovation, supply chain innovation, and organizational innovation. Each type of outcome has the potential to range from incremental to radical in nature.

The organization's strategy needs to align to its existing resources, systems and processes in order to effectively navigate market uncertainty. (Aramburu & Sáenz, 2011; Vicente, Abrantes & Teixeira, 2015). This enables the organization to identify external opportunities and match them with internal capabilities, thereby facilitating the exploration

of new markets and the delivery of innovative products (Wang & Ahmed, 2004). Strategic innovativeness exerts a direct influence on current and future innovative capability (Wang & Ahmed, 2004). The establishment of priorities and the allocation of resources represent the initial stages. The formulation of risk policy, which constitutes an integral element of the organizational strategy, also contributes to the strategic context within which the organization exercises its innovation capabilities (Nystrom, Ramamurthy, & Wilson, 2002; Samson & Gloet, 2014).

Organizational culture

Organizational culture can be defined as a firm's attitude towards exploring and implementing ideas that facilitate the firm's thinking and activities (Björkdahl & Börjesson, 2012). It is a system of beliefs, norms, feelings and values shared by its members, which are translated into actions, especially by those in leadership positions (Hitt, 1975; Locke & Kirkpatrick, 1995). The manifestations of culture can be observed in a number of organizational factors, including the number of hierarchies, pay levels, informal practices, values and rituals, stories, jokes and jargon, and the characteristics of the physical environment (Kwasniewska & Necka, 2004; Runco, 2007; Schneider, 1975; Tesluk et al., 1997; West & Richter, 2008).

Bear and Frese (2003) demonstrated that process innovativeness is only positively related to firm performance in organizational cultures characterised by high psychological safety and high initiative. In such an organizational setting, employees are able to approach challenges and obstacles associated with innovation with assurance. Creativity frequently necessitates the taking of risks and the transgression of norms (Sternberg & Lubart, 1996). In a secure and supportive setting, individuals feel empowered to take risks and propose novel concepts (Edmondson, 2013). Thereby an individual who takes a risk and does not succeed in an attempt at creativity knows he will be afforded a second opportunity (Björkdahl & Börjesson, 2011; Çakar & Ertürk, 2010; Lawson & Samson, 2001; Martins & Terblanche, 2003).

The promotion of a culture of employee empowerment, open communication, support for change and employee risk-taking initiatives will have a considerable impact on the capacity to innovate (Agars, Kaufman, Deane & Smith, 2012; Bear & Frese, 2003). Importantly, the allocation of resources to innovation serves as a clear indication of organizational support for innovation (Amabile, 1988; Taylor, Fiore, Mendelsohn Chershire,

2011). An organizational culture that encourages risk-taking, cross-disciplinary thinking and openness to new ways of thinking is essential for fostering innovation. It is imperative that this mindset be embedded in the organizational culture, structure and processes to guarantee that individuals and the organization as a whole are adequately prepared for innovation.

Idea management

The idea management process serves as the primary driving force behind an organization's interactions with customers, suppliers, employees, and other business partners. It is through this process that innovative products and services are generated and implemented. A firm's capacity to transform ideas into novel and enhanced products, services, or methodologies (Björkdahl & Börjesson, 2012) represents a pivotal aspect of innovation capability development. A study by Brem and Voigt (2007) demonstrates that integrated idea management is the most effective method for gathering a substantial number of ideas and contributions from suppliers, customers, and competitors in the context of innovation activities along the entire integrated value chain (Bessant, Alexander, Tsekouras, Rush & Lamming, 2012).

An effective idea management system enables disparate units and departments to align their activities in the context of new product development, thereby optimising the manufacturing process along the value chain. It encourages the participation of customers, suppliers, and other stakeholders in the generation of ideas, as well as the generation of ideas from the bottom up. Moreover, it establishes objectives to attain creative products, fosters, deliberates upon and disseminates ideas amongst team members, teams and all employees, and acknowledges and remunerates creative ideas and products (Tan, Zhan, Ji, Ye & Chang, 2015). An optimal idea management system should foster a pro-creativity culture, provide incentives and recognition for creative ideas and work, offer the most effective tools for exchanging ideas, and provide the most beneficial training (Abbey & Dickson, 1963).

Knowledge management

A company's knowledge management system serves as the primary incubator for innovation. It generates, stores and disseminates knowledge and information that facilitates organizational innovation activities. In the majority of cases, firms develop their understanding of how to undertake tasks in an incremental manner. Such knowledge

frequently comprises routines that are reproduced through practice and become processes that constitute organizational memory (Nelson & Winter, 1983). The organizational structure of the firm and its knowledge base evolve in parallel over time, resulting in a configuration that is conducive to the firm's day-to-day operations. It is therefore imperative that firms implement effective techniques of knowledge acquisition, conversion, application, and protection, as these are vital for organizational performance (Gold & Malhotra, 2001).

In a study, Kogut and Zander (1992) demonstrated the pivotal role of knowledge in fostering innovation capabilities. Kogut and Zander concluded that an organization's capacity to leverage its knowledge and the untapped potential of technology is a pivotal determinant of growth, resilience, and innovation. A study by Bessant et al. (2012) provides evidence that the value chain of some firms has become integrated into co-operating and shared knowledge systems. The findings of Yusur, Othman, Mokhtar, and Don (2014) indicate that the capacity of manufacturing companies to oversee the knowledge management process is a key determinant of their innovation capability. Similarly, a study by Tamer, Cavusgil, Calantone, and Zhao (2003) emphasized the significance of tacit knowledge in the context of manufacturing and service firms' innovation capability building efforts. The findings clearly demonstrated that the transfer of tacit knowledge had a positive impact on the firms' innovation capability. Furthermore, statistical analysis by Lin (2007) indicated that innovation encompasses a vast range of knowledge-sharing processes that facilitate the implementation of processes, ideas, and products.

The sharing of knowledge represents a potent instrument for propelling collective learning and reflection on extant knowledge. Such an exchange enables the transfer of experiences and skills between employees, thereby fostering a culture of continuous improvement (Chen, Yang, Shu, Hu, Meyer & Bhattacharya, 2009). Consequently, the sharing of knowledge increases the probability of involvement in further, non-routine activities, such as innovative work behaviours (Anwar, 2020). As Liu and Phillips (2011) observed, employees typically lack the requisite knowledge and opportunities to implement innovations. It is crucial to collaborate with other employees in order to achieve a synergy effect and successfully implement innovative ideas. A substantial body of research has demonstrated that knowledge sharing is a significant predictor of innovative work behaviour (Anwar, 2020; Kim & Park, 2017; Radaelli, Lettieri, Mura & Spiller, 2014).

Organizational learning

For an organization to effectively utilize both internal and external knowledge and expertise in the pursuit of innovation, learning activities must be embedded within its organizational culture. Learning represents one of the most crucial dimensions of innovation capability (Bessant et al., 2012; Calantone, Cavusgil & Zhao, 2002). Brown and Duguid (1991) asserted that learning serves as a conduit between operational work and innovation, as it enables the distribution and democratization of the collective knowledge and expertise held within an organization.

The impact of learning on innovation capability has been extensively documented in the field of innovation management (Assink, 2006; Börjesson, 2011; Lawson & Samson, 2001). Jain (2013) employed patent data from 1979 to 2007, encompassing 20,886 scientists engaged in 611 biotechnology firms in Canada and the United States, to examine the nexus between learning and innovative capability. The findings indicated that innovative capability and innovation activities in general were influenced by learning by doing. Similarly, a study by Calantone et al. (2002) demonstrated that learning facilitates the implementation of processes, ideas, and products across a wide range of US industries. It is therefore evident that the accumulation of work experience into routines, the inter-firm exchange of experiences and information, and the involvement of customers and suppliers in learning activities can significantly contribute to the development of innovation capability.

The innovation process is cumulative in nature. In circumstances where learning cannot be undertaken in a single, discrete period, the knowledge and expertise acquired in the process provide a foundation upon which future knowledge can be build and disseminated via learning. The innovation process is a collective endeavour. It is not feasible to engage in learning activities in isolation; rather, they necessitate the involvement of multiple individuals with diverse capabilities. It is crucial to integrate the contributions of these individuals into the organizational knowledge management structure, in order to ensure the efficacy of investments in collective learning.

Just like in the case of knowledge management which benefits from broad external ecosystem, the advent of radically new learning is contingent upon contact with individuals or entities external to the organization, who are better positioned to challenge existing perspectives and paradigms (Lundvall, 1992). The formation of external business alliances and network relationships, coupled with the utilization of new personnel to integrate novel

knowledge into existing learning systems, is a crucial determinant of organizational learning and knowledge renewal in an environment characterized by rapid technological advancement and disruptive changes.

Levers for innovation at group/team level

A supportive environment for innovation is one in which team members are expected to demonstrate innovative behaviour and in which they can expect both moral and practical support for such endeavours. This is due to the presence of a leader and procedures that integrate and give access to ideas, knowledge, learning to support and recognize the value of innovation done by employees. This kind of environment fosters a pro-innovation attitude, with employees actively proposing and implementing innovative ideas (King, Anderson & West, 1991; West, 1990). The approach is reinforced through open communication, both internally and externally, with the aim of fostering collaboration and encouraging innovation.

Leadership

The significance of leadership in cultivating a conducive and invigorating atmosphere for innovation is well established in the literature (Lawson & Samson, 2001; Pekkola, Saunila, Sillanpaa, Ukko, Parjanen, Slminen & Rantala, 2014; Saunila, Pekkola, & Ukkoet, 2014). It is imperative that creativity and innovation are explicitly valued. Leaders play a pivotal role in articulating the value of innovation and fostering it within the organizational setting (Norins, 1990). Transformational leaders stimulate their followers intellectually by setting a vision that inspires them, increases their willingness to perform beyond expectations and spurs them to engage in innovative approaches in their work (Aryee, Walumbwa & Hartnell, 2012). Thus, the capacity of organizational leadership to establish a structure of coordinating employees, encouraging employee work participation, generating ideas without fear can significantly contribute to the development of innovation capabilities.

Leaders exert a direct influence on individual and team behaviours. The conferral of a strategic mandate from a company's leadership upon a group of workers responsible for making radical innovation is demonstrably associated with positive outcomes (Samson & Gloet, 2014). Oldham and Cummings (1996) found that supportive supervision was

positively related to the number of patent disclosures written by employees (Oldham & Cummings, 1996). Leaders can model creative behaviour (Jaussi & Dionne, 2003) or inspire and encourage creativity by supporting employee attainment of expertise (Mumford et al., 2002; Sosik, 1997). Redmond, Mumford and Teach (1993) demonstrated that employees who were exposed to supervisors who encouraged them to view problems in alternative ways and to spend more time thinking about the problems produced more creative solutions than employees who did not have such supervisors (Redmond et al., 1993). There is a significant relationship between leadership support for innovation, managerial role expectations, career stage and systematic problem-solving style and individual innovative behaviour (Basu, 1991). It is incumbent upon leaders to encourage their followers to aspire to outcomes that exceed the mediocre. It is recommended that leaders provide inspiration and encouragement to their followers, facilitating the pursuit of challenging goals through the promotion of creative thinking (Whittington, Goodwin, & Murray, 2004). This will engender a perception of work as a mission that necessitates creativity and innovation in order to achieve exceptional performance.

Collaboration and communication

Collaboration plays a critical role in fostering innovation (Powell, Koput, & Smith-Doerr, 1996; Swink, 2006). In their 2009 study, Van Winkelen and Tovstiga identified external collaboration and internal collaboration as pivotal factors in developing a firm's innovation capability. The act of collaboration enables firms to disseminate information and knowledge among the parties involved in the interaction. A strong correlation has been identified between the level of interpersonal trust between colleagues and the sense of security experienced by employees in the workplace (Erkutlu & Chafra, 2015). Creative thinking has been found in work groups that communicate well, are open to new ideas, and allow individuals to feel safe in voicing their ideas (Da Silva & Davis, 2011). Research corroborates that individual are more creative if their co-workers are supportive and encouraging (Amabile et al., 1996; Madjar et al., 2002). This, in turn, results in elevated levels of organizational commitment and engagement in innovative work behaviour (Yu & Zellmer-Bruhn, 2018).

The value of collaboration with regard to capability is indisputable. The empirical research provides evidence to support this assertion. Börjesson (2011) posits that Volvo Cars' manufacturing company's innovation capability was enhanced through collaboration

with external partners, including universities, who provided expertise in consumer behaviour and energy utilization – a field in which Volvo Cars lacked internal knowledge. Frequent collaboration with external parties resulted in a shift in perspective and the formation of new networks, thereby facilitating the knowledge and development required for innovation activities within Volvo Cars. Mohannak's (2007) study provides clear evidence that biotechnology firms in Australia engage regularly in R&D through collaboration with research institutions, universities, suppliers, and customers. This collaborative approach is an effective strategy for building innovation capability. Similarly, empirical evidence presented by Börjesson and Löfsten (2012) illustrates that the collaboration between small high-tech firms and universities and research institutions resulted in the testing of novel ideas and the advancement of technical knowledge and capabilities that were previously lacking within the small high-tech firms themselves. The collaborative initiatives enabled the teams to pursue both incremental and radical innovations.

The term "multidisciplinary" is used to describe the composition of a team in terms of the range of professional backgrounds represented. This refers to the extent to which a team comprises of members from different educational or professional specializations (e.g. Morse, Barrett, Mayan & Olson, 2007; Shin & Zhou, 2017). Team members provide a broader range of knowledge resources and perspectives (Harrison, Price, Gavin & Florey, 2002; Kearney & Gebert, 2009; Van Der Vegt & Bunderson, 2005). Networking is an indispensable instrument for the advancement of innovations, enabling teams to consolidate complementary competencies (Pittaway, Robertson, Munir & Denyer, 2004). Reuveni and Vashdi (2015) posit that the capacity of team members to establish a shared comprehension of the mission and the means of its realization is of paramount importance. Multidisciplinarity necessitates that team members elaborate on information and communicate more efficiently, increase openness, respect, and efforts to gain familiarity with one another and the skills, abilities, and knowledge present within the team (Ness & Riese, 2015; Van Knippenberg, De Dreu & Honman, 2004).

The sharing of information and knowledge requires communication, both internally and externally, as it enables a common understanding. Furthermore, it facilitates the dissemination of the advantages of the collaboration to parties beyond the collaborating team. External communication, defined as interaction with individuals external to the team, provides individuals and teams with new forms of knowledge and insights, and forces them to confront divergent perspectives and ideas that challenge the status quo (Hülsheger,

Alberts, Feinholdt & Lang, 2013; Perry-Smith & Shalley, 2003). Internal communication, defined as communication between members of a team, facilitates the exchange of information and knowledge, the sharing of diverse perspectives, and the discussion and development of novel ideas. At the organizational level, interaction with a broader external ecosystem is a key driver of innovation. At the team level, innovation is fostered by information gathered from new collaborative connections (Guilford, 1950).

Creativity

Creativity is a fundamental component of innovation (Amabile, 1997; Börjesson & Elmquist, 2012; Loewenberger, 2013). There is a notable discrepancy in the manifestation of creativity across different groups and organizational contexts (Martins & Terblanche, 2003). The evaluation of creativity is contingent upon the capacity of the organization to establish an environment that fosters innovative behaviour among employees, particularly within the context of teams. While creativity is the domain of the individual, the biggest impact to the organization is when it happens among individuals, in teams focused on joint tasks. Teams that are high on task orientation demonstrate superior performance outcomes. To achieve this objective, the team members engage in a continuous process of idea and performance evaluation, providing each other with feedback (Tjosvold, Tang, & West, 2004). It is essential that team members engage in critical reflection upon their objectives, processes and procedures. This enables the exploration of different perspectives and opposing viewpoints, thereby facilitating improvements to procedures and the development of innovative solutions (West, 1990; West & Anderson, 1996).

It is incumbent upon organizations to enhance innovation by ensuring an environment that supports creativity and idea generation (Prajogo & Ahmed, 2006; Saunila & Ukko, 2012). Vicente et al. (2015) present compelling empirical evidence that managers can facilitate innovation capability by fostering creativity, experimentation, and receptivity to novel ideas, and also by providing the necessary resources for creativity to flourish (Amabile, 1997; Pekkola et al., 2014; Prajogo & Ahmed, 2006; Saunila et al., 2014).

It is beyond question that social networks are of great importance. Such networks provide employees with access to individuals with varying areas and levels of expertise, and thus are beneficial to creativity (Perry & Smith, 2006). Within the workplace, the provision of both informational and emotional support from colleagues has been demonstrated to be directly related to higher levels of creativity (Madjar, 2008).

Consequently, organizations (or leaders) seeking to foster creativity must prioritize the development of robust collegial relationships among employees. Moreover, leaders must cultivate a workforce comprising creative individuals if they aspire to witness the impact of their endeavours to enhance creativity. Zhou (2003) discovered that individuals exhibited the highest level of creativity in response to supervisor feedback when they were in the presence of creative colleagues. Evidently, the nurturing of individual creativity necessitates a nuanced understanding of the individual and their social context.

Levers for innovation at individual level

It is incumbent upon the organization to deploy the organizational and group levers that promote innovation in a manner that demonstrates to employees that their engagement, ideas and outputs are highly valued. Furthermore, employees must feel safe and supported if they are to extend their personal resources, such as individual characteristics of self-efficacy, resilience and optimism, to overcome work challenges and remain engaged (Christian, Garza & Slaughter, 2011; Halbesleben, 2010). Within such a setting, individual employees will be engaged to maximize their individual innovation potential and motivated to grow and put to use the related competences.

Whilst the topic of individual innovation competence will be addressed in Chapter 2, a review of levers an organization can apply to enhance innovative work behavior and thus the activation of individual innovation competence, requires a brief introduction to the concept. Competence is the integration and manifestation of knowledge, skills and attitudes/motivation in performance of a specific, pre-defined context and in concrete, authentic tasks (following Mulder, 2012; Mulder & Gulikers, 2011; Sturing, Biemans, Mulder & De Bruijn, 2011). The competencies needed in innovation processes can refer to knowledge and skills as well as attitudes and motivations (Zhuang, Williamson, & Carter, 1999); the influence of individual characteristics is also significant (De Silva & Davis, 2011). Based on these preconditions, individual innovation competence is understood here as a synonym for a set of personal characteristics, knowledge, skills (or abilities) and attitudes that are connected to creating concretized and implemented novelties via collaboration in complex innovation processes.

By and large, personal characteristics are not sensitive to influence but are fixed. Individual's personal characteristics favorable to innovative work behavior do not tend to

change but remain steady. This is why they are excluded from levers that can be influenced towards greater personal innovation capability. Meanwhile, similar to other competences, innovation competence (knowledge and skills) can be learned and developed (Bruton, 2011; Peschl et al., 2014). Attitudes and motivations are also subject to development and change. The organization can apply levers to nourish both.

Knowledge and skills

The importance of absorptive capacity has already been highlighted. At both the organizational as well as individual level, absorptive capacity is high in domains in which a given organization or individual has competence, i.e. knowledge and skills. Empirical research on memory has shown that individuals are better able to store and recall information if they have prior knowledge of the topic (De Silva & Davis, 2011). New concepts and information are linked with related pre-existing concepts in long-term memory. Information in long-term memory will become more available as a function of the richness or number of associations that can be made (Wickens, Gordon, & Liu, 1997). This prior knowledge enables relevant links at interaction with new knowledge, which facilitates innovative work behavior. Thus, it is essential for individual employees to be continuously engaged in learning and in expanding their knowledge and skills. The broader their domain of knowledge and skills (competence) the greater their absorptive capacity enabling innovative work behavior.

Attitudes and motivation

The development of an engaged and highly innovative workforce represents an efficient method of activating employees' innovative capabilities. Work engagement is defined as the emotional, cognitive, and psychological connection between individuals and their tasks (Bakker, Demerouti & Ten Brummelhuis, 2012) and work (Mazetti, Schaufeli & Guglielmi, 2018). The construct of work engagement is comprised of three key elements: vigour (defined as energy and mental resilience in the context of work), dedication (which encompasses high involvement and enthusiasm in work-related activities) and absorption (which refers to the extent of concentration devoted to work). Individuals who are engrossed in their work tend to exert greater effort, perform better, and complete their work-related tasks more rapidly (Mazetti et al., 2018). It is evident that employee work engagement

represents a pivotal individual factor with a direct correlation to innovative work behaviour. This highlights the vital necessity to identify individuals who are emotionally invested in their work and possess the requisite competence to deliver exceptional performances. Engaged employees are driven to proactively identify opportunities for improvement in systems, cost management, and the development of new services or products, with the aim of optimising workflow and creating new business opportunities for the organization (Newton, Blanton & Will, 2008).

Those who are engaged in their work are strongly connected with the goals of the organization. This connection motivates them to not only meet but exceed the task-related goals that are set for them (Christian et al., 2011). It is evident from a multitude of studies that engaged employees excel in their roles and are prepared to go the extra mile for the company (Bakker & Bal, 2010; Bakker et al., 2012; Demerouti & Cropanzano, 2010).

Every day at work individual employees receive signals concerning the behavioural expectations and potential outcomes of their actions within the organizational context (James, James & Ashe, 1990). These signals are obtained at both the organizational and team levels. This information is then used by individuals to form expectations and related attitudes (James, Hartman, Stebbins, & Jones, 1977). Individuals regulate their own behaviour in a manner that results in positive self-evaluative consequences, such as self-satisfaction and self-pride (Bandura, 1988). When employees feel a sense of connection to their work, whether physical, cognitive, or emotional, they are more likely to be more motivated to perform at a higher level (Mazetti et al., 2018). The positive psychological climate which is manifested in personal goals and ambitions that are aligned to those of the organization, leads to the internalization of organizational goals, which then no longer is mobilized thru external motivation but also through internal or intrinsic motivators. Intrinsic motivation represents the most self-determined form of motivation. This signifies that an individual is driven by the task itself, deriving interest and enjoyment from it (Ryan & Deci, 2000). Individuals are intrinsically motivated when they derive benefits directly from the activity itself, without the requirement to receive external benefits (Ryan & Deci, 2000). Intrinsically motivated employees are more likely to persevere (Vallerand & Bissonnette, 1992) and demonstrate superior work performance and affective commitment (Kuvaas, Buch, Weibel, Dysvik, & Nerstad, 2017).

Beyond intrinsic motivation, the right psychological climate supports the establishment of a strong connection between employees and their work, characterized by feelings of significance, enthusiasm, inspiration and pride. In addition to these markers of positive attitude, employees are likely to feel wholly absorbed in and unable to disengage from their work (Agarwal, Datta, Blake-Beard & Bhargava, 2012; Schaufeli, Salanova, Gonzales-Roma & Bakker, 2002). Once these conditions or experiences are present, individuals are able and should apply their unique skills and knowledge to execute fundamental or substantive work-related tasks (Campbell, 1990).

Organizational innovation competency is the ability of an enterprise to utilize resources in a way that allows it to develop innovative products and processes successfully within the context of its market circumstances (Hoegg, Alba & Dahl, 2010). Spencer and Spencer (1993) posited that such innovative competency serves as a means for an enterprise to effectively navigate uncertain circumstances and to consistently secure competitive advantages (Spencer & Spencer, 1993). It is incumbent upon organizations to cultivate the capacity to recognize the value of and absorb new knowledge, new ideas, new responses to change, and to apply it to commercial ends (Cohen & Levinthal, 1990). This happens by design, through the intentional fostering of pro-innovation processes and behaviours at every level of the organization, i.e. overall organization, the group/team level, and the individual employee. This approach ensures that the organization will nurture innovative work behaviour and be able to absorb and optimally benefit from its manifestations (Csikszentmihályi, 1988; Grossman, 2008; Janssen, 2000).

CHAPTER 2.

INNOVATIVE WORK BEHAVIOUR AS A STRATEGIC COMPETENCE

"All innovations begin as creative solutions, but not all creative solutions become innovations" (Richard Fobes).

Competence is demonstrated in specific contexts and tasks (Mulder, 2012; Sturing, Biemans, Mulder & De Bruijn, 2011). It is evaluated through observable behavioral patterns. Innovative work behavior (IWB)[2] represents the most evident manifestation of individual innovation competence. Innovative work behavior has been demonstrated to have a direct impact on organizational performance (Kim & Park, 2017; Shanker, Bhanugopan, Van der Heijden & Farrell, 2017). It is incumbent upon organizations to afford groups of individuals within the organization the requisite freedom to experiment with novel solutions, thus fostering IWB (Van de Ven & Dooley, 1999). As discussed in the preceding chapter, innovativeness in an organization can and should be fostered and nurtured across the three levels – organizational, team/group and individual. Collectively, they are designed to foster a mindset that encourages creativity, autonomy, mutual openness to ideas, constructive challenge to new ideas, and shared goals and commitments (Amabile, 1996; Fagerberg et al., 2005; Kraśnicka & Wronka-Pośpiech, 2014). Moreover, innovative performance is associated with employee satisfaction and well-being, reduced rates of absenteeism, and even enhancements in quality of life (Dediu et al., 2018). There has been a proliferation of research exploring the ways in which IWB can be nurtured and enhanced as a source of distinct competitive advantage (i.e.: Anderson et al., 2014; Hanif & Bukhari, 2015).

Innovation only occurs if employees engage in activities aimed at generating and implementing ideas (Agarwal, 2014). It is therefore essential that management is aware of the ways in which IWB can be shaped and stimulated (Bos-Nehles, Renekema & Janssen, 2016; Laursen & Foss, 2003; Shipton, West, Dawson, Birdi & Patterson, 2006). It is expected that IWB will generate innovative outputs and therefore benefit the individual, the group or the organization.

[2] Hereinafter Innovative Work Behaviour will be referred to as the acronym "IWB".

2.1 Definition of individual innovation competence

Competence can be defined as the integration and manifestation of knowledge, skills and attitudes in performance within a specific, pre-defined context and in concrete, authentic tasks (Mulder, 2012; Mulder & Gulikers, 2011; Sturing et al., 2011). This is a multifaceted concept that encompasses a range of elements, including capabilities, skills, attitudes, values, norms, techniques and knowledge, which are collectively necessary for the successful completion of a task. In a recent synthesis of extant definitions, Hero, Lindfors and Taatila (2017) posit that competence related to innovations is most accurately conceptualized as a constellation of personal characteristics, knowledge, skills and attitudes that, when combined, enable the creation of novel solutions through collaboration in complex innovation processes. As other competences, innovation competence can be acquired and developed, as evidenced by the findings of Bruton (2011) and Peschl, Bottary, Hartner-Tiefenthaler and Rozer (2014).

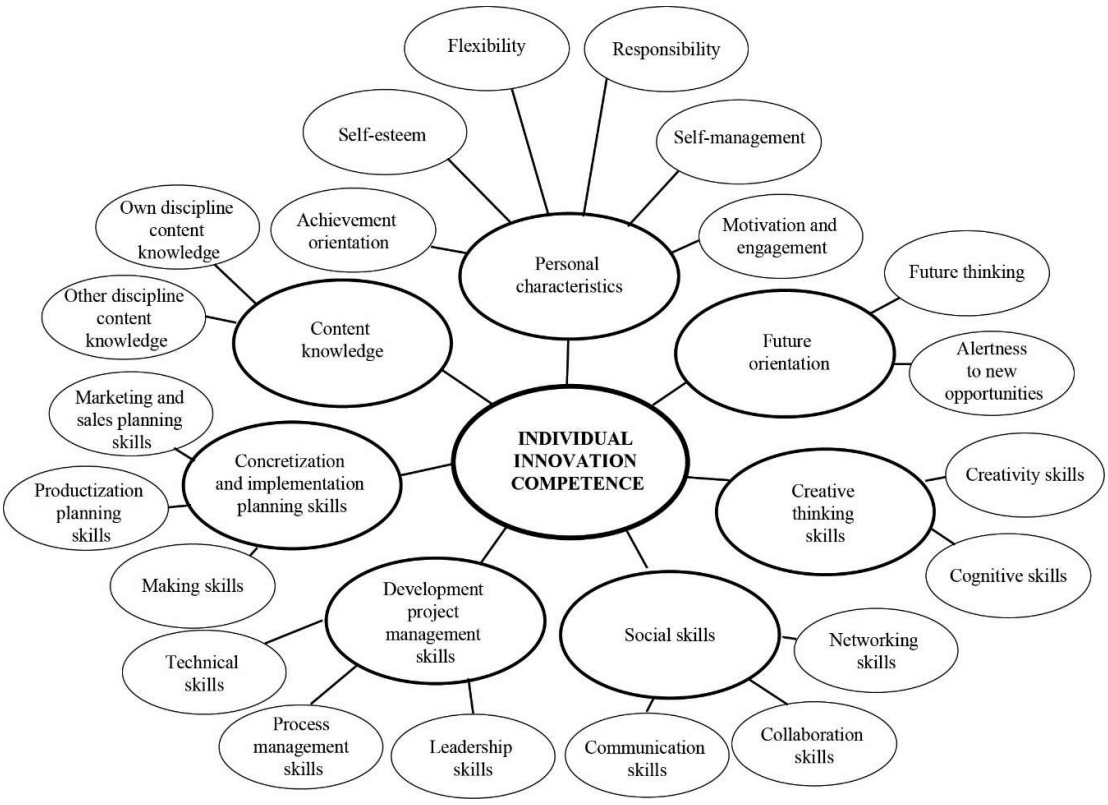

Figure 2.1. Individual Innovation Competence

Source: Own compilation based on Hero, Pitkajarvi & Matinheikki-Kokko, 2021.

What comprises individual innovation capability was most recently defined by Hero, Pitkajarvi and Matinheikki-Kokko (2021). In their study, individual innovation competence was divided into seven domains, as visualized in Figure 2.1.

The seven domains of individual innovation competence are detailed out below, including the underlying characteristics. To note, individual innovation competence, as has been stated earlier, is a combination of knowledge, skills and attitudes. Attitudes are shaped by personal characteristics, but not just those related to innovation (which are detailed below) but also others related to our degree of extroversion, neuroticism, openness to experience, conscientiousness, and so on.

2.1.1. Personal characteristics

Personal characteristics are the underlying traits that represent an individual's personality and influence their innovation behaviour (Chaternier, Verstegen, Biemans, Mulder & Omta, 2010). Personal characteristics are common across various situations and endure for a reasonably long period. This is evident in the case of self-esteem (e.g. Avvisati, Jacotin & Vincent-Lancrin, 2013; Santandreau-Masearell, Garzon & Knorr, 2013), self-management (e.g. Bjornali & Storen, 2012; Chaternier et al., 2010), achievement orientation (e.g. Mathiesen, Martinsen & Einarsen, 2008; Montani, Odoardi & Battistelli, 2014), motivation and engagement (e.g. Chaternier et al., 2010). Flexibility (e.g. Nielsen, 2015) and responsibility (Hero & Lindfors, 2019). Some personal characteristics overlap with skills or attitudes. For example, risk-taking can be viewed as both a personal characteristic and an attitude, depending on whether it is needed for short-term mobilization or a way of seeing the world in a given innovation activity. In total, there are 17 personal competency factors grouped under five sub-categories within the upper category of personal characteristics:

- Self-esteem: self-esteem;
- Self-management: self-management, self-efficacy and control, ability to focus on tasks, persistence and conscientiousness, ability to perform well under pressure;
- Achievement orientation: ambition, engagement, goal orientation and generation, learning goal orientation, achievement and value orientation;
- Motivation and engagement: motivation and engagement;
- Flexibility: flexibility and sense of humour;
- Responsibility: taking initiative and responsibility, tolerating uncertainty.

Self-esteem is the most important among the personal characteristics, as the development of an individual's personality and competencies is contingent upon positive self-esteem. It affects an individual's self-perception of confidence, worthiness, competence and capabilities. Santandreu-Mascarell et al. (2013) assert that independence and self-confidence are fundamental. Independent and self-confident individuals display a desire for autonomy from external rules or control. Individuals who demonstrate innovative behaviours are more likely to reflect high self-esteem (Goldsmith & Matherly, 1987; Sternberg & O'Hara, 1998).

The development of innovation is an inherently risky and uncertain process (Cerinšek & Dolinšek, 2009). Employees with high self-esteem are more inclined to accept challenging assignments, are assertive and innovative (Keller, 2012; Maden & Koker, 2013; Mason, 2001). Anwar (2020) posited that innovative esteem can be understood as the extent to which individuals feel pride and worthiness in their incremental and/or radical innovative capabilities.

Goal orientation is a self-regulatory mechanism comprising two distinct goal-directed processes: envisioning (i.e. setting future change-oriented goals) and planning (i.e. defining a roadmap for action to achieve the desired outcomes) (Montani et al., 2014). In innovation processes, goal orientation puts an emphasis on understanding or mastering new aspects, desiring change-oriented goals, and preferring challenging and risky situations that offer new opportunities. Individuals with a strong learning goal orientation may find change-oriented goals particularly beneficial, as they are often associated with challenging and uncertain ventures such as innovation.

Motivation and engagement are personal characteristics that can be defined as the internal motivation and willingness to solve a problem or perform a task (Waychal, Mohanty & Verma, 2011). The concept of motivation is characterised by a pronounced focus on the pursuit of goals, the attainment of success, and the alignment with intrinsic values (Montani et al., 2014; Waychal et al., 2011). Montani et al. (2014) posit that both intrinsic motivation and learning goal orientation are indispensable for creative idea generation. However, they maintain that the latter has a greater motivational impact on enhancing individual engagement at both the initial and final stages of an innovative undertaking.

Flexibility can be defined as a mindset that allows individuals to adapt their approach and examine ideas in a new light (Waychal et al., 2011). August-Brady (2000) posits that flexibility is an integrative, evolving and resilient response to recognized change and

uncertainty. It is predicated on openness and a willingness to change, which engenders a greater diversity of choice, effectiveness and efficiency in outcomes.

The capacity to take the initiative and responsibility is defined as the act of identifying and seizing opportunities, as opposed to merely responding to external prompts (Santandreu-Mascarell et al., 2013). Mathisen et al. (2008) posit that a high level of initiative can result in innovative outcomes.

Future orientation

A future-oriented person is adept at identifying signals, discerning changes, and formulating a vision (Chatenier et al., 2010). Future orientation is made up of two sub-categories: future thinking and alertness to new opportunities (Edwards-Schachter, Garc-a-Granero, Sanchez-Barrioluengo, Quesada-Pineda & Amara, 2015; Montani et al., 2014; Vila et al., 2014; Waychal et al., 2011):

- Future thinking: future orientation and creative visioning, visioning;
- Alertness to new opportunities: openness to experiences, curiosity, proactiveness, ability to cope with non-routine tasks and uncertainty, risk-taking ability, moderate resistance to change.

Future orientation is the capacity to foresee and anticipate future developments, to formulate plans for future possibilities, and to organize these future possibilities in a structured manner (Nurmi, 1991; Seginer, 2009). The necessity for future orientation increases in direct proportion to the degree of non-routine complexity of the problem at hand (Keller, 2012).

The capacity to identify and respond to novel opportunities is contingent upon one's ability to cope with tasks and uncertainties that are non-routine in nature. Such behaviour entails a willingness to take risks and to offer moderate resistance to change. This subcategory is of paramount importance, as innovation is contingent upon a non-routine task environment. Openness to experiences and curiosity represent the willingness to confront new situations and the flexibility to experience them (Celik, 2013; Waychal et al., 2011). Proactiveness can be defined as the capacity to develop novel ideas and assume initiative (Cerinšek & Dolinšek, 2009). Coping with chaos and uncertainty necessitates the capacity to navigate unexpected situations, demonstrate adaptability in adjusting plans and deadlines, and exercise the ability to improvise (Chatenier et al., 2010). The innovation process is inherently uncertain, and therefore it is crucial to maintain a moderate level of resistance to

change throughout the process. The capacity to manage tasks that are both ambiguous and complex is crucial when the necessity for clarity is moderate (Keller, 2012).

Creative thinking skills

Creative thinking skills are defined as creative competences and cognitive skills (Hero et al., 2021). Creativity is a key innovation competency factor in most studies. Cognitive skills, like creativity, are also considered crucial for innovation. Below the two sub-categories and the related competency factors:

- Creativity skills: creativity, imagination, inventiveness, ability to generate new ideas and solutions, ability to do things differently, problem-solving skills;
- Cognitive skills: learning skills, ability to rapidly acquire, exchange and combine, knowledge & cognitive skills, analytical thinking, skills in thinking, ability to combine and interpret, willingness to question your own and others' ideas.

According to Cerinšek and Dolinšek (2009), creativity is the ability to generate new ideas independently of their possible practicability and future value. Creativity necessitates the capacity to adopt perspectives from disparate viewpoints and to conceptualize novel possibilities based on the observation of an environment in an open and objective manner. An innovative individual is characterized by their capacity to generate ideas, utilize their imagination and solve problems by taking calculated risks and experimenting while remaining pragmatic and sensitive to the environment and market (Chatenier et al., 2010). Creativity plays a significant role in problem-solving, as well as the evaluation and assessment of knowledge and skills in order to reach a novel and practical solution (Lindfors & Hilmola, 2015; Edwards-Schachter et al., 2015).

Cognitive abilities are of paramount importance for innovation. Treffinger, Young, Selby and Shepardson (2002) define cognitive skills as either convergent or critical thinking. This is further elucidated by Bjornali and Storen, 2012; Cobo (2013), and Lindfors and Hilmola (2015) as analytical thinking skills and general thinking skills (Avvisati et al., 2013). Furthermore, the willingness to question ideas (Bjornali & Storen, 2012; Vila, Perez & Coll-Serrano, 2012) and the ability to acquire and interpret new knowledge (Chatenier et al., 2010) are also essential cognitive skills. Learning skills represent the capacity to rapidly acquire knowledge (Bjornali & Storen, 2012) and to exchange and combine knowledge (Wang & Shuai, 2013).

Social skills

Social skills are the core competency in innovation development (Hero et al. 2021). Social skills are essential for interaction and communication with others (see McFall, 1982; Riggio, 1986). Social skills are divided into three sub-categories, which are collaboration, networking and communication skills (Avvisati et al., 2013; Bjornali & Storen, 2012; Santandreu-Masearell et al., 2013). The following section outlines the related competency factors for each sub-category:

- Collaboration skills: cooperation skills, teamwork skills, social astuteness and sensitivity, interpersonal management, interpersonal influence, championing, ability to motivate others, ability to build trust, ability to mobilize the capacities of others;
- Networking skills: ability to create partnerships, internal and external networking;
- Communication skills: communication, ability to make your meaning clear to others, presentation skills, ability to write reports, memos or documents, ability to write and speak in a foreign language, negotiation skills, active listening, brokering (information exchange).

Collaboration skills are the ability to work productively with others (Bjornali & Storen, 2012) or in teams (Bruton, 2011; Cobo, 2013). Teamwork facilitates the integration of dispersed local knowledge, thereby enhancing innovative capabilities (Wang & Shuai, 2013). Social astuteness is the capacity to comprehend the nuances of social interactions and to remain attuned to the motivations and responsibilities of the various parties involved (Tsai, Chen & Chin, 2010). Interpersonal management can be defined as the ability to adapt one's behaviour in any situation in order to elicit the desired response and exert social control (Tsai et al., 2010). The capacity to influence others is a fundamental aspect of interpersonal management (Chatenier et al., 2010) as is and the ability to motivate and mobilize the skills of other individuals (Bjornali & Storen, 2012; Celik, 2013; Nielsen, 2015; Vila et al., 2012, 2014).

Networking skills include ability to develop, maintain and utilize networks in an effective manner, with the objective of forging beneficial alliances and coalitions that are critical to innovation (Avvisati et al., 2013; Chatenier et al., 2010). To this end, communication skills are of paramount importance, with presentation skills emerging as the most frequently supported (Bjornali & Storen, 2012; Lindfors & Hilmola, 2015; Tsai et al., 2010; Vila et al., 2014). Brokering skills are defined as the ability to link information and

knowledge from various internal and external sources, thereby creating new opportunities (Bjornali & Storen, 2012). Negotiation and active listening are essential for effective team and network interactions.

Development project management skills

Development project management skills encompass the capacity to establish specific, challenging, and accepted team goals; diagnose and formulate learning objectives; coordinate and synchronise activities, information, and tasks among team members; design a strategic plan; carry out the proposition in a systematic and sequential manner; assume responsibility for the team; identify human, material, and experiential resources. Development project management skills can be grouped into four categories:

- Process management skills: ability to manage collaborative knowledge creation process, ability to use time efficiently, research and development skills;
- Management skills: project management skills, planning skills, decision making skills;
- Leadership skills: coaching others, the ability to recognize competencies, building team spirit, and negotiating the division of labour;
- Technical skills: technical skills, ability to use computers and the internet, technical crafting and researching skills.

While process and project management are not immediately considered essential to innovative work behaviour, a creative idea cannot progress to finished product or a new service without these. To achieve a variety of objectives, it is necessary to organize complementarities, monitor, evaluate and provide feedback on overall team and individual performance (Chatenier et al., 2010; Cobo, 2013; Nielsen, 2015; Hero & Lindfors, 2019).

The term “self-management” is defined as a competency in several articles, including those by Bjornali and Storen (2012); Celik (2013), Chatenier et al. (2010), and Chell and Athayde (2011). The concepts of self-management and self-efficacy are essentially synonymous. They are defined as the conviction in one’s capacity to organize and execute a course of action necessary to manage prospective situations (Celik, 2013).

Content knowledge and making skills

The sixth category of individual innovation competence encompasses content knowledge and making skills. These competences are related to individuals’ knowledge and

skills in their field of expertise as well as in other fields (e.g. Avvisati et al., 2013; Bjornali & Storen, 2012). Content knowledge is defined as substance knowledge, or the knowledge of a discipline or professional field (Hero et al., 2017). The two sub-categories and the related competency factors are outlined below:

- Own discipline content knowledge, i.e. mastery of one's own field or discipline;
- Other discipline content knowledge, i.e. knowledge of other fields or disciplines, content knowledge that is not specified in advance.

As Drucker asserted, innovation necessitates a foundation of expertise in a given field. It is only an expert who is able to fully comprehend the intricacies of a given problem and identify solutions that have yet to be discovered. Domain expertise, also referred to as content knowledge, is a pivotal factor in the development of innovative competencies (Avvisati et al., 2013; Bjornali & Storen, 2012; Kasule, Wesselink, Noroozi, & Mulder, 2015; Lindfors & Hilmola, 2015). It is evident that an understanding of other fields or disciplines is necessary for the innovation process (Bjornali & Storen, 2012; Cobo, 2013). In order to innovate effectively, it is necessary to possess a comprehensive understanding of one's own discipline, as well as other related disciplines. This necessitates the dissemination of knowledge.

Concretization and implementation planning skills

The last category of individual innovation competency are skills related to the production of novelty, and include making skills, productization planning skills as well as marketing and sales planning skills (Arvanitis & Stucki, 2012; Bruton, 2011; Hero, 2017, 2019; Hero & Lindfors, 2019). Below the three subcategories:

- Making skills: designing skills, prototyping skills, skills in making (know-how), esthetical and psychomotor skills;
- Productization planning skills: making a prototype and testing it;
- Marketing and sales planning skills: marketing, sales and entrepreneurship planning skills, implementation, planning and commercialization.

The ability to manage processes is essential for effective knowledge creation (Chatenier et al., 2010; Nielsen, 2015). This includes the ability to plan (Montani et al., 2014) and manage (Chatenier et al., 2010). Furthermore, they facilitate the effective decision-making processes (Wang & Shuai, 2013; Waychal et al., 2011) and enable the efficient

research and development (Arvanitis & Stucki, 2012) that are integral to innovation processes. Management skills are decision-making skills (Wang & Shuai, 2013; Waychal et al., 2011) and leadership skills (Chell & Athayde, 2011) that are employed in innovation processes or projects.

The term 'making' encompasses the practical aspects of design, including the 'know-how' and the solution design itself. The making phase of the innovation process entails the transformation of abstract ideas into tangible solutions (Avvisati et al., 2013; Bruton, 2011; Lindfors & Hilmola, 2015). Lindfors and Hilmola (2015) define innovation learning as a process encompassing design, planning and making, as well as the practical solution. The concept of usability is of paramount importance in the creation and development of innovative solutions that are novel, functional and fit for purpose. The production of a prototype and the concretization of the solution in practice require the utilization of technical, aesthetic and psychomotor skills (Arvanitis & Stucki, 2012; Avvisati et al., 2013; Bruton, 2011; Lindfors & Hilmola, 2015).

The above articulation of the seven individual innovation competencies highlights the multi-dimensionality of the doing of innovation.

2.2 Definition of innovative work behaviour

In complex organizations, the development of innovation is the creation of novelties via collaboration in complex innovation processes. Creativity, innovation and new product development processes are inextricably linked. An "innovation journey" is defined as the process of inventing, developing, and implementing new products, programs, services, or other concrete solutions (Cheng & Van de Ven, 1996). These outcomes are tangible, useful, and implemented to convey value (Peschl et al., 2014; Quintane, Casselman & Reiche, 2011; Sawyer, 2009).

Although creativity and innovation have been used interchangeably, there is now a consensus that creativity refers more specifically to the generation of new ideas (Axtell, Holman, Unsworth, Wall, Wterson & Harrington, 2000). It is beyond doubt that innovation in the workplace requires creativity. Nevertheless, it is equally valid to argue that innovative work behavior (IWB) can manifest even in the absence of a requirement to create something entirely novel. To illustrate, if an employee were to implement a work practice observed in

another unit but that would be new for their department, it would be accurate to conclude that IWB has been observed, but not necessarily creativity in the true sense of the word (Anderson, De Dreu, & Nijstad, 2004; De Spiegelaere, Van Gyes, De Witte, Niesen, & Van Hootegem, 2014).

IWB is defined as the efforts and behaviors exerted by employees which are directed at the introduction, generation and/or application of ideas, products, procedures, or processes which aim to benefit the relevant unit of adoption significantly and are new to that unit (Janssen; 2003; Kanter, 2003; Scott & Bruce,1994; West, 1989; West & Farr, 1989; Woodman et al., 1993). Janssen (2003) identified three distinct forms of IWB behavior representing the three main stages of the innovation process: idea generation (which is closely related to creativity and implies the production of new ideas), idea promotion (which involves finding support and assistance to implement the generated ideas), and idea implementation (which concerns the realization of these new ideas).

Individual innovative behavior is a cognitive process by which novel ideas are developed and a behavioral process by which novel ideas are suggested and adopted (Bindl, Parker, Totterdell & Hagger-Johnson, 2012; Madrid, Patterson, Kamal, Pedro & Kausel, 2014). Consequently, individual innovative behavior encompasses creativity, yet it is a more expansive concept (Janssen, 2000). Individual innovative behavior necessitates that employees concentrate intensively and invest considerable effort in their work. It is essential to demonstrate creativity and a drive for achievement (Janssen, 2000; Kanter, 1988), while also exhibiting tolerance for ambiguity and a willingness to take risks in order to be innovative (Jones, 1995). Consequently, in addition to knowledge, skills and abilities, motivation represents a pivotal factor influencing individual innovative behavior (Amabile, 1988).

Figure 2.2 provides a schematic view of innovative work behaviour split into its three stages with the related actions taken on the person exercising innovative work behaviour.

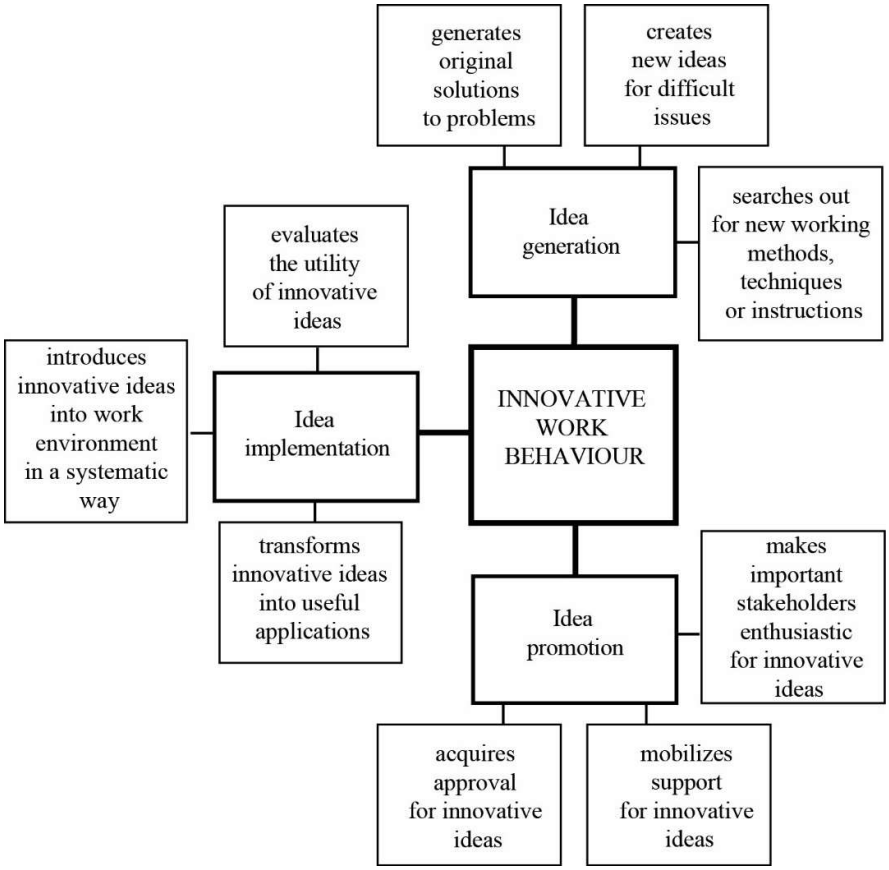

Figure 2.2. The three dimensions of innovative work behaviour

Source: Own compilation based on Janssen, 2001.

The first phase of innovative work behavior is **idea generation** which is characterized by a greater need for creative and uninhibited methods (Shalley, Zhou & Oldham, 2004). Subsequently, the ideas must be subjected to more rigorous development methodologies in order to facilitate the transition from conceptualization to concrete implementation within a product development process (Cooper, 2001; Kahn, 2018). Furthermore, it is of paramount importance to identify potential future opportunities. Once an opportunity has been identified, it is then developed into a new idea and implemented on a wider scale (Tidd & Pavitt, 2001). The idea generation stage of innovative work behavior encompasses three activities (see Figure 3):

- generates original solutions to problems;
- creates new ideas to difficult problems;
- searches out for new working methods, techniques or instructions.

All innovation is predicated on the generation of creative ideas. Creativity can be defined as the ability to generate novel, unexpected, and valuable ideas or artefacts (Boden, 2004). The generation of ideas represents the initial phase of the innovation process, wherein employees identify problems and develop novel and useful solutions to address them. This can be accomplished in any domain (De Spiegelaere et al., 2014; Janssen, 2000).

Recent developments in the field have proposed a differentiation of creativity in terms of incremental versus radical (Madjar, Greenberg, & Chen, 2011). Moreover, creativity can occur through social interaction within teams. Some authors have also proposed that creativity occurs not only in the initial stages of the innovation process, but rather in a cyclical and recursive process of idea generation and implementation (e.g. Paulus, 2002).

Guilford's work (Guilford, 1950) provides definitive evidence that creativity is contingent upon the effective application of divergent and convergent thinking. Convergent thinking is a linear process; it entails traversing a series of steps in order to arrive at a single correct answer. Divergent thinking is the antithesis of convergent thinking; it explores different directions from an initial problem statement to generate a multitude of potential ideas. Engineers utilize divergent thinking when generating ideas to identify a wide range of potential solutions. Conversely, they employ convergent thinking when evaluating ideas to determine the optimal solution. In an organizational context, the application of divergent and convergent thinking translates into employee innovative work behavior (IWB).

The idea generation phase is followed by **idea promotion** where it is essential to seek out and secure potential allies, including friends, colleagues, and sponsors, through the promotion of generated ideas (Hanif & Bukhari, 2015). Idea promotion represents a defining characteristic of engaged employees. Engaged employees are distinguished by high levels of energy, enthusiasm, focus, inspiration, intensity, mental resilience, and persistence, which facilitate their innovative work behaviours. The idea promotion stage of innovative work behaviour, encompasses three activities (see Figure 3):

- acquires approval for innovative ideas;
- mobilizes support for innovative ideas;
- makes important stakeholders enthusiastic for innovative ideas.

In order to promote novel ideas, it is necessary to seek and gain the approval and sponsorship of relevant stakeholders, including colleagues, supervisors, or managers (Kanter, 1988). Innovativeness can and should be encouraged within work groups through

the provision of autonomy in the work, mutual openness to ideas, constructive challenge to new ideas, and shared goals and commitments (Amabile, 1996; Fagerberg et al., 2006; Kraśnicka & Wronka-Pośpiech, 2014). It is of the utmost importance to foster a positive and conducive organizational climate during the idea promotion stage. It is inevitable that a worker's innovative behaviour will be obstructed by co-workers who are resistant to change and who wish to safeguard the existing paradigm or to avoid the uncertainty and insecurity surrounding change (Janssen, 2003). Such experiences facilitate the discovery of novel solutions to problems, thereby enhancing task performance (Aryee et al. 2012; Newton et al. 2008).

The last phase of innovative work behaviour is **idea implementation** during which newly developed ideas are prototyped and implemented within a work role, a group, or the total organization (Janssen, 2000). The third step of innovative work behaviour encompasses the following three activities (see Figure 3):

- evaluates the utility of innovative ideas;
- introduces innovative ideas into work environment in a systematic way;
- transforms innovative ideas into useful applications.

Workplace innovation represents a practical output or component that is distinct from pure creativity studies in the arts or social studies fields (Zaltman, Duncan, & Holbek, 1973). The scope of innovations is vast, encompassing the development and implementation of new ideas that have an impact on theories, practices or products across the entire organization, as well as smaller-scale ideas related to improvements in daily work processes and work designs (Unsworth, Wall, & Waterson, 2000). Regardless of their radical or incremental nature, workplace innovations must ultimately demonstrate value to the organization.

Ultimately, the concept of individual innovative behaviour places the emphasis on the process of innovation itself, rather than on the result (Liu, Xu & Zhang, 2019). In particular, the generation of novel ideas entails the contribution and introduction of new methods and solutions for the completion of work tasks. These ideas may be either original or adapted from existing products, services, and work procedures (Kanter, 1988). Once novel ideas have been generated, it is essential to facilitate their implementation and conversion into tangible products, services, or work procedures that enhance individual and organizational effectiveness (Kanter, 1988; Scott & Bruce, 1994).

2.3 Mapping personal innovation competences to innovative work behaviour

Mapping personal innovation competencies to innovative work behaviours is a key element in understanding how individual traits, skills and attitudes influence the processes of innovation generation and implementation in organizations. Innovative work behaviour can be divided into three stages: idea generation, idea promotion and idea implementation. Each of these stages is necessary to take the innovation process from initial idea to implementation, and to ensure that changes, both internal and external, lead to effective solutions. Innovation competencies, understood as a constellation of personal characteristics, knowledge, skills and attitudes, enable individuals to demonstrate creativity and effectiveness in each phase of the innovation process. Mapping these competencies to specific behaviours allows us to understand how individual talents can contribute to the effective implementation of innovation in an organization.

As described above, innovative work behaviour can be subdivided into three stages – idea generation, idea promotion and idea implementation – in order to ensure that the process is followed from the initial idea to the implementation of an innovation opportunity triggered either by an internal or external change. These behaviours are channels for exhibiting the personal innovation competences, detailed in Sub-Chapter 2.1.

In order to drive the manifestation of the desired dimension or stage of IWB within the organization, it is important to gain clarity on which individual personal characteristics, knowledge and skills underlie the different IWB stages. This will help to determine which specific characteristics and skills should be nurtured and trained in order to ensure specific dimensions of innovative work behaviour are manifested within the organization, to drive its objectives.

Based on the detailed information the sub-skills comprising individual innovation competences as well as traits underlying the personal characteristics, the individual innovation competences were mapped to innovative work behaviours. The detailed mapping is contained in Appendix 7.2. Notably personal characteristics are relevant at all stages of innovative work behaviour, meanwhile the other competences are leaned on more in in one or two of the IWB stages. Figures 2.3, 2.4 and 2.5 provide a visual representation of the mapping, with insight on the variation on the skills most critical to the different stages of IWB.

The categories of content knowledge, future orientation and creative thinking skills overlap with the three activities that define idea generation. Figure 2.3 maps the subs-skills of these three skill-sets to the three activities of idea generation.

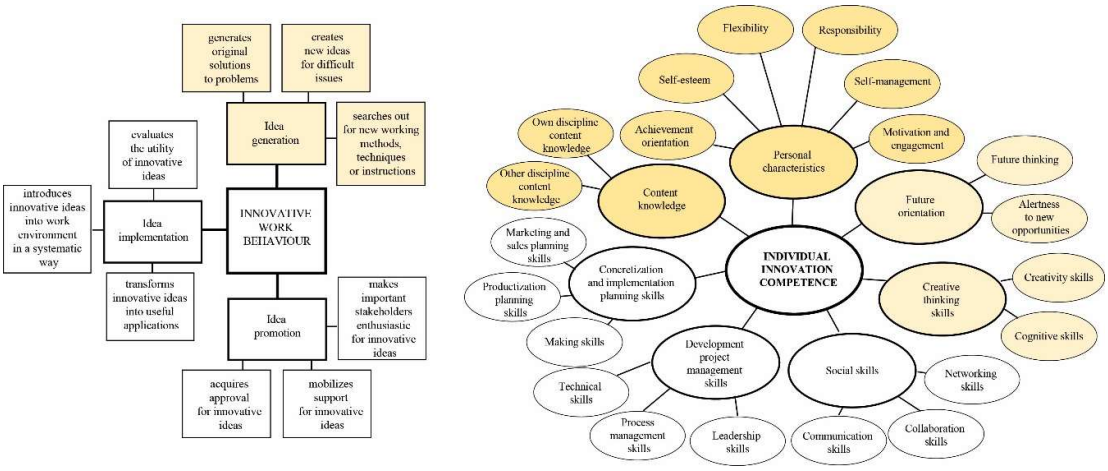

Figure 2.3. Idea generation behaviours mapped to individual innovation skills and personal characteristics

Source: Own compilation based on Janssen 2001 and Hero, Pitkajarvi & Matinheikki-Kokko, 2021.

The three activities of idea generation are most reliant on creative and cognitive skills. This is not surprising, one focuses on coming up with the solution to a new problem or coming up with a new solution to an old problem. Neither solution is feasible without strong cognitive skills as well as content knowledge, that is deployed in envisioning how things can be (future orientation and visioning).

The categories of social skills, Leadership skills (sub-set of development project management skills), marketing and sales planning skills (sub-set of commercialization and implementation skills) as well as content knowledge support the idea promotion dimension on innovative work behaviour. Figure 2.4 maps these sub-skills to the three activities of idea promotion.

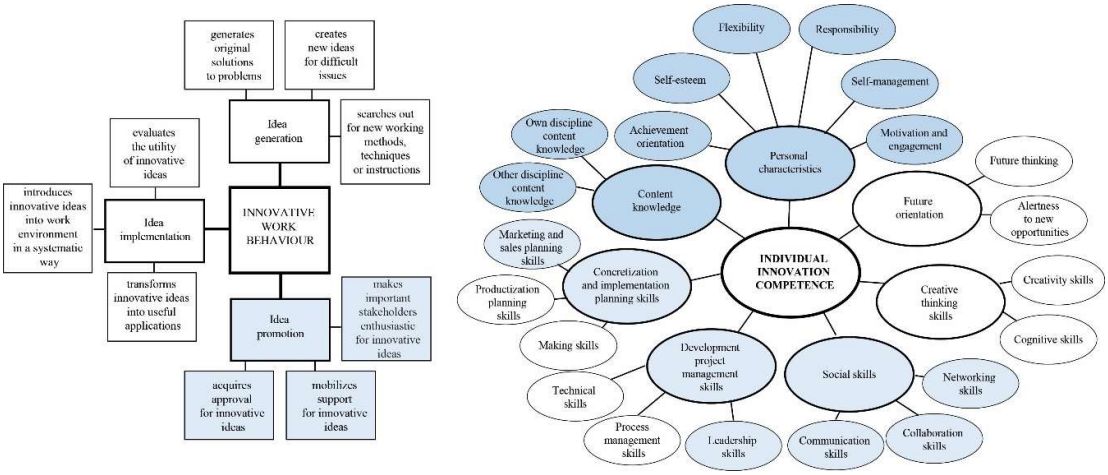

Figure 2.4 Idea promotion behaviours mapped to individual innovation skills and personal characteristics

Source: Own compilation based on Janssen 2001 and Hero, Pitkajarvi & Matinheikki-Kokko, 2021.

In order to promote an idea, it is essential to possess the requisite social skills to exert influence. The value of the new idea has to be communicated in a clear and effective manner to ensure that the relevant stakeholders recognize its value and provide support for its implementation. In order to succeed, it is essential to possess the appropriate network and to cultivate the most efficacious partnerships in order to obtain approval and support for the novel product, solution, or technology. It is imperative to devise and implement influencing activities at the optimal level, employing an approach that aligns with the seniority of the individuals to whom the presentation is being made. In addition to developing collaboration and management skills, it is also crucial to cultivate cognitive abilities.

The categories of content knowledge, productization planning skills and making skills (sub-sets of concretisation and implementation skills) as well as technical skills and process management skills (sub-sets of development project management skills) support the idea implementation dimension of innovative work behaviour. Figure 2.5 maps these sub-skills to the three activities that comprise idea implementation.

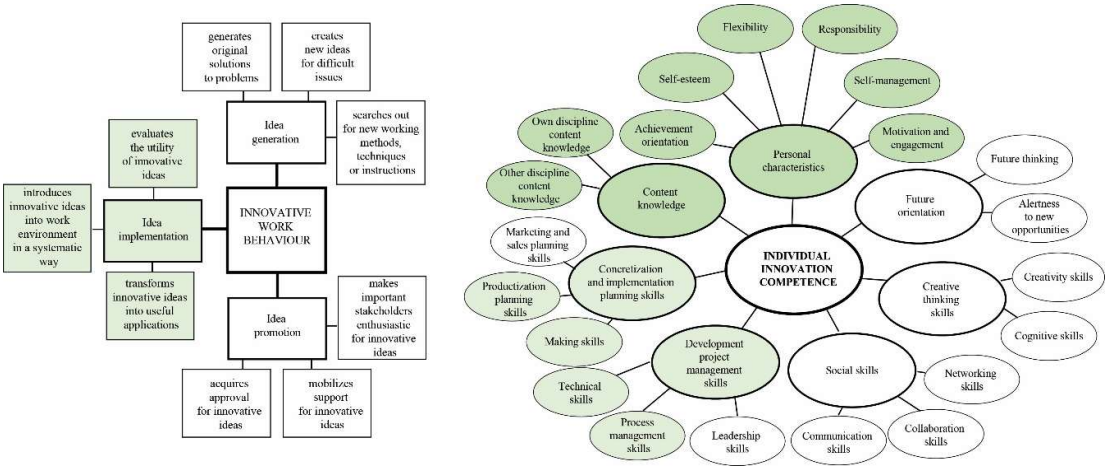

Figure 2.5 Idea implementation behaviours mapped to individual innovation skills and personal characteristics

Source: Own compilation based on Janssen 2001 and Hero, Pitkajarvi & Matinheikki-Kokko, 2021.

The process of idea implementation entails the transformation of a novel concept into a tangible, operational reality. The capacity for critical and analytical thinking is a prerequisite for the evaluation of an innovative concept and the delineation of a plan for its transformation into a practical reality. The implementation of an innovative idea requires a combination of technical knowledge, systematic project management, and people management skills. It is essential to drive the adoption of the novelty into the work environment. As with idea generation, content knowledge is necessary at every stage of the implementation process, including the assessment of the idea's utility, its transformation into a useful application, and its subsequent rollout. It is crucial to have a comprehensive understanding of the environment into which it is introduced.

It is important to note that the generation, promotion and implementation of new ideas are cognitively and emotionally demanding (Bruce & and West, 1994; Janssen, 2004; Montani et al., 2020). It is evident that innovative behaviour is a resource-intensive endeavour, necessitating substantial investment from employees at each stage of the innovation process (Mumford et al., 2002). Moreover, once creative ideas have been developed, it is vital to promote them effectively in order to overcome potential resistance from organizational members and obtain support from key decision-makers (Janssen, 2004). It is inevitable that unforeseen obstacles will arise during the implementation of innovations. It is thus imperative that individuals allocate supplementary cognitive resources to problem-solving activities in order to address unforeseen challenges (Bledow, Frese, Anderson &

Erez, 2009). The maintenance of high levels of resources is the sole means of producing innovative efforts in response to an increased workload (Agarwal et al., 2012).

Schaufeli et al. (2002) and Van Zyl, Oort, Rispens and Olckers (2019) posit that three conditions must be met in order to reap the performance-related benefits of work engagement and commitment, which is essential for innovative work behaviour. Firstly, individuals must demonstrate a willingness to invest a considerable amount of effort into their work and consistently pursue work-related goals, even in the face of challenges. Secondly, employees must feel a strong sense of connection to their work. Such feelings are characterised by a sense of significance, enthusiasm, inspiration and pride. In addition, employees must experience a sense of contentment and absorption in their work (Agarwal et al., 2012; Schaufeli et al., 2002; van Zyl et al., 2019). When these conditions or experiences are present, individuals are able and should apply their unique skills, capabilities and competences to execute fundamental or substantive work-related tasks comprising innovative work behaviour.

CHAPTER 3.

MINDFULNESS AS AN ENABLER OF STRATEGIC COMPETENCE

Engaged and motivated employees are essential to organizational success. It is thus not surprising that employee well-being is associated with substantial benefits to organizational performance via its effects on employee physical and psychological health, absenteeism, turnover, and in-role performance and engagement (Danna & Griffin, 1999). Employee well-being is the overall quality of an employee's experience and functioning at work (Grant, Christianson, & Price, 2007). It encompasses psychological, physical, and behavioral elements, encompassing both hedonic (e.g. employee mood) and eudemonic (e.g. resilience) dimensions (Ryan & Deci, 2001; Good, Lyddy, Bono, Duffy, Baer, Brewer & Lazar, 2016).

This concern for the quality of employee's physical and mental health has been a source of significant interest across organizations in methods and techniques that support employee wellbeing as well as engagement. In many organizations it has led to the implementation of techniques that would support employees fostering mindfulness. Mindfulness is a state of consciousness that is characterized by a non-judgmental, sustained, and alert awareness of experiences occurring in the present moment; this includes physical sensations, affective states, and thoughts (Grossman, 2008; Kabat-Zinn, 1994). For a more thorough definition and context, see next section (Sub-Chapter 3.1).

Many organizations have sought to integrate mindfulness techniques into business practices, including major companies like Facebook, Google, SAP and Cisco, to promote creativity and innovation, as well as emotional intelligence and well-being in their employees (Syper-Jędrzejak & Bednarska-Wnuk, 2019). But it is not only companies that operate in new technologies, organizations implementing mindfulness-based stress reduction trainings include Deutsche Bank, IKEA, P&G, Hughes Aircraft as well as the US Army (Glomb, Duffy, Bono & Yang, 2011; Jha, Morrison, Dainer-Best, Parker, Rostrup & Stanley, 2015; Wolever, Bobinet, McCabe, Mackenzie, Fekete, Kusnick & Baime, 2012). Mindfulness training is also being used by professionals in various fields, including Olympic athletes and basketball players (Machnowska, 2012).

The implementation of mindfulness courses and training has been demonstrated to enhance the overall functioning of organizational systems. Mindfulness represents an

efficacious instrument for modelling employee conduct in the workplace. Coaching, workshops and training can and will assist individuals in adjusting their traits in a manner that benefits the organization's performance of specific functions. Successful leaders frequently cite the advantages of utilizing mindfulness in practice, viewing it as a valuable human resource management tool (Syper-Jędrzejak & Bednarska-Wnuk, 2019).

Given the increased popularity of mindfulness techniques across organizations, it is not surprising that the Scopus database shows that since 2000 there has been a significant increase in scientific interest in studying mindfulness within the fields of business, management and accounting (see Figure 3.1 below).

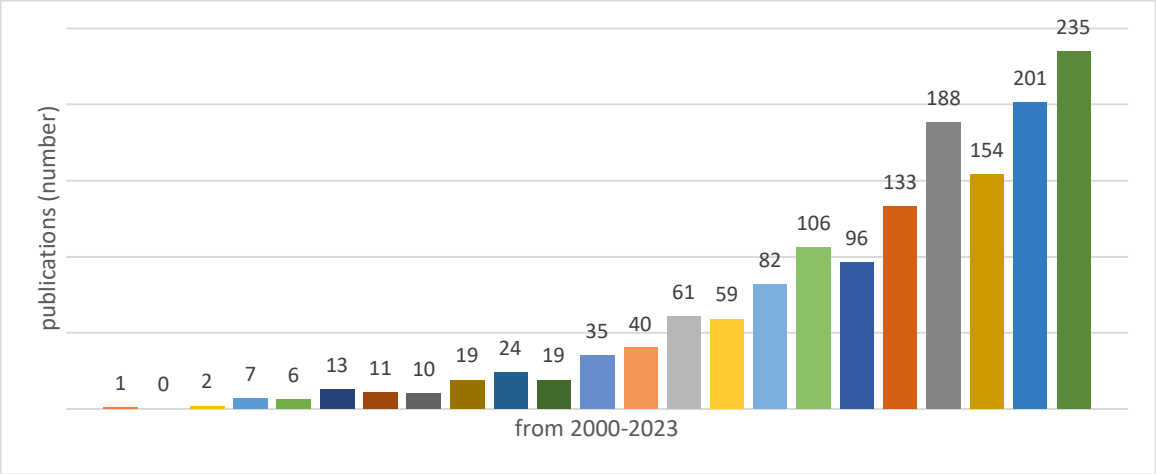

Figure 3.1. Trend in the number of published peer-reviewed articles on the topic of mindfulness in the field of business, management and accounting, between 2000-2024

Source: Own compilation based on Scopus database search on 16/11/2024.

In total over the 24 years since the turn of the century, 1,735 peer-reviewed articles have been uploaded into the Scopus database on the topic of mindfulness in the fields of business, management and accounting.

As asserted by Martin-Hernandez et al. (2020), meditative workplace interventions equip workers with the personal resource to view potential stressors as opportunities, thereby fostering innovation at work. Meditation has a beneficial impact on emotional state (positive affect, reduced stress, enhanced performance) as well as on creative output and propensity to innovate. Meta-analyses (Lomas et al., 2017; Mesmer-Magnus et al., 2017) demonstrate a correlation between mindfulness and a range of personal and professional outcomes pertinent to workplace performance and behaviors, including increased effort and enhanced

performance. Mosini (2019) corroborates the assertion that meditation can exert a beneficial impact on cognitive functions, attention span, verbal fluency, and memory. The scientific evidence regarding the connection between meditation and creativity is inconclusive. While some studies have indicated a significant positive impact of meditation practice on creativity, others have reported only a weak association or no effect (Cowger, 1974; Domino, 1977). As Colzato, Ozturk and Hommel (2012) correctly observed, these inconsistencies reflect a failure to distinguish between different, non-associated processes that underlie creativity, in particular convergent and divergent thinking (Guilford, 1950).

This chapter will examine the effects of mindfulness training on human behavior, and in particular on workplace performance and motivation. The competencies, skills and attitudes impacted by mindfulness training will be mapped against those relevant to innovation work behavior in order to identify the scope of the potential impact of mindfulness training.

3.1 Definition of meditation as a mindfulness technique

The concept of mindfulness has its origins in Buddhist teachings (Baas et al., 2014; Kabat-Zinn, 1994). The term ‘mindfulness’ is derived from the Pali word ‘sati’, which signifies the state of being aware, attentive and mindful (Bodhi, 2000). It is a state of consciousness that is characterized by a non-judgmental, sustained, and alert awareness of experiences occurring in the present moment; this includes physical sensations, affective states, and thoughts (Grossman, 2008; Kabat-Zinn, 1994). In a state of mindfulness, individuals are able to maintain a calm and clear focus on the present moment, without engaging in the automatic evaluation or judgement of ongoing mental processes (Grossman, 2008; Sedlmeier et al., 2012).

The concept of mindfulness is firmly rooted in Buddhist psychology, but it also shares conceptual kinship with ideas advanced by a variety of other philosophical and psychological traditions. These include the traditions of ancient Greek philosophy, as well as phenomenology, existentialism, and naturalism in the subsequent development of Western European thought. It represents a fundamental aspect of the human experience and the basic activities of consciousness, namely attention and awareness (Brown et al., 2007). The most often cited definitions of mindfulness are presented in Table 3.1.

Table 3.1. Definitions of mindfulness most often cited in academic literature

Definition	Source
The clear and single-minded awareness of what actually happens to us and in us in the successive moments of perception	Nyanponika, 1972
Keeping one's consciousness alive to the present reality	Hanh, 1976
A process of gaining insight into the nature of one's mind and the adoption of a de-centred perspective	Safran & Segal, 1990
Bare attention in which moment-to-moment awareness of changing objects of perception is cultivated	Epstein, 1995
Giving full attention to the present, without worries about the past or future	Thondup, 1996
State of psychological freedom that occurs when attention remains quiet and limber, without attachment to any particular point of view	Martin, 1997
A state of keen awareness of mental and physical phenomena as they arise within and around	Harvey, 2000
A process of regulating attention in order to bring a quality of nonelaborative awareness to current experience and a quality of relating to one's experience within an orientation of curiosity, experiential openness, and acceptance	Bishop, Lau, Shapiro, Carlson, Anderson & Carmody, 2004
Moment-by-moment awareness	Germer, Siegel & Fulton, 2005
Paying attention in a particular way; on purpose, in the present moment, and non-judgementally	Kabat-Zinn, 2005
A mode, or state-like quality, that is maintained only when attention to experience is intentionally cultivated with an open, non-judgemental orientation to experience	Lau, Bishop, Zindel, Buis, Anderson, Carlson & Devins, 2006
Attention to the experience occurring in the present moment, in a non-judgemental or accepting way	Baer, 2006
A simple mental factor that can be present or absent in a moment of consciousness. It means to adhere, in that moment, to the object of consciousness with a clear mental focus.	Rosch, 2007
A receptive attention to and awareness of present moment events and experience	Brown et al. 2007
Being attentively present to what is happening in the here and now	Herndon, 2008
A state of consciousness in which attention is focused on present-moment phenomena occurring both externally and internally	Dane, 2011

Source: Own compilation based on literature cited in the dissertation.

The definitions listed in Table 3.1 collectively emphasize the core characteristics of mindfulness that are present in various conceptualizations. Firstly, mindfulness is a state of consciousness, as numerous researchers and writers have asserted (Hanh, 1976; Harvey, 2000; Lau et al., 2006; Rosch, 2007). The concept of mindfulness is not contingent on the

possession of this quality by some individuals and its absence in others. It is a state of being. The available evidence indicates that mindfulness is a trait, however, due to genetic predisposition and environmental influences, some individuals are more likely to be in a mindful state of consciousness than others (e.g., Baer, Smit & Allen, 2004; Giluk, 2009; Walach et al., 2006; Davidson, 2010).

Secondly, the majority of the definitions assert that the state of consciousness characterizing mindfulness is one in which attention is focused on present-moment phenomena. To be mindful, individuals must be firmly attentive to the here and now (Herndon, 2008), as opposed to being preoccupied with thoughts about the past or the future (Brown & Ryan, 2003). In short, mindfulness involves being in the present moment as much as possible (Epstein, 1995; Thondup, 1996; Weick & Putnam, 2006).

Thirdly, mindfulness can be defined as the active awareness of both external (environmental) and internal (intrapsychic) phenomena. These two distinct outlets for attention are central to Nyanaponika's (1972) assertion that mindfulness is the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception. Furthermore, it entails attending to external and internal phenomena, given that they are both integral to the present moment (Brown & Ryan, 2003).

Fourthly, mindfulness enables direct experience of events without the influence of judgmental thoughts. This immediacy of contact with the present enables non-judgmental responses to experiences (Feldman, Hayes, Kumar, Greeson & Laurenceau, 2007). Consciousness assumes a clarity and freshness that enables more flexible and objectively informed psychological and behavioral responses (Brown et al., 2007). This affords the individual a certain degree of control and choice over whether to allow automatic responses to occur or to consciously regulate their behavior in a manner that serves more adaptive outcomes (Bargh & Chartrand, 1999; Good et al., 2016; Kabat-Zinn, 1994; Reb, Narayanan & Ho, 2015; Thompson & Waltz, 2007).

These four qualities of mindfulness – conscious awareness and attention to the present, both internally and externally, with a non-judgmental openness – yield numerous emotional, psychological as well as physical effects. The most often referenced effects in academic studies on the topic are listed in Table 3.2.

Table 3.2. Effects of mindfulness noted in academic studies

Effect	**Source**
Enhanced vitality and well being	Brown & Ryan, 2003; Brown et al., 2007; Carmody & Baer, 2008; Coffey & Hartman, 2008; Feldman et al, 2007; Hahn, 1976; Sedlmeier et al., 2012;
Positive affect and mood	Davidson & Schuyler; 2015; Jain, Shapiro, Swanick, Roesch, Mills & Bell, 2007; Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010; Malinowski & Lim, 2015; Roche, Haar, & Luthans, 2014; Salanova, 2017;
Higher self-esteem	Brown & Ryan, 2003; Carson & Langer, 2006;
Better coping with strong emotions and physical pain	Allen, Dietz, Blair, van Beek, Rees, Vestergaard-Poulsen, Lutz & Roepstorff, 2012; Baer, 2003; Broderick, 2005; Shapiro et al., 2006; Shepherd & Cardon, 2009;
Reduced depression and anxiety	Brown & Ryan, 2003; Carlson & Brown 2005; Davidson & Schuyler, 2015; Hollis-Walker & Colosimo 2011;
Enhanced resilience	Creswell & Lindsay, 2014; Good et al., 2016; Hülsheger et al., 2013; Jha et al., 2010; Roche et al., 2014; Wolever et al., 2012;
Self-compassion, reduced fear of being judged by others	Baer et al. 2012; Campos, Cebolla, Quero, Breton-Lopez, Botella & Soler, 2015; Carson & Langer, 2006; Rieken, Shapiro, Cilmartin & Sheppard, 2019; Roeser et al., 2013;
Empathy	Davidson & Schuyler, 2015; DeKeyser, Raoes, Leijssen, Leysen & Dewulf, 2008; Shonin, Van Gordon, & Griffiths, 2013;
Greater self-awareness leading to self-determined behavior and self-control	Brown & Ryan, 2003; Deci & Ryan; 1985; Glomb et al., 2011; Schmertz, Anderson, & Robins, 2009; Tang & Posner, 2013;
Improved stress regulation	Flook, Goldberg, Pinger, Bonus, & Davidson, 2013; Krasner, Epstein, Beckman, Suchman, Chapman, Monney & Quill, 2009; Sedlmeier et al., 2012; Shapiro et al, 2006; Roeser et al., 2013;
Help control cravings (smoking, compulsions)	Elwafi, Witkiewitz, Mallik, Thornhill, & Brewer, 2013; Westbrook, Creswell, Tabibnia, Julson, Kober & Tindle, 2013;
Stabili**zed** attention and reduce mind wandering	Brewer, Worhunsky, Gray, Tang, Weber & Kober, 2011; Davidson & Schuyler; 2015; Ding et al, 2015; Hasenkamp, Wilson-Mendenhall, Duncan, & Barsalou, 2012; Lutz et al., 2008; Mrazek, Smallwood & Schooler, 2012; Wadlinger & Isaacowitz, 2011; Smallwood & Schooler, 2015; Tang et al., 2007; Valentine & Sweet, 1999;
Greater sleep quality	Hülsheger et al., 2013

Source: Own compilation based on literature cited in the dissertation.

By stabilizing attention in the present and reducing attention to distractions, even when these are of an emotional nature, individuals become more attuned to the present moment and their internal processes and states. This results in enhanced mental and physical wellbeing, augmented emotional resilience, and more effective coping strategies. Mindfulness facilitates comprehension of internal processes and states (Epstein, 2007), which in turn contributes to enhanced physical and mental health (Thondup, 1996; Creswell et al., 2016). It facilitates more effective coping with mental tension (Jankowski & Holas, 2009) and enhances cognitive control, including verbal fluency and memory (Mosini, 2019).

The objective of mindfulness training is to cultivate a more discerning and nuanced engagement with one's thoughts (Kabat-Zinn, 2003). External experiences, such as a traffic jam, and internal stimuli, such as stress, are an inherent aspect of the human experience. Mindfulness facilitates the management of these experiences and stimuli. Mindfulness teaches the individual to become aware of their reaction, to disengage from that reaction, and to respond in a more beneficial manner. It is precisely through non-striving that individuals become better at attaining their goals. Focus on the task at hand, rather than on the potential outcome. This results in a higher quality of work and a superior end result.

Meditation was found to have the largest effect for variables referred to positive changes in relationships (interpersonal), state anxiety, negative emotions, and trait anxiety, and the lowest for measures of learning and emotion regulation. Overall, it seems that the more cognitive measures (emotion regulation) were less influenced by meditation than were emotional measures, esp. negative ones. Meditation has its largest effects in reducing negative emotions and neuroticism, which might be connected to the surprisingly large effect in the category of interpersonal that relates to relationship issues. Effect of meditation is somewhat stronger for negative emotional than for cognitive variables (Stedlmeier et al., 2012).

3.2 Effect of mindfulness on job performance

Mindfulness contributes to optimal engagement of individuals, groups, and organizations (Akin & Akin, 2015; Bakker & Schaufeli, 2008; Brown & Ryan, 2003; Dane & Brummel, 2014; Seligman & Csikszentmihalyi, 2000). A growing body of work in the management area proves that mindfulness is linked to better workplace functioning (Glombet al., 2011). A few empirical studies have tested the effect of mindfulness on

emotion regulation and interpersonal relations at the group level (Akin & Akin, 2015). These include employee turnover and task performance (Kroon, Menting & Van Woerkom, 2015; Dane, 2011; Dane & Brummel, 2014), job satisfaction (Hulsheger et al., 2012); organizational learning and ethical decision making (Ruedy & Schweitzer, 2010), as well as innovative work behavior (Montani et al., 2020). The table below lists the effects of mindfulness on work engagement, as evidenced by a comprehensive review of the literature on the impact of mindfulness on job performance, conducted using the available peer-reviewed studies.

Table 3.3. Effect of mindfulness on work-relevant behavior noted in academic studies

Effect	**Source**
Increased employee well-being	Alberts, Schneider, & Martijn, 2012; Allen & Kiburz, 2012; Baer et al. 2012; Brown & Ryan, 2003; Campos et al. 2015; Danna & Griffin, 1999; Davidson & Schuyler, 2015; Good et al., 2016; Khoury et al., 2013; Malinowski & Lim, 2015;
Reflective responses / self-determined decisions aligned with basic values and beliefs	Brown & Ryan, 2003; Deci & Ryan; 1985; Glomb et al., 2011; Shapiro et al, 2006;
Greater autonomy	Syper-Jędrzejak & Bednarska-Wnuk, 2019;
Reduced emotional reactivity	Brown et al, 2013; Brown & Ryan, 2003; Creswell, Way, Eisenberger, & Lieberman, 2007; Desbordes et al., 2012; Farb et al., 2007; Hülsheger et al., 2013; Malinowski & Lim, 2015; Reb et al., 2015; Thakrar, 2017; Taylor et al., 2011;
Improved communication skills	Brown et al., 2012; Bishop et al., 2004; Dane & Brummel, 2014; DeKeyser et al., 2008; Hyland et al., 2015; Syper-Jędrzejak & Bednarska-Wnuk, 2019;
Reduced levels of interpersonal conflict	Barnes, Brown, Krusemark, Cambell and Rogge, 2007; Davis & Hayes, 2011; Shonin et al. 2013; Syper-Jędrzejak & Bednarska-Wnuk, 2019;
Improved interpersonal relations	Akin & Akin, 2015; Feldman et al., 2007; Glomb et al., 2011; Syper-Jędrzejak & Bednarska-Wnuk, 2019; Yu & Zellmer-Bruhn, 2018;
Reduced work-family conflict	Allen & Kiburz, 2012
Lower social anxiety	Goldin & Gross, 2010; Keng, Robins, Smoski, Dagenbach, & Leary, 2013; Killingsworth & Gilbert, 2010; Wadlinger & Isaacowitz, 2011;
Better occupational and situational resilience	Jha et al.; Hobfoll, 2002; Roche et al., 2014; Zivnuska, Kacmar, Ferguson & Carlson, 2016;
Reduced workplace stress / improved adaptive stress appraisal	Arch & Craske, 2010; Brown & Ryan, 2003; Garland, Farb, Goldin & Fredrickson, 2015; Good et al., 2016; Lazarus & Follkman, 1984; Lindsay & Creswell 2016; Liu

	et al., 2020; Roeser, Schonert-Reichl, Jha, Cullen, Wallace, Wilensky, Oberle, Thompson, Taylor & Harrison, 2013; Sutcliffe, Vogus & Dane, 2016; Weinstein, Brown & Ryan, 2009;
Reduced levels of burnout	Flook et al, 2013; Hülsheger et al., 2013; Krasner et al., 2009; Roche et al., 2014; Shapiro et al., 2015; Schaufeli et al., 2006
Better coping with workload	Montani et al., 2020; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007;
Increased work engagement	Akin & Akin, 2015; Bakker & Schaufeli, 2008; Brown & Ryan, 2003; Dane & Brummel, 2014; Halbesleben, 2010; Leroy, Anseel, Dimitrova & Sels, 2013; Liu et al., 2020; Malinowski & Lim 2015; Petchsawang & McLean 2017; Seligman & Csikszentmihalyi, 2000;
Enhance organizational commitment	Bakker & Schaufeli, 2008; Ibrahim & Al Falasi, 2014
Lower employee turnover	Dane, 2011, Dane & Brummel, 2014; Kroon et al., 2015;
Better workplace functioning	Glomb et al., 2011; Vogus & Sutcliffe, 2012
Improved organizational learning and competency	Levinthal & Rerup, 2006; Malinowski & Lim, 2015; Rerup, 2005;
Increased job satisfaction	Bono & Judge, 2003; George & Jones, 1996; Hülsheger et al., 2013; Judge, Bono, Erez, & Locke, 2005; Rayton & Yalabik, 2014; Schaufeli et al., 2006;
Enhanced task performance and productivity	Shapiro et al., 2015; Syper-Jędrzejak & Bednarska-Wnuk, 2019;
Enhanced task concentration	Lutz, Slagter, Dunne, & Davidson, 2008; MacLean, Ferreer, Aichele, Bridwell, Zanesco, Jacobs, King, Rosenberg, Sahdra, Shaver, Wallace, Mangun & Saron, 2010; Shapiro et al., 2006;
Enhanced stability, control and efficiency	Good et al., 2016; Killingsworth & Gilbert, 2010; Smallwood & Schooler, 2015;
Increased and sustained levels of attention	Bishop et al., 2004; Dane & Brummel, 2014;
Reduced automaticity	Bargh & Chartrand, 1999; Wadlinger & Isaacowitz, 2011;
Lower error rate	Dane & Brummel, 2014; Endsley, 1995; Herndon, 2008; Stanton, Chambers, & Piggott, 2001;
Enhanced problem solving	Ding et al., 2015; Ostafin & Kassman, 2012;
Improved decision making	Nadkarni & Barr, 2008; Piórkowska, 2016; Shapiro et al., 2015;
Enhanced cognitive flexibility, ability to switch perspectives	Carson & Langer, 2006; Feldman et al., 2007; Chambers, Gullone, & Allen, 2009; Greenberg, Reiner, & Meiran, 2012; Smallwood & Schooler, 2015;
Enhanced working memory capacity and intelligence	Chiesa, Calati, & Serretti, 2011; Gard et al., 2014; Jha et al., 2010; Kane & Engle, 2002; Sedlmeier et al., 2012; Tang et al., 2007; Roeser et al., 2013; Ruocco & Direkoglu, 2013;

Better access to intuitions	Dane, 2011; Dane & Pratt, 2009; Hogarth, 2001; Sadler-Smith, 2008; Topolinski & Strack, 2009;
Enhanced creativity, divergent thinking, idea generation	Baas at al., 2014; Baird, Smallwood, Mrazek, Kam, Franklin Schooler, 2012; Chermahini & Hommel, 2010; Colzato et al., 2012; De Dreu, Baas & Nijstad, 2008; Elsbach & Hargadon, 2006; Hill & Castonguay, 2007; Ostafin and Kassman, 2012; Rieken et al. 2019; Sio & Ormerod, 2009; Walsh, 1995;
Innovative work behaviour	Haas & Langer, 2014; Lomas et al., 2017; Montani et al., 2020; Rieken et al., 2019; Smeekens & Kane, 2016;
Openness to new information and more creative ways of solving problems	Collier & Shi, 2017; Langer & Moldoveanu, 2000; Leroy et al., 2013;

Source: Own compilation based on literature cited in the dissertation.

The results of numerous studies definitively demonstrate a correlation between self-reported mindfulness and the practice of mindfulness with well-being (Alberts et al., 2012; Allen & Kiburz, 2012; Brown & Ryan, 2003; Malinowski & Lim, 2015). Mindfulness practices have a beneficial effect on well-being (Baer et al., 2012; Campos et al., 2015; Danna & Griffin, 1999; Davidson & Schuyler, 2015; Khoury et al., 2013). They have been demonstrated to reduce stress, anxiety, and depression (Khoury et al., 2013). These findings unequivocally support the notion that there is a positive association between mindfulness and work engagement. This is because work engagement is the polar opposite of emotional exhaustion and burnout (Hülsheger et al., 2013; Roche et al., 2014; Schaufeli et al., 2006). It is therefore unsurprising that mindfulness and mindfulness-based practices have been linked to reduced levels of reported burnout (Flook et al., 2013; Hülsheger et al., 2013; Krasner et al., 2009), as well as absenteeism and turnover (Danna & Griffin, 1999). Empirical evidence indicates that mindfulness is negatively correlated with emotional exhaustion. This is because mindfulness enables individuals to cope with challenging situations proactively (Hülsheger et al., 2013; Reb et al., 2015). The same relationships were observed when mindfulness was induced by a self-training intervention, which suggests that mindfulness precedes and affects emotional exhaustion and job satisfaction (Gunasekara & Zheng, 2019).

The majority of work environments present employees with a plethora of demands and challenges. As previously stated, meeting these demands with self-control and regulatory behaviour inevitably results in a depletion of cognitive and emotional resources (Baumeister, Bratslavsky, Muraven, & Tice, 1998). This ultimately results in emotional

exhaustion (Hülsheger et al., 2013). This is largely attributable to the phenomenon of automaticity. The capacity to engage in behaviors with minimal conscious attention to their operational details has adaptive benefits for information processing, particularly when cognitive capacity is constrained (Bargh & Chartrand, 1999). However, this also implies that stimuli are seldom perceived in an objective manner; rather, they are interpreted through the lenses of prior conditioning and habits. Mindfulness disrupts the automatic reaction and reduces emotional reactivity. Mindfulness has been demonstrated to promote autonomous self-regulation (Brown & Ryan, 2003; Sutcliffe et al., 2016) and experiential processing (Brown et al., 2007; Teasdale, 1999), which serves to counteract automaticity with attention directed towards the internal (e.g. thoughts, emotions) or external stimulus itself, in a manner that registers the facts observed (Good et al., 2016). Experiential processing permits the direct observation of a stimulus in its immediate context. This enables the identification of common psychological phenomena, such as mental images, self-talk, emotions, and impulses to act, as part of the ongoing stream of consciousness.

This dispassionate state of self-observation is thought to create a distinct space between one's perception and response. Mindfulness enables one to respond to situations in a more reflective manner, as opposed to a reflexive one (Hyland et al., 2015; Malinowski & Lim, 2015). Previously appraised work environment stressors can be reappraised at a psychological distance as challenges (Farb et al., 2007; Hülsheger et al., 2013), thereby motivating individuals and enabling them to increase engagement in work tasks. To illustrate, in the instance of moment-to-moment contact with a threatening stimulus, such as an angry or abusive superior, the internal experience of fear, anger, or other reactions is manifested. This encompasses awareness of one's interpretations of the outburst, the experience of fear, the physiological response of increased heart rate, and the emotional urge to appease. Reappraisal broadens the scope of attention and reorients the attentional system toward the positively valanced aspects of the stressful event. This reframing imbues the event with meaning and promotes personal growth (Brown et al., 2007; Garland et al., 2015; Montani et al., 2020; Sutcliffe et al., 2016). A laboratory study demonstrated that participants who were instructed to accept and remain in contact with negative emotions (a core component of mindfulness) exhibited significantly less depletion than a control group (Alberts et al., 2012).

Both positive and negative emotions follow a lifecycle (Desbordes, Gard, Hoge, Holzel, Kerr, Lazar, Olendzki & Vago, 2014). Mindfulness practice has been demonstrated

to reduce the duration of the emotional cycle, both in terms of the time taken to reach peak emotional arousal and the subsequent return to baseline. Two studies have demonstrated that mindfulness facilitates the recovery from negative emotions. One study examined the effects of a mood induction (Keng et al., 2013), while the other focused on stress related to public speaking (Brown et al., 2012). The majority of studies have focused on examining responses to negative emotional stimuli. Nevertheless, neurological studies of trait mindfulness and both long-term and novice meditators have demonstrated that mindfulness also serves to dampen emotional reactions to positive stimuli (Brown et al, 2013; Desbordes et al., 2012; Taylor et al., 2011). It can be stated with certainty that mindfulness results in a reduction in emotional reactivity to stimuli. This is attributable to the alterations in emotional assessment that mindfulness engenders. These findings are corroborated by the evidence that individuals who are dispositionally mindful, that is to say, those who exhibit a higher level of the trait of mindfulness, have demonstrated a reduction in negative affect following the experience of stressors (Arch & Craske, 2010). Stimuli are habitually evaluated as positive or negative in relation to the self (Frijda, 1988). Mindful-experiential processing facilitates a more neutral evaluation of experiences, whereby they are viewed without the influence of habitual self-reference. Mindful individuals are able to cognitively reinterpret work situations, which allows them to experience both positive and negative events in the workplace in a more nuanced manner.

The present focus and the related lower emotional reactivity permit individuals to perceive situations in a more objective manner, thereby facilitating more accurate decision-making (Dane & Brummel, 2014). Prior research has shown that the way in which organizational members direct their attention affects their strategic decision-making processes (Nadkarni & Barr, 2008), their risk-taking behaviour (Bazerman & Watkins, 2004), and their awareness of the resources at their disposal (Weick, 1993). The research conducted by Shapiro, Wang and Peltason provided evidence that mindfulness in the workplace has a positive impact on decision-making, employee productivity and mental resilience (Shapiro et al., 2015).

There is evidence to suggest that mindfulness and attentional qualities are linked to cognitive performance, including cognitive capacity and cognitive flexibility (e.g., Smallwood & Schooler, 2015). While general mental ability is typically regarded as a fixed individual trait (Kane & Engle, 2002), the same cannot be said for working memory and fluid intelligence, which are more amenable aspects of cognitive capacity (Kane & Engle,

2002). Working memory can be defined as the short-term buffer that links attention and higher-order cognition (Baddeley, 1992). A series of intervention studies conducted in diverse populations (e.g. soldiers, students, teachers) has yielded evidence that mindfulness increases working memory capacity (e.g. Roeser et al., 2013). Furthermore, dispositional mindfulness has been linked to enhanced working memory capacity, even when controlling for general intelligence (Ruocco & Direkoglu, 2013). There is substantial evidence indicating that both brief (Tang et al., 2007) and lifelong (Gard et al., 2014) mindfulness training benefits fluid intelligence, which refers to the capacity to process and respond to novel information by assessing patterns and relationships.

An elevated and prolonged level of attention on the experiences of individual employees in a given situation engenders cognitive and affective energies (Bishop et al., 2004; Dane & Brummel, 2014). Attentional control can be defined as the ability to direct attention in an appropriate manner in the presence of competing demands (Ocasio, 2011). Mindfulness has been demonstrated to facilitate attentional control. This is achieved by reducing the habitual allocation of attention (Wadlinger & Isaacowitz, 2011) and limiting the extent to which attention is directed towards distracting information. The human mind is observed to wander approximately half of our waking hours (Killingsworth & Gilbert, 2010). Mindfulness practice has been demonstrated to stabilize attention in the present moment (Smallwood & Schooler, 2015). The evidence suggests that mindfulness can enhance three aspects of attention: stability, control and efficiency (Good et al., 2016). It is imperative that employees are able to engage with their work in an undistracted manner. It is unsurprising that the factor of attention contributes the most to work engagement.

The aforementioned observations clearly indicate that mindfulness attunes individuals to a specific type of non-consciously based phenomenon, which carries significant implications for task performance. This phenomenon is referred to as “intuitions”. The role of intuitions in task performance has been discussed by researchers in a number of situations and domains (e.g. Gigerenzer, 2007; Hogarth, 2001; Sadler-Smith, 2008). Mindfulness enables individuals to become more aware of their intuitions by attuning them to phenomena that arise through nonconscious operations (Dane & Pratt, 2009; Dane, 2011). For those with a high level of task expertise, accessing a large number of intuitions is essential for guiding behaviour.

Mindfulness at work facilitates a selective search for creative ideas within an individual’s memory (Smeekens & Kane, 2016), enabling the introduction of new ways of

performing one's job through the utilization of intuitive insights. This frequently occurs through the unconscious recombination of already known actions and experiences. Mindfulness encourages workers to reframe their perception of job demands, leading to a more constructive evaluation of these demands as opportunities rather than obstacles. This shift in perspective has been linked to enhanced innovative performance and a greater receptivity to new information and creative approaches. Additionally, this openness to present experience has been shown to boost employees' energy and mental resilience in the face of challenging work situations (Bishop et al., 2004; Reb et al., 2015).

The present focus has been empirically proven to improve individual employees' creativity and their interest in new experiences (Haas & Langer, 2014). This is evidenced by the fact that problem-solving has been shown to enhance creativity and encourage individuals to seek out new experiences (Collier & Shi, 2017; Gunasekara & Zheng, 2019). Subsequently, employees are able and willing to approach and perform tasks in engaging, interesting, and even novel ways (Langer & Moldoveanu, 2000; Leroy et al., 2013). The research conducted by Rieken et al. (2019) provided definitive evidence of the relationship between mindfulness, divergent thinking, and innovation, particularly among engineering students and recent engineering graduates. The findings indicated that mindfulness significantly enhanced divergent thinking. While meditation did improve the originality of ideas in the idea generation task, it did not significantly impact the number of ideas generated by students in the idea generation task or the engineering design task.

In a challenging and complex work environment with diverse tasks and interactions with peers of varying personalities and temperaments, employees who are able to maintain a non-judgmental attitude and perceive both challenging tasks and people as they are will be best placed to succeed. Such individuals will be able to regulate their emotions when facing stressful events, work progressively and succeed at managing interpersonal relationships at the workplace (Feldman et al., 2007; Glomb et al., 2011). Mindfulness fosters greater awareness of one's own suffering and psychological distress, which in turn facilitates a heightened awareness of the suffering of others (Shonin et al., 2013). The practice of mindfulness has been linked to the development of self-compassion (Roeser et al., 2013), psychological capital, and resilience across a variety of occupational settings, including managerial and entrepreneurial roles (Roche et al., 2014). Additionally, studies have demonstrated the efficacy of mindfulness in extreme contexts, such as live combat simulations (Jha et al., 2010). Greater levels of compassion and self-compassion

undoubtedly lead to improvements in levels of tolerance, cooperation and interpersonal skills in general (Baer et al. 2012; Campos et al. 2015; Shonin et al. 2013). A compassionate disposition constitutes an indispensable component of self-compassion. It serves to safeguard against excessive self-criticism and a proclivity towards self-deprecation, thereby fostering a willingness to take risks and venture into uncharted territories, ultimately leading to the generation of novel solutions.

Mindfulness fosters enhanced flexibility, the capacity to act with awareness in social contexts, the ability to relate to others with kindness and acceptance, compassion, and the capacity to respond constructively to relationship stresses (Barnes et al., 2007; Brown & Ryan, 2003; Davis & Hayes, 2011); Other researchers (e.g. Bishop et al., 2004; Dane & Brummel, 2014; Hyland et al., 2015) have demonstrated that sustained attention broadens one's perspective on experience, which in turn facilitates effective interpersonal communication. This indicates that attention optimizes the quality of moment-to-moment interactive experiences. Mindfulness facilitates moment-to-moment interactions and also supports such organizational behaviors as team and conflict management, as well as influencing better interpersonal and organizational communication (Shapiro et al., 2015). Furthermore, it enhances relationships between co-workers and supervisors and subordinates (Kabat-Zinn, 2000; Malinowski & Lim, 2015).

A notable illustration of this is a study conducted by Montani et al. (2020), which revealed that when mindfulness was elevated, intermediate workloads were linked to augmented innovative behaviour through elevated work engagement. The practice of mindfulness was found to be instrumental in mitigating the adverse effects, yet neither minimal nor excessive workloads proved conducive to work engagement. Accordingly, Montani et al. (2020) posit that it is incumbent upon managers to oversee the workload of their employees and to guarantee that they are not overburdened. Secondly, it is incumbent upon managers to monitor and survey their employees with regard to their level of work engagement. Such feedback will prove invaluable in assessing the resources available to employees to engage in innovative activities. Thirdly, it is imperative that managers pay particular attention to employees who exhibit low mindfulness, as they are potentially susceptible to the detrimental consequences even of a moderate workload. It is therefore essential to minimize repetitive exposure to demanding tasks. These findings demonstrate that organizations must promote mindfulness in order to protect employees against the demotivating and health-impairing consequences of workload. Mindfulness skills can be

fostered through management strategies such as the delivery of training and information about mindfulness, the rewarding of mindful conduct, and the introduction of specific mindfulness-based exercises (Grégoire & Lachance, 2015).

3.3 Meditation as a mindfulness technique

The psychological state of mindfulness can be achieved by any individual. In theory, the technique is straightforward: one simply has to focus one's attention on the present moment (Giluk, 2009; Narayanan & Moynihan, 2006; Weick & Sutcliffe, 2006). Mindfulness practice, both formal and informal, can be employed as a means of cultivating mindful awareness. Although there is no universally accepted definition of formal and informal practice, formal mindfulness practice is unambiguously characterized by practitioners setting aside time to engage in mindfulness meditation practices, including the body scan, sitting meditation and mindful movement. Informal mindfulness practice entails the incorporation of mindfulness into one's existing routines. This is achieved by engaging in mindful moments and applying mindful awareness to everyday activities.

Mindfulness is a state of consciousness that can be cultivated through meditative practice (Conze, 1956; Kabat-Zinn, 2003). Meditation is a family of self-regulation practices that focus on training attention and awareness. The voluntary control of mental processes is a key aspect of meditation, and it is this quality that fosters general mental well-being and development. Furthermore, it cultivates particular abilities, including composure, lucidity, and focus. (Walsh & Shapiro, 2006). Meditations vary in terms of their primary focus. Concentration meditations aim for continuous focus on one object, such as the breath or an inner sound. Awareness or open meditations aim for fluid attention to multiple or successively chosen objects. Some practices simply observe cognitions such as thoughts or images, whereas others deliberately modify them. Some practices aim to foster general mental development and well-being, whereas others focus primarily on developing specific mental qualities, such as concentration, love, or wisdom.

Some contemporary techniques designed to develop mindfulness, such as the popular mindfulness-based stress reduction (MBSR, Kabat-Zinn, 1990) and mindfulness-based cognitive therapy (MBCT, Segal, Williams, & Teasdale, 2002) rely on meditation as the primary meditative practice (Rodrigues, Nardi & Levitan, 2017). Both conceptualize individual mindfulness as a mental state that is characterized by positive mental health and

the capacity to gain insight into the nature of reality (Cullen, 2011; Gajda, 2017). Studies have demonstrated that they can improve well-being (Williams, Kolar, Reger and Pearson, 2001; Grossman, Niemann, Schmidt and Walach, 2004; Creswell, Lindsay, Villalba and Chin, 2019).

Those who practice meditation report feelings of improved self-control and self-esteem, given that it is a self-regulation strategy (Andresen, 2000). Meditators tend to exhibit higher levels of empathy, which is reflected in the increased measures of interpersonal functioning and marital satisfaction (Tloczynski & Tantriells, 1998). Numerous studies have demonstrated that meditation facilitates maturation; meditators demonstrate superior performance on measures of ego, moral and cognitive development, self-actualisation, coping skills and defenses, and states and stages of consciousness (Alexander & Langer, 1990; Emavardhana & Tori, 1997). Ultimately, mindfulness meditation results in a set of distinct mindfulness skills (Baer et al., 2006; Carmody & Baer, 2008; Kabat-Zinn, 1994):

- Observation, the ability to carefully observe, notice, or attend to internal (e.g., bodily sensations, thoughts, emotions) and external phenomena (e.g., sounds, smells)—this skill is mostly targeted with open-monitoring meditation;
- Act with awareness, the ability to fully engage in current activities with undivided attention, or focus on one thing at a time with full awareness—this skill is targeted with focused-attention meditation;
- Description, the ability to verbally describe observed phenomena in a non-evaluative way and without conceptual analysis (e.g., in many mindfulness interventions, participants are instructed to briefly label arising thoughts and fantasies and continue attending to the present moment); and
- Accept without judgment, the ability to accept or being non-evaluative about present-moment experience (e.g., refraining from applying evaluative labels such as right/wrong and allowing reality to be as it is).

Experienced meditators show reduced activation in the neural network indicative of mind wandering (Brewer et al., 2011) and brain activity patterns consistent with sustained attention (Pagnoni, 2012). Mindfulness is the key to increased attentional stability. By noticing mind wandering and returning to the present moment, we can harness the core feature of mindfulness (Hasenkamp et al., 2012). Mindfulness supports attentional control (Ocasio, 2011). This is evidenced by the fact that it reduces the habitual allocation of attention (Wadlinger & Isaacowitz, 2011) and the amount of attention paid to distracting

information (Cahn, Delorme, & Polich, 2013). Studies have proven that meditators are less distractible, even when faced with emotional distractions (Allen et al., 2012). Mindfulness-based meditations and practices demonstrably reduce distress, alleviate mental and physical symptoms, and promote wellbeing and human flourishing (Glomb et al. 2011).

Mindfulness also supports attentional efficiency, which is the economical use of cognitive resources (Neubauer & Fink, 2009; Slagter et al., 2007). Research shows that meditators spend fewer attentional resources processing distractions (Cahn & Polich, 2009) and do not overinvest attention to an initial stimulus, which enables faster detection of subsequent stimuli (Slagter et al., 2007). Expert meditators report that attention takes less effort (Tang, Hölzel, & Posner, 2015), and fMRI[3] scans show that they use fewer resources in brain areas linked to executive attention (Kozasa et al., 2012; Lutz et al., 2009).

The evidence is clear: mindfulness can be improved through practice. Several studies in the field of cognitive neuropsychology have proven that just ten minutes of daily practice is enough to generate structural changes in regions of the brain associated with executive information processing, attention, and self-regulation (Hölzel et al., 2011; Lutz et al. 2007).

3.4 Mapping effects of mindful meditation onto individual innovation competencies, skills and personal characteristics

The evidence of the positive impact of mindful meditation on human behaviour and wellness, including job performance, is abundant and described in Sub-Chapter 3.2. However, it is not yet clear what impact mindful meditation has on the individual facets of innovative work behaviour. No studies to date have been done to assess the impact of meditation, including mindful meditation, on the activities comprising the stages of innovative work behavior. However, it is possible to review the existing research to ascertain the potential impact on individual innovation competences, as these include personal characteristics and traits which are subject to analysis with respect to impact of the practice of meditation.

A systematic review of academic, peer-reviewed articles on the topic of meditation was conducted to assess the impact of mindful meditation on personal innovation competences. The review covered a ten-year period, from 2014 to 2023. The research was

[3] Functional magnetic resonance imaging (fMRI) is an imaging scan that shows activity in specific areas of the brain. In medical settings, fMRI mainly helps plan brain surgeries and similar procedures.

limited to ten years to ensure a reasonable yet still adequate sample of peer-reviewed studies. The three most relevant academic databases were used to identify the sought-after articles: Scopus, Ebisco and Google Scholar.

A preliminary search for the term “mindful meditation” yielded over 900 publications. After removing duplicates, the total number was reduced to 735. The abstracts of all these articles were reviewed to verify their relevance. After excluding articles on the definition and variants of meditation, as well as its origins, the impact of mindful meditation in medical settings, particularly in neurological studies, and other studies on the impact of mindful meditation outside of the work setting or work-related skills, the number of relevant articles for investigating the impact of mindful meditation on personal characteristics and skills comprising individual innovation competence was reduced to 29. Figure 3.2 shows the identification of the sample of 29 peer-reviewed articles that comprised the study sample.

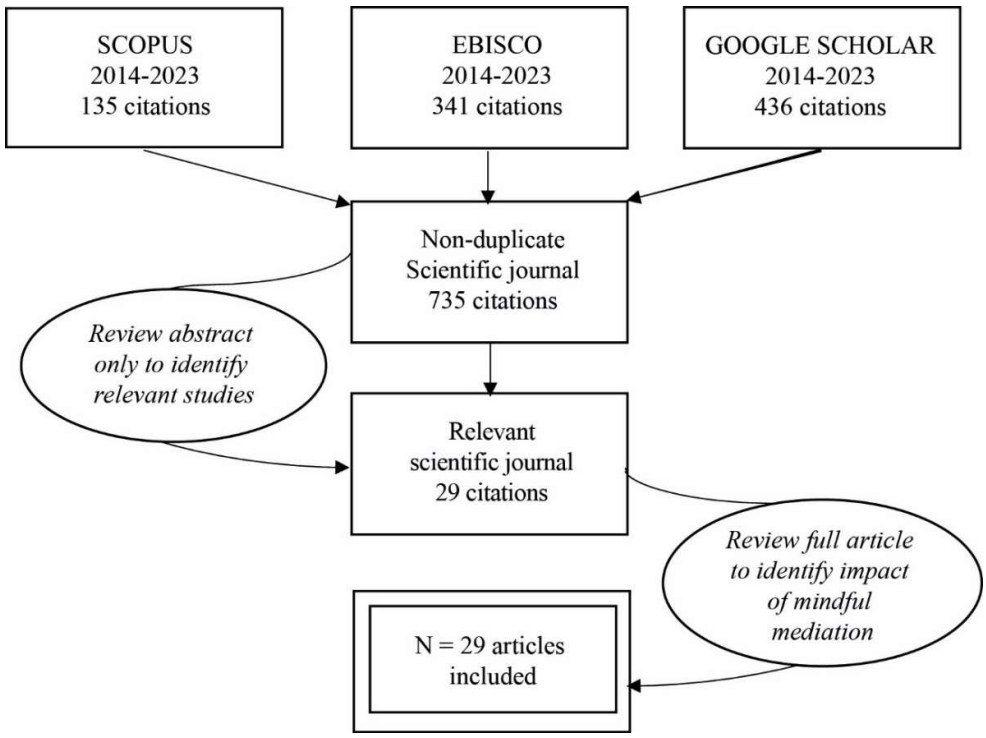

Figure 3.2 Data Extraction Path

Source: Own compilation, following Moher et al., 2009.

The 29 peer-reviewed articles were read to identify the impact of mindful meditation on persons engaged in the performance of work, learning, innovation, creative ideation, or any activities relevant to innovative work behaviour. The list of characteristics, skills and

competences affected by mindful meditation was devised using the exhaustive list of characteristics and skills contained in the personal innovation competence framework developed by Hero et al. (2021), as described in Sub-chapter 2.4. In reviewing the impact described in the 29 surveyed articles, the impact was noted against that list of characteristics and skills. The full mapping is in tables that follow.

Table 3.4. Impact of mindful meditation on personal characteristics underlying individual innovation capability

Personal characteristics	
Self-esteem	
• Self-esteem (6)	Aish, 2020; Henriksen, et al, 2022; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Monzani, et al., 2021; Sleilaty, 2022;
Self-management	
• Self-management (6)	Aish, 2020; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Rupprecht, 2017; Sleilaty, 2022; Yadav & Ahuja, 2023;
• Self-efficacy and control (9)	Aish, 2020; Malow & Austin, 2016; Monzani, et al., 2021; Rupprecht, 2017; Sleilaty, 2022; Shapiro et al, 2014; Yadav & Ahuja, 2023; Zolkoski & Lewis-Chiu, 2019;
• Ability to focus on tasks (6)	Aish, 2020; Argyriadis, et al, 2023 ; Henriksen, et al, 2022; Monzani, et al., 2021; Rupprecht, 2017; Routhier-Martin, 2017;
• Persistence and conscientiousness (3)	Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Rupprecht, 2017;
• Ability to perform well under pressure (13)	Aish, 2020; Henriksen, et al, 2022; Hepburn & McMahon, 2017; Levett, et al, 2017; Malow & Austin, 2016; McCarthy & Reiser, 2017; Rupprecht, 2017; Shapiro, et al, 2014; Singh & Pandya, 2017; Sleilaty, 2022; Takhdat, 2021; Yadav & Ahuja, 2023; Zolkoski & Lewis-Chiu, 2019;
Achievement orientation	
• Ambition (0)	*No mentions*
• Engagement (5)	Argyriadis, et al, 2023; Henriksen, et al, 2022; Monzani, et al., 2021; Rupprecht, 2017; Yadav & Ahuja, 2023;
• Goal orientation and generation (4)	Hepburn & McMahon, 2017; Johnson, et al, 2021; Levett, et al, 2017; Routhier-Martin, 2017;
• Learning goal orientation (5)	Malow & Austin, 2016; Maynard, et al, 2017; Routhier-Martin, 2017; Tanantpapat, et al 2023; Yadav & Ahuja, 2023;
• Achievement and value orientation (4)	Hepburn & McMahon, 2017; Johnson, et al, 2021; McCarthy & Reiser, 2017; Routhier-Martin, 2017;
Motivation and engagement	

• Motivation (5)	Aish, 2020; Henriksen, et al, 2022; McMahon, 2017; Rupprecht,2017; Hepburn & Sleilaty, 2022;
• Engagement (11)	Aish, 2020; Hepburn & McMahon, 2017; Johnson, et al, 2021; Malow & Austin, 2016; McCarthy & Reiser, 2017; Monzani, et al., 2021; Routhier-Martin, 2017; Rupprecht, 2017; Singh & Pandya, 2017; Sleilaty, 2022; Zolkoski & Lewis-Chiu, 2019;
Flexibility	
• Flexibility (2)	Rupprecht, 2017; Shapiro et al, 2014;
• Sense of humour (0)	*No mentions*
Responsibility	
• Take initiative and responsibility (7)	Aish, 2020; Argyriadis A.et al, 2023; Hepburn & McMahon, 2017; Johnson, D. A. et al, 2021; McCarthy & Reiser, 2017; Routhier-Martin, 2017; Rupprecht, 2017;
• Tolerating uncertainty (8)	Aish, 2020; Henriksen, D. et al, 2022; Malow & Austin, 2016, McCarthy & Reiser, 2017; Rupprecht, 2017; Singh & Pandya, 2017; Shapiro et al, 2014; Zolkoski & Lewis-Chiu, 2019;

Source: own compilation based on literature cited in the dissertation.

In line with what is noted in Table 3.4, the impact of mindful meditation on personal characteristics have been well attested to in to-date academic literature. The only characteristic that has not been monitored for impact of meditation is sense of humour.

Table 3.5. Impact of mindful meditation on future orientation skills underlying individual innovation capability

Future orientation skills	
Future thinking	
• Future orientation and creative visioning (0)	*No mentions*
• Visioning (0)	*No mentions*
Alertness to new opportunities	
• Openness to experiences (6)	Henriksen, D. et al, 2022; Malow & Austin, 2016; Zolkoski & Lewis-Chiu, 2019; Rupprecht, 2017; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017
• Curiosity (0)	
• Proactiveness (3)	Aish, 2020; Rupprecht,2017; McCarthy & Reiser, 2017
• Ability to cope with non-routine tasks and uncertainty (5)	Shapiro et al, 2014 Aish, 2020; Zolkoski & Lewis-Chiu, 2019; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017
• Risk-taking ability (2)	Shapiro et al, 2014; Malow & Austin, 2016

• Moderate resistance to change (3)	Aish, 2020; Rupprecht, 2017; McCarthy & Reiser, 2017

Source: own compilation based on literature cited in the dissertation.

Based on Table 3.5, the effect of mindful meditation on skills categorized as future thinking skills has also been noted, with the exception of visioning.

Table 3.6. Impact of mindful meditation on creative thinking skills underlying individual innovation capability

Creative thinking skills	
Creativity skills	
• Creativity (3)	Henriksen, D. et al, 2022; Rupprecht, 2017; Hepburn & McMahon, 2017;
• Imagination (2)	Henriksen, D. et al, 2022; Rupprecht,2017
• Inventiveness (2)	Aish, 2020; Rupprecht,2017
• Ability to generate new ideas and solutions (4)	Henriksen, D. et al, 2022; Aish, 2020; Zolkoski & Lewis-Chiu, 2019; Rupprecht,2017'
• Ability to do things differently (6)	Henriksen, D. et al, 2022; Aish, 2020; Zolkoski & Lewis-Chiu, 2019; Rupprecht,2017; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017
• Problem solving skills (3)	Aish, 2020; Zolkoski & Lewis-Chiu, 2019; McCarthy & Reiser, 2017
Cognitive skills	
• Learning skills (4)	Tanantpapat, T. et al 2023; Takhdat, 2021; Routhier-Martin, 2017; Yadav & Ahuja, 2023;
• Ability to rapidly acquire (0)	*No mentions*
• Exchange and combine (2)	Aish, 2020; Hepburn & McMahon, 2017;
• Knowledge & cognitive skills (6)	Tanantpapat, T. et al 2023; Maynard, B. R et al, 2017; Aish, 2020; McCarthy & Reiser, 2017; Takhdat, 2021; Routhier-Martin, 2017;
• Analytical skills (4)	Zolkoski & Lewis-Chiu, 2019; Rupprecht,2017; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017
• Skills in thinking (1)	Aish, 2020;
• Ability to combine and interpret (2)	Aish, 2020; Zolkoski & Lewis-Chiu, 2019;
• Willingness to question your own and others' ideas (3)	Aish, 2020; Zolkoski & Lewis-Chiu, 2019; McCarthy & Reiser, 2017

Source: own compilation based on literature cited in the dissertation.

The evidence listed in Table 3.6 of the impact of mindful meditation on creative thinking skills is not surprising. No academic research reported any effect of meditation on ability to rapidly acquire knowledge.

Table 3.7. Impact of mindful meditation on social skills underlying individual innovation capability

Social skills	
Collaboration skills	
• Cooperation skills (4)	Argyriadis, et al, 2023; Malow & Austin, 2016; Monzani, et al., 2021; Yadav & Ahuja, 2023
• Teamwork skills (3)	McCarthy & Reiser, 2017; Monzani, et al., 2021; Sleilaty, 2022;
• Social astuteness and sensitivity (6)	Argyriadis, et al, 2023; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Sleilaty, 2022; Zolkoski & Lewis-Chiu, 2019; Yadav & Ahuja, 2023;
• Interpersonal management (7)	Aish, 2020; Hepburn & McMahon, 2017; Johnson, et al, 2021; McCarthy & Reiser, 2017 Monzani, et al., 2021; Rupprecht, 2017; Shapiro et al, 2014; Sleilaty, 2022;
• Interpersonal influence (3)	Johnson, et al, 2021; McCarthy & Reiser, 2017; Monzani, et al., 2021
• Championing (0)	*No mentions*
• Ability to motivate others (6)	Aish, 2020; Hepburn & McMahon, 2017; Johnson, et al, 2021; McCarthy & Reiser, 2017; Sleilaty, 2022; Zolkoski & Lewis-Chiu, 2019;
• Ability to build trust (6)	Aish, 2020; Malow & Austin, 2016; McCarthy & Reiser, 2017; Monzani, et al., 2021; Rupprecht, 2017; Zolkoski & Lewis-Chiu, 2019;
• Ability to mobilize the capacities of others (4)	Aish, 2020; Rupprecht, 2017; Sleilaty, 2022; Zolkoski & Lewis-Chiu, 2019;
Networking skills	
• Ability to create partnerships (3)	Johnson, et al, 2021; Monzani, et al., 2021; Sleilaty, 2022;
• Internal and external networking (0)	*No mentions*
Communication skills	
• Communication (4)	Aish, 2020; Argyriadis, et al, 2023; Rupprecht, 2017; Sleilaty, 2022;
• Ability to make your meaning clear to others (1)	Hepburn & McMahon, 2017;
• Presentation skills (0)	*No mentions*
• Ability to write memos or documents (0)	*No mentions*

• Ability to write and speak a foreign language (0)	*No mentions*
• Negotiation skills (2)	Johnson, et al, 2021; Hepburn & McMahon, 2017;
• Active listening (2)	Argyriadis, et al, 2023; Zolkoski & Lewis-Chiu, 2019;
• Brokering (information exchange) (0)	*No mentions*

Source: own compilation based on literature cited in the dissertation.

Table 3.8 lists cases in academic research of a noted impact of mindful meditation on social skills, including networking and communication skills. Specific skills for which no evidence of such impact was noted in the analyzed literature include championing, internal and external networking, presentation skills, ability to write memos or documents, ability to write and speak a foreign language, and brokering (information exchange).

Table 3.8. Impact of mindful meditation on development project management skills underlying individual innovation capability

Development project management skills	
Process management skills	
• Ability to manage collaborative knowledge creation process (0)	*No mentions*
• Ability to use time efficiently (5)	Aish, 2020; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Routhier-Martin, 2017; Rupprecht, 2017;
• Research and development skills (0)	*No mentions*
Leadership skills	
• Coaching others (2)	McCarthy & Reiser, 2017; Rupprecht, 2017;
• Ability to recognize competencies (1)	Aish, 2020;
• Building team spirit (2)	Hepburn & McMahon, 2017; Malow & Austin, 2016;
• Negotiating the division of labour (0)	*No mentions*
Technical skills	
• Technical skills (0)	*No mentions*
• Ability to use computers and the internet (0)	*No mentions*
• Technical crafting and research skills (0)	*No mentions*

Source: own compilation based on literature cited in the dissertation.

Project management stills, according to evidence listed in Table 3.8, were not considered a realm for influencing with mindful meditation, and only a few of the sub-skills were listed as affected by meditation, namely ability to use time efficiently, coaching others, building team spirit.

Table 3.9. Impact of mindful meditation on content knowledge skills underlying individual innovation capability

Content knowledge skills	
Own discipline content knowledge	
• Mastery of one's own field of knowledge (2)	Aish, 2020; Takhdat, 2021;
Other discipline content knowledge	
• Knowledge of other fields or disciplines (0)	*No mentions*
• Content knowledge that is not specified in advance (0)	*No mentions*

Source: own compilation based on literature cited in the dissertation.

Content knowledge skills, as evidenced by Table 3.9, were also not considered for mindful meditation intervention,, though there were two noted instances of meditation affecting mastery of one's own field of knowledge.

Table 3.10. Impact of mindful meditation on concretization and implementation planning skills underlying individual innovation capability

Concretization and implementation planning skills	
Making skills	
• Designing skills (0)	
• Prototyping skills (0)	
• Skills in making (know-how) (0)	
• Esthetical and psychomotor skills (0)	
Productization planning skills	
• Making a prototype and testing it (0)	
Marketing and sales planning skills	
• Marketing, sales and entrepreneurship planning skills (0)	
• Implementation, planning and commercialization (0)	

Source: own compilation based on literature cited in the dissertation.

To close, the last set of skills – concretization and implementation planning skills, according to Table 3.10, was not an area examined to date for effects of the practice of mindful meditation.

To enhance the legibility of the insights, the data in tables was transposed into figures in which every mention of a particular characteristics/competence/skill is given a box; the box is colored in line with the color applied in mapping individual innovation competences to innovative work behavior (see Chapter 3.2). No visualization of impact of meditation on concretization of implementation planning skills is provided as no such evidence was found.

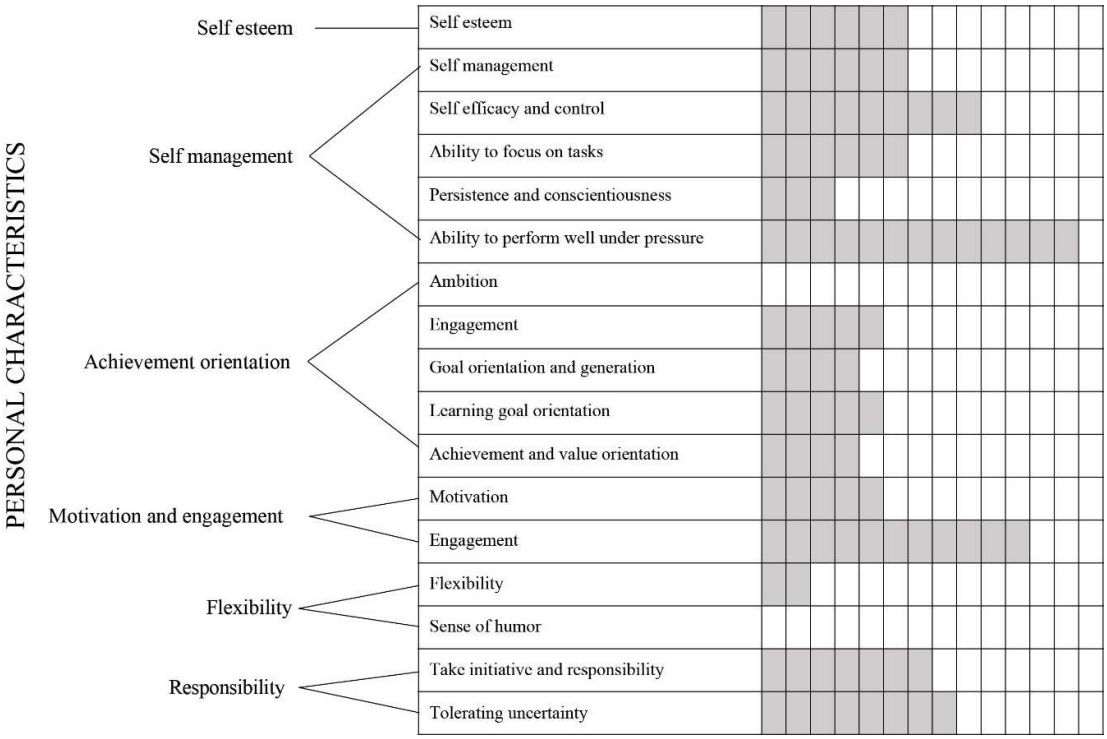

Figure 3.3. Impact of mindful meditation on personal characteristics underlying individual innovation capability, as evidenced in academic literature review in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

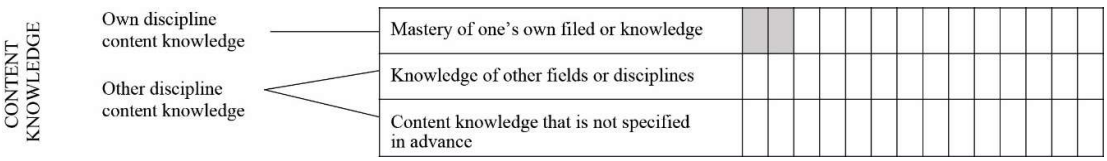

Figure 3.4. Impact of mindful meditation on content knowledge skills underlying individual innovation capability, as evidenced in literature review in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

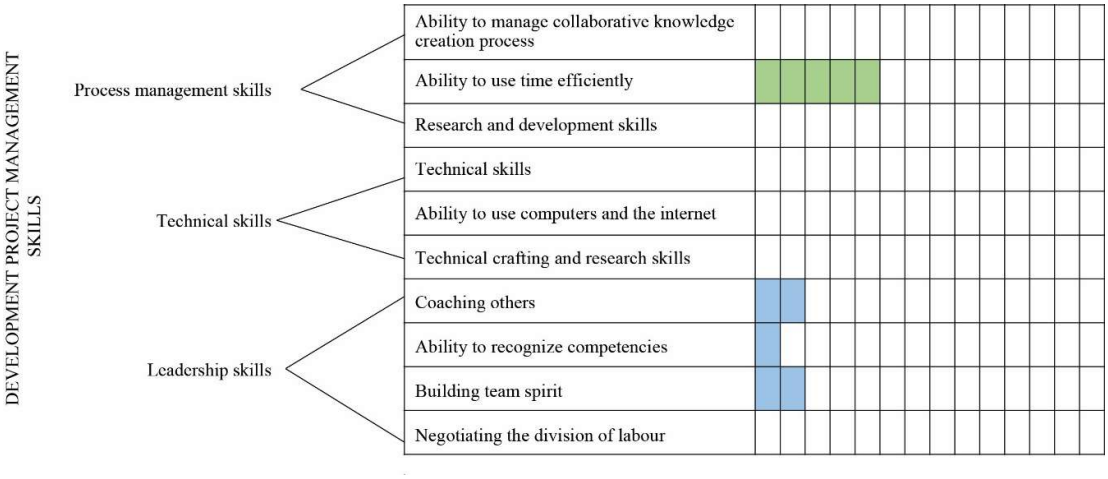

Figure 3.5. Impact of mindful meditation on development project management skills underlying individual innovation capability, as evidenced in literature review in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

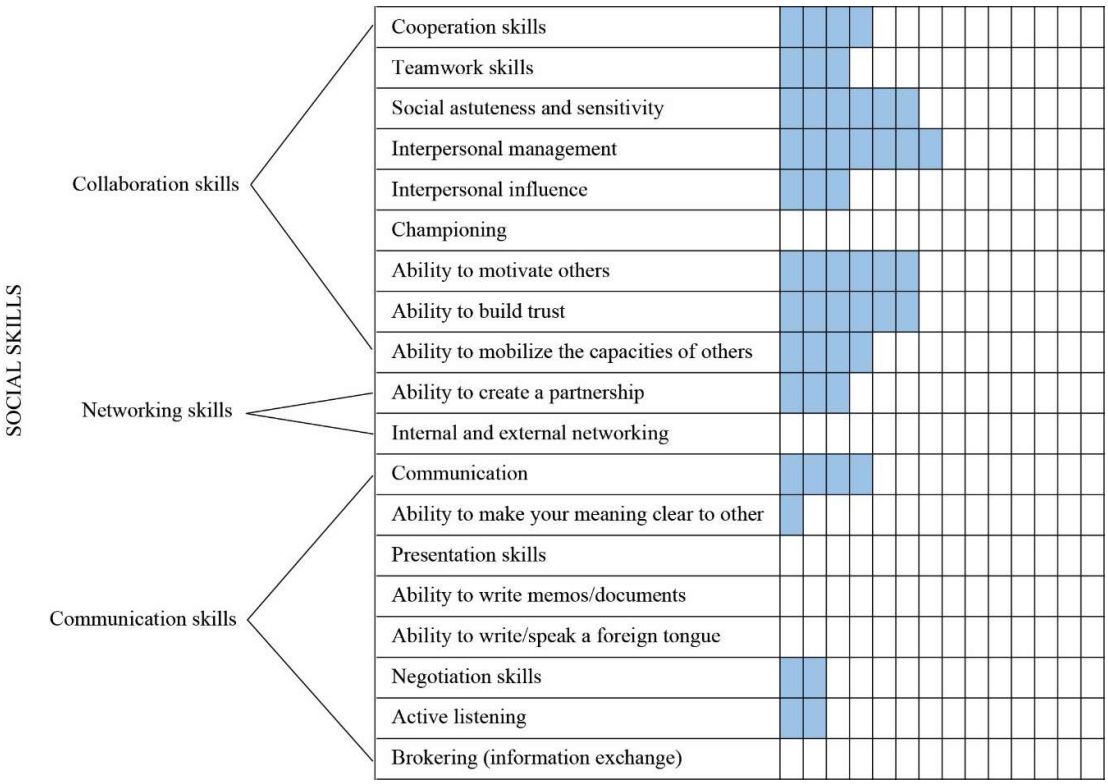

Figure 3.6. Impact of mindful meditation on social skills underlying individual innovation capability, as evidenced in literature review in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

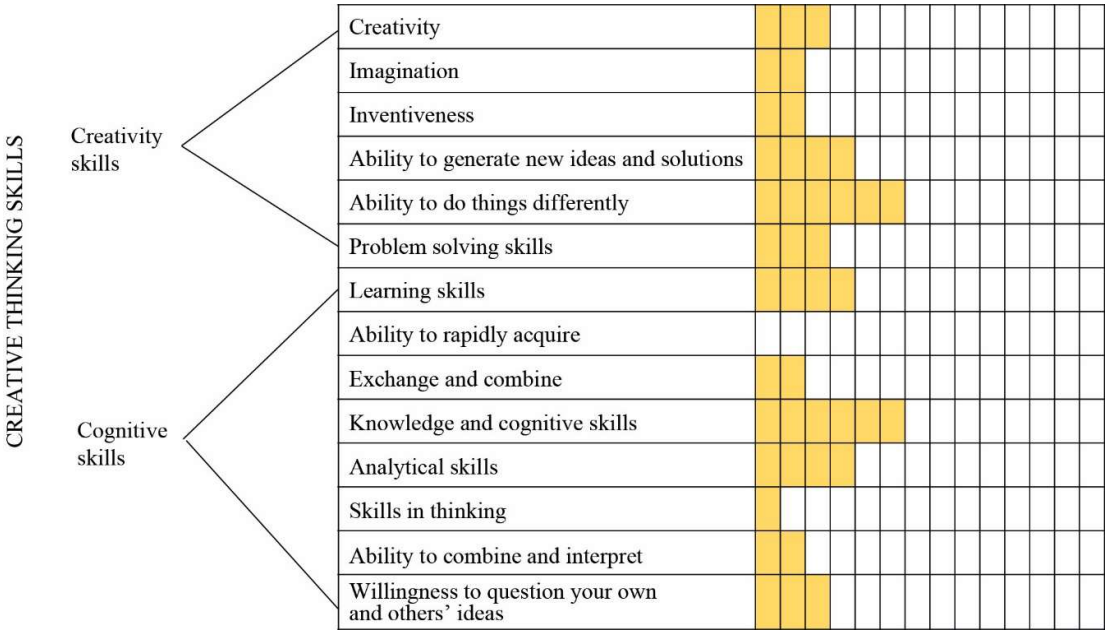

Figure 3.7. Impact of mindful meditation on creative thinking skills underlying individual innovation capability, as evidenced in literature review described in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

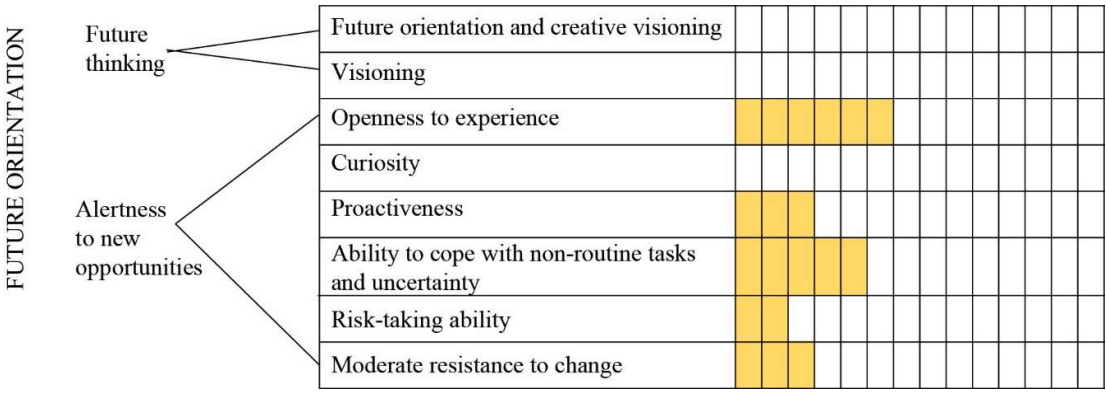

Figure 3.8. Impact of mindful meditation on future orientation skills underlying individual innovation capability, as evidenced in literature review described in Chapter 3.4

Source: Own compilation based on Janssen 2001 and Hero et al., 2021.

While the above tables and figures list the exact number of times the academic articles mentioned that a certain personal characteristic or skill was impacted by meditation, as the studies were not conducted to exclusively assess the impact of meditation on these characteristics and skills, this dissertation aims rather than looking at the exact numbers to identify an overall tendency or trend uncovered by to-date research on the impact of mindful

meditation on characteristics and skills comprising personal innovation capabilities, and thus by extrapolation, also the three dimensions of innovative work behaviour.

To highlight these trends, the findings are visualized below using the wordle cloud technique which permits a quick view or impression of the overall trends. The wordle clouds were created using the data in tables 3.4-3.9. Four wordle clouds were created, to display impact of mindful meditation on personal characteristics, idea generation, idea promotion and idea implementation. The wordle clouds are composed of words of varying size and color. The size represents the proportionate number a given characteristics or skill was affected by mindful meditation according to the findings of the 29 analyzed studies; the larger the word, the more often was a given skill or characteristic mentioned as sensitive to meditation. The four colors are used to more easily identify the categorization of personal characteristics (grey), personal innovation capability skills relevant to idea generation (yellow), to idea promotion (blue), and to idea implementation (green). To note, many of the discrete personal innovation capability skills were not mentioned within the analyzed articles, thus they are not visualized across the three wordle clouds below.

Figure 3.9. Personal characteristics affected by meditation, according to studies of the impact of meditation conducted between 2014-2023

Source: Own compilation based on studies of the impact of meditation conducted between 2014-2023.

Figure 3.9 is a wordle cloud of personal characteristics of personal innovation capabilities. The personal characteristics were grouped separately in a wordle cloud for two reasons. Firstly, they are relevant and affect every dimension of innovative work behavior, secondly they were overall the most studied in terms of the impact of mindful meditation on them.

Personal characteristics that underlie personal innovation capabilities play a role in every step of innovative work behaviour. The first wordle map shows that based on the analysed studies that looked at the impact of meditation, fifteen out of the 17 personal characteristics were sensitive to meditation. As earlier findings in this chapter have shown, mindful meditation show strong positive effect on stress. It enables people to perform well under pressure and cope with that pressure. The systematic literature review also reaffirmed the benefits of mindful meditation on engagement, in line with the often-cited evidence. Other relatively sensitive characteristics were the ability to tolerate uncertainty as well as the ability to exercise self-efficacy and control. Taking initiative and responsibility also came though as bolstered by meditation.

Content knowledge is a competence area which also underlies all of the steps of innovative work behaviour. No wordle cloud was created for it as the conducted literature review revealed that there is little evidence that mindful meditation has an impact on content knowledge. In fact, there were only two instances where it was noted that it could strengthen an individual's ability to master their area of expertise. In both cases, this positive effect was a consequence of greater self-confidence and self-esteem and enhanced ability to focus (Aish, 2020; Takhdat, 2021). It is notable that none of the reviewed studies focused on the effects of meditation on learning or recalling information. The two studies that identified a benefit did so through interviews with participants, as part of their freely provided feedback. This may suggest that this positive effect could have been identified, had study design provided for investigating such an effect of meditation.

Figure 3.10 is a wordle cloud of personal characteristics and skills encased in the idea generation dimension of innovative work behavior. The two groupings of skills that are the most relevant to idea generation and were the most affected are within the creative thinking skills group as well as the future orientation skills. The greatest impact was noted on knowledge and cognitive skills as well as the ability to do things differently, which also ties to the ability to cope with non-routine tasks and uncertainty, and foremost to openness to experience.

Figure 3.10. Personal innovation capability skills connected to the idea generation dimension of innovative work behavior, affected by meditation, according to studies of the impact of meditation conducted between 2014-2023

Source: Own compilation based on studies of the impact of meditation conducted between 2014-2023.

The two sets of individual innovation competence skills that support the IWB dimension of idea generation, i.e. creative thinking skills and future orientation skills, showed sustained effect of meditation. Here's a summary of the noted impact of meditation in the reviewed articles. Meditation affected creativity (Henriksen, D. et al, 2022; Hepburn & McMahon, 2017; Rupprecht, 2017), imagination (Henriksen, D. et al, 2022; Rupprecht, 2017), inventiveness (Aish, 2020; Rupprecht, 2017), ability to generate new ideas and solutions (Aish, 2020; Henriksen, D. et al, 2022; Zolkoski & Lewis-Chiu, 2019), as well as the ability to do things differently (Aish, 2020; Henriksen, D. et al, 2022; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Rupprecht, 2017; Zolkoski & Lewis-Chiu, 2019;) and problem solving skills (Aish, 2020; McCarthy & Reiser, 2017; Zolkoski & Lewis-Chiu, 2019). Within the cognitive sub-set of the creative thinking competence, meditation was noted to affect learning skills (Takhdat, 2021; Tanantpapat, Thongbor, Kaewrujee, Tunchaiyaphum & Peechapol, 2023; Routhier-Martin, 2017; Yadav & Ahuja, 2023), skills of exchange and combine (Aish, 2020; Hepburn & McMahon, 2017), knowledge and cognitive skills (Aish, 2020; Maynard, B. R et al, 2017; McCarthy & Reiser,

2017; Takhdat, 2021; Tanantpapat, T. et al., 2023; Routhier-Martin, 2017), analytical skills (Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Rupprecht, 2017; Zolkoski & Lewis-Chiu, 2019), thinking (Aish, 2020), ability to combine and interpret (Aish, 2020; Zolkoski & Lewis-Chiu, 2019), and lastly, willingness to question your own and others' ideas (Aish, 2020; McCarthy & Reiser, 2017; Zolkoski & Lewis-Chiu, 2019).

In the future orientation category, while mindfulness was not found to affect future thinking skill categories, impact of meditation was noted across the reviewed studies for all sub-skills of alertness to new opportunities save for curiosity, namely openness to experience (Henriksen, D. et al, 2022; Hepburn & McMahon, 2017; Malow & Austin, 2016; McCarthy & Reiser, 2017; Rupprecht, 2017; Zolkoski & Lewis-Chiu, 2019), proactiveness (Aish, 2020; McCarthy & Reiser, 2017; Rupprecht, 2017), ability to cope with non-routine tasks and uncertainty (Aish, 2020; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Shapiro et al, 2014; Zolkoski & Lewis-Chiu, 2019), risk-taking (Malow & Austin, 2016; Shapiro et al, 2014), and moderate resistance to change (Aish, 2020; McCarthy & Reiser, 2017; Rupprecht, 2017).

Figure 3.11. Personal innovation capability skills connected to the idea promotion dimension of innovative work behavior, affected by meditation, according to studies of the impact of meditation conducted between 2014-2023

Source: Own compilation based on studies of the impact of meditation conducted between 2014-2023.

In the analysis conducted in Sub-Chapter 3.4, personal innovation capabilities relevant to idea promotion were those categorized under social skills, leadership skills and marketing and sales planning. Figure 3.11 is a wordle cloud representation of the personal characteristics as well as skills relevant to idea promotion and their relative sensitivity to mindful meditation. While all three categories were affected by the practice, social skills were by far the most sensitive, especially skills related to interpersonal management, social astuteness and sensitivity, ability to motivate others as well as to build trust.

In the systematic literature review, social skills were the second most impacted by mindful meditation (second only to personal characteristics). Many earlier studies had noted that mindfulness, by its non-judgmental stance and also positive impact on stress, is conducive to better social interactions and communications. The systematic review confirmed this. Meditation had a positive effect on cooperation skills (Argyriadis A.et al, 2023; Malow & Austin, 2016; Monzani, L. et al., 2021; Yadav & Ahuja, 2023), team work (McCarthy & Reiser, 2017; Monzani, L. et al., 2021; Sleilaty, J. 2022), social astuteness and sensitivity (Argyriadis A.et al, 2023; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Sleilaty, J. 2022; Zolkoski & Lewis-Chiu, 2019; Yadav & Ahuja, 2023) as well as interpersonal management (Aish, 2020; Hepburn & McMahon, 2017; Johnson, D. A. et al, 2021; McCarthy & Reiser, 2017; Monzani, L. et al., 2021; Rupprecht, 2017; Shapiro et al, 2014; Sleilaty, J. 2022) and influence (Johnson, D. A. et al, 2021; Monzani, L. et al., 2021 McCarthy & Reiser, 2017). No positive impact on championing was noted, but again, given this is a very specific skill which was not the subject of any of the studies under review, it is not surprising that no evidence was found for its enhancement through meditation. Meditation was also noted in a significant share of the studies to have a positive impact on ability to motivate others (Aish, 2020; Hepburn & McMahon, 2017; Johnson, D. A. et al, 2021; McCarthy & Reiser, 2017; Sleilaty, J. 2022; Zolkoski & Lewis-Chiu, 2019), to build trust (Aish, 2020; Malow & Austin, 2016; McCarthy & Reiser, 2017; Monzani, L. et al., 2021; Rupprecht, 2017; Zolkoski & Lewis-Chiu, 2019) and to mobilize the capacities of others (Aish, 2020; Rupprecht, 2017; Sleilaty, J. 2022; Zolkoski & Lewis-Chiu, 2019). All in all, it is clear meditation has a strong effect on collaboration skills.

The review also showed an impact of meditation on networking skills, namely on the ability to create partnerships (Johnson et al, 2021; Monzani et al., 2021; Sleilaty, 2022). A number of skills that are part of the communication skills set were also noted to be affected

by meditation, including communication (Aish, 2020; Argyriadis et al., 2023; Rupprecht, 2017; Sleilaty, 2022), ability to make your meaning clear to others (Hepburn & McMahon, 2017), negotiation skills (Hepburn & McMahon, 2017; Johnson, et al, 2021), and active listening (Argyriadis et al, 2023; Zolkoski & Lewis-Chiu, 2019). Again, as in the case of previous skills for which the studies under review provided no evidence of impact of mindfulness training, it is likely that the studies simply did not report impact as particular skills (such as ability to write and speak in a foreign language or ability to write memos or documents) were not within scope of the research.

Leadership skills are a subset of development project management competence. Three out of four of these, namely coaching others (McCarthy & Reiser, 2017; Rupprecht, 2017), ability to recognize competences (Aish, 2020) and building team spirit (Hepburn & McMahon, 2017; Malow & Austin, 2016), were found to be positively affected by meditation. Negotiating the division of labor was not addressed in the reviewed studies.

Figure 3.12 maps out a wordle cloud to show trends in personal innovation capabilities sensitive to meditation, relevant to idea implementation. Only one skill, i.e. ability to use time efficiently, was identified as sensitive.

Figure 3.12. Personal innovation capability skills connected to the idea implementation dimension of innovative work behavior, affected by meditation, according to studies of the impact of meditation conducted between 2014-2023

Source: Own compilation based on studies of the impact of meditation conducted between 2014-2023.

The systematic review showed that mindful meditation does not impact specific skills that fall under the category of concretization and implementation planning. This is undoubtedly because none of the reviewed studies looked at the impact of mindful meditation on specific skills such as designing, prototyping, making, or marketing and sales planning. Given the benefits of meditation on focus and attention, which are necessary for skills like designing and prototyping, it is likely that meditation would have a positive impact on skills in the concretization and implementation planning category.

The category of development project management skills, which is made up of very specific skills (including the ability to use computers and the internet or technical crafting and research skills) was not found to benefit from mindful meditation. However, as previously discussed, the impact of meditation on skills and tasks within this category was not assessed in any of the reviewed studies. Therefore, it is unsurprising that no mention of such impact was made. Nevertheless, more general skills, such as "Ability to use time effectively", were observed to be positively affected by meditation. (Aish, 2020; Hepburn & McMahon, 2017; McCarthy & Reiser, 2017; Routhier-Martin, 2017; Rupprecht, 2017).

The literature review of the impact of meditation mapped against individual innovation competence to thus show a link with dimensions of innovative work behavior, corroborated earlier and general conclusions on the impact of meditation. Meditation can have a significant effect on how people perceive and process the world around them and alter the way they regulate attention and emotion (Bishop et al., 2004; Lippelt, 2014). Because meditation is a self-regulation strategy, it is not surprising that practitioners report feelings of improved self-control and self-esteem (Andresen, 2000; Walsh&Shapiro, 2006). Mindfulness training has proved to be effective in areas such as reducing stress (Creswell et al., 2016; Gray, Font, Unaru & Davidson, 2018) and improving academic performance (Greeson, Juberg, Maytan, James & Rogers, 2014; Ostafin & Kassman, 2012). Subsequently mindfulness can enhance work engagement (Petchsawang & McLean, 2017), and in particular creativity (Colzato et al, 2012), thanks to its ability to support sustained attention at work (Martin-Hernandez et al, 2020) and to help employees 're-perceive' (Ding et al., 2015; Lomas et al, 2017) their jobs in terms of demands as challenges rather than hinderances, which could also yield greater propensity to engage in innovative work behaviour. The higher measures of interpersonal functioning are also not surprising as they have been noted before (Tloczynski & Tantriells, 1998), and also likely relate to what some have suggested, that meditation may foster maturation, because meditators tend to score

higher on measures of ego, moral and cognitive development, self-actualization, coping skills and defenses, and states and stages of consciousness (Alexander & Langer, 1990; Emavardhana & Tori, 1997).

Thus, the reviewed studies provided a consistent view of the impact of meditation. They also showed the strong impact of mindful meditation on personal characteristics, as well as in particular on two dimensions of innovative work behavior, i.e. idea generation and idea promotion. It is likely, however, that the evidence for mindful meditation having an impact on idea implementation was simply not gathered as the skills that are included under the competences that link to idea implementation were not the focus of any articles reviewed in the systematic literature review. This observation also necessitates a cautious handling of the resulting data on the sensitivity of various aspects of individual innovation competence to meditation, as the studies looked at the impact of meditation on specific behaviors, skills, competences, but without any holistically looking at all the skills and personal characteristics included in individual innovation competency model designed by Hero et al. (2021). Therefore the fact that a specific skill or personal characteristic does not show herein as being affected by meditation does not effectively mean it was not affected, it may in fact mean, the effect of meditation on the particular skill or characteristic was not studied. Nevertheless the outcomes of this systematic literature review form a good frame of reference for the current study on the impact of mindful meditation on dimensions of innovative work behavior, as a starting point of connection to previous research, supporting the identification of deeper trends as well as gaps in research.

CHAPTER 4.

RESEARCH FRAMEWORK AND METHODOLOGY

This chapter presents the adopted research methodology, which enabled the development of a theoretical framework within which the research was conducted in order to test the formulated research hypotheses by applying the selected research methods to the gathered data**. The objective of the research was to identify the impact of the regular practice of mindful techniques on innovative work behavior within an organization that requires innovation capability to maintain its competitive advantage.** The research methodology comprised of discrete steps, visualized in Figure 4.1 and described below it.

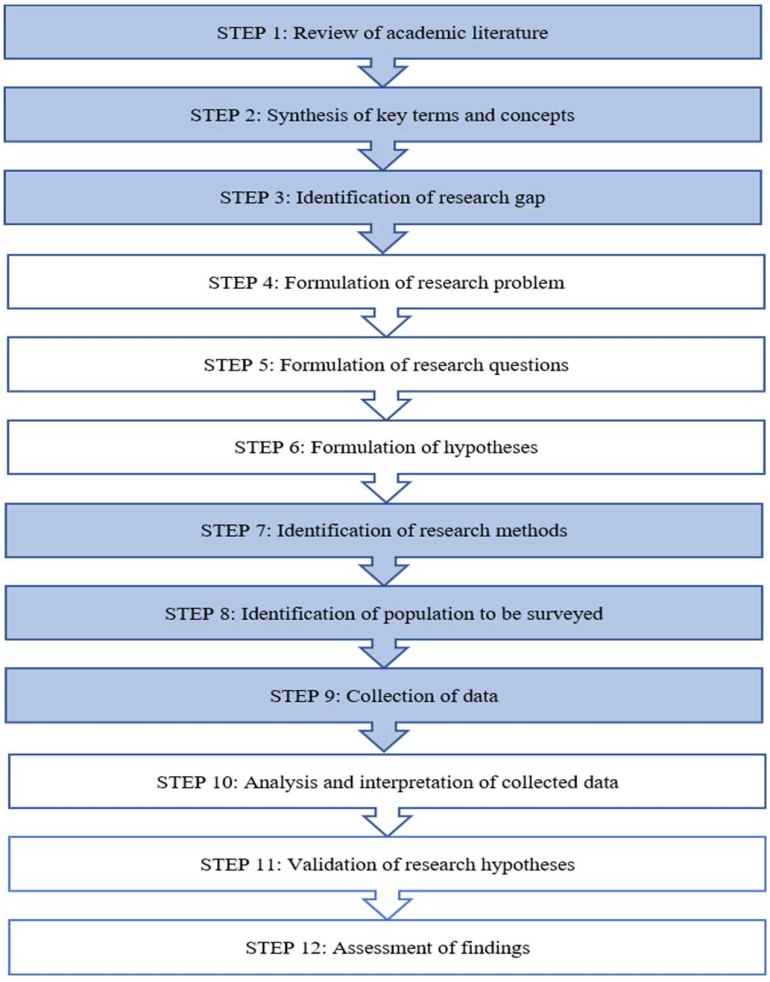

Figure 4.1. Research methodology steps
Source: Own compilation.

The first sub-chapter (4.1 Theoretical framework) is a product of the first three steps of the research methodology in above Figure 4.1 Steps four, five and six detail the research scope described in sub-chapter 4.2. The third section (4.3 Research methodology) provides details on the methods applied to conduct the research, the population selected to conduct the research, and collection of data (Steps 7-9). Steps 10 and 11 are the subject of Chapter 5, Analysis and interpretation of results. The final step – Assessment of Findings is covered in Chapter 6 of this dissertation.

4.1 Theoretical framework

STEP 1: Review of academic literature

The practice of mindfulness has been found to have a broad array of beneficial outcomes, including positive emotional, psychological and occupational effects. As discussed in the preceding chapter, the positive impact of mindfulness on wellness has been shown to make a positive contribution to work engagement and job performance. Beyond the positive wellness effects of mindfulness, the practice has been repeatedly shown to be beneficial to many aspects of job performance, including innovative work behaviour. In a thorough literature review on the topic of the effects of mindfulness on job performance, Eric Dane (2011) posited that the relationship between mindfulness and task performance is positive when one operates in a dynamic task environment and has a high level of task expertise (Dane, 2011). A few studies have been conducted that validate this hypothesis among technology and innovation focused roles. In 2011, Li-An Ho (2011) conducted a study of meditation practices among Taiwanese technology companies. She found that employees' meditation experience significantly and positively increased their openness to challenges, inquisitiveness, and acceptance of responsibility for learning. Such findings imply that employees engaging in mindful techniques may lead to higher organizational innovative capability (for a more detailed review of the most relevant studies, see Sub-chapter 3.4).

The literature review made it possible to delineate a clear area for study – the research gap (see STEP 3: Identification of the research gap). The literature review also allowed a gathering of case studies relevant to the area of research, which defined the terms and concepts key to the research area. The literature review made it possible to identify the best

questionnaires to be reused in the designed study to gather the needed data and for the data to be comparable to the to-date research in the field. Lastly, the second phase of the research, that used the study findings as evidence for formulation of recommendations for organizations that seek to optimize the work context of those engaged on a daily basis in innovative work behavior, relied on theoretical literature as well as case studies to better understand the impact of the conducted study as evidenced by output data that could be compared to earlier studies.

STEP 2: Synthesis of key terms and concepts

To create a solid theoretical framework, academic literature was reviewed to identify to-date findings on the impact of mindful meditation on personal characteristics, skills and attitudes. At work these are manifested in behaviors, including the three dimensions of innovative work behaviors. Thus, individual innovative competencies, grouped into seven skills or personal characteristics sets, can be mapped to the three dimensions of innovative work behavior.

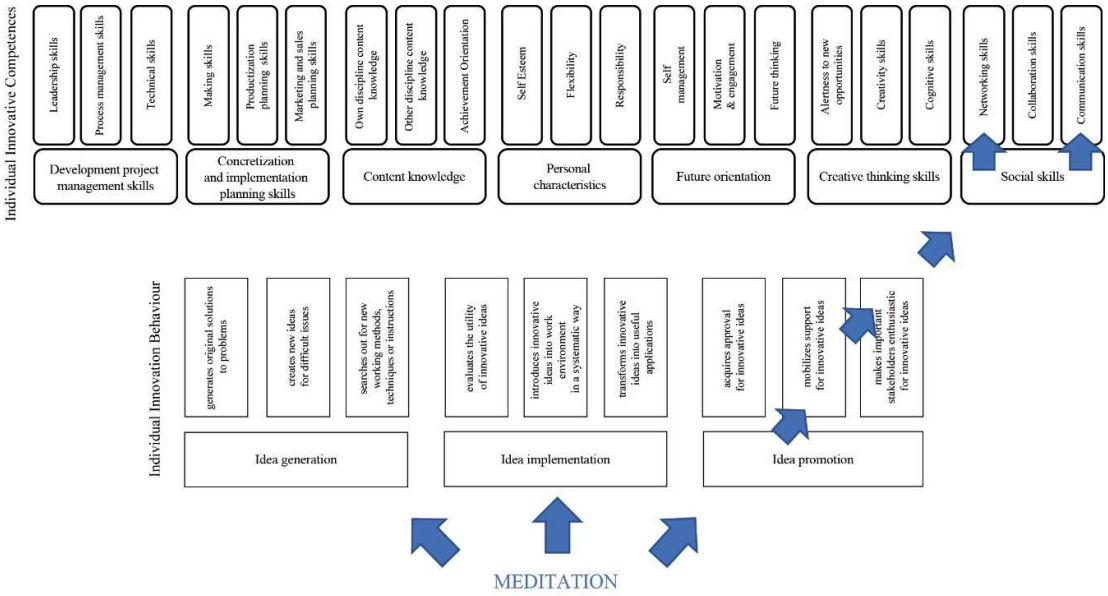

Figure 4.2. Mapping of the impact of meditation onto three IWB dimensions and 21 individual innovation competences

Source: Own compilation based on literature cited in this dissertation.

Thus by correlation, as illustrated in above Figure 4.2, any impact of mindful meditation on a dimension of innovative work behavior can be thus translated also into an impact on individual innovation capabilities. Thus the impact of mindful meditation can be reflected and interpreted within the limits of innovative work behavior but also looked at in the broader context of the affected underlying individual innovation competences, that include skills as well as personal characteristics. This two-fold analysis provides a firmer framework for assessing the importance of the findings within the context of to date findings on the impact of meditation on individual behaviors, skills, competences and attitudes, and also for assessing how they can benefit organizations looking to maximize innovative work behavior of their employees. The comprehensive findings of this literature review are contained in Appendix 2 and discussed in Sub-Chapter 3.4.

STEP 3: Identification of the research gap

While to-date studies, corroborate conclusions that mindfulness is conductive to improved wellbeing, better job performance, and opens the mind to new ideas, and makes it easier to register novelty and usefulness of ideas, no study to-date has looked at the benefits of mindfulness techniques on the discrete dimensions of innovative work behaviour, i.e. idea generation, idea promotion and idea implementation. Yet, these different dimensions have a different bearing on successful implementation of innovations and are of different value to an organization that seeks to maintain its competitive advantage through innovation. Furthermore, no studies have looked at change over time, i.e. the benefits of regular, longer-term practices of mindful techniques on innovative work behavior, but rather on either innovative work behavior of people who are regular practitioners of meditation or on the effect of one-off or short-term mindfulness interventions, in particular on idea generation or creativity, rather than also on idea promotion or idea implementation. Meanwhile, given the strategic value of innovation for organizational success, in particular for global organizations, any research that would be able to provide insight on the contribution of mindfulness techniques to employees' proclivity to innovate – across all three dimensions of innovative work behavior, would be highly valuable.

There have been numerous studies to understand how individual innovative behavior can be encouraged and fostered. Hero at al. (2021) identified the individual innovation competences that underlie innovative work behavior and then investigated educational

interventions that could affect different dimensions of the competences (Hero et al., 2021). They found some were sensitive to educational intervention others were not. On the other hand, mindful meditation has been seen to improve employee work engagement and resilience, as manifested in multitude of work behaviors (see Sub-chapter 3.3 for details of the to-date academic studies). There have been studies on the short-term impact of mindful meditation on single facets of innovative work behavior (in particular idea generation), there have also been research on the impact of mindful meditation on individual facets of individual innovation competence (see Sub-chapter 3.2). Yet, to date there has not been a study to map the impact of mindful meditation on all the dimensions of individual innovative behavior. While studies have been conducted to date that show that meditation improves innovation in general or only idea generation (for details of the to-date research findings see Chapter 3), no studies have looked at the impact of the practice of meditation specifically on idea promotion and idea implementation. Meanwhile, both academics and practitioners recognize these as key ingredients of successful innovation behavior. In fact, many roles today are complex and do not just require idea generation but ask their practitioners to exercise resilience in implementing ideas as well as in influencing others in favor of new ideas and change.

Therefore, this dissertation seeks to investigate the impact of mindful meditation on innovative work behavior, overall as well as on individual dimensions of IWB, through a longer-term engagement in mindful meditation of a population whose work responsibilities include innovative work behavior.

4.2 Research scope

Given the fact that mindfulness enhances personal resilience and drive, as well as work engagement, concentration, resilience, and increased fluid intelligence, it may not only have an impact on idea generation but also on promoting innovative ideas as well as seeing them be executed to completion.

STEP 4: Formulation of research problem

There is plethora of research on the positive effect of mindful meditation on wellbeing (see previous Chapter for an overview). Mindful meditation has been found to benefit work engagement and performance (e.g. Bakker & Schaufeli, 2008; Brown & Ryan, 2003; Dane & Drummel, 2014). One-off meditation interventions have shown it benefits creativity and idea generation (e.g. Baas et al., 2014; Hill & Castonguay, 2007; Ostafin & Kasman, 2012). Yet no one has yet published academic research on the effects of meditation on the longer-term and sustained ability of individuals to generate ideas and be creative, to promote and implement ideas.

STEP 5: Formulation of research questions

Given the above, the following research questions have been formulated to corroborate to date findings and to then go a step further in detailing out which dimensions of innovative work behavior it affects:

- Question 1 (Q1): Does the practice of mindful meditation have a positive impact on wellness?
- Question 2 (Q2): Does the practice of mindful meditation have a positive impact on innovative work behavior?
- Question 3 (Q3): Does the practice of mindful meditation have a positive impact on all three facets of innovative work behavior, i.e. idea generation, idea implementation, and idea promotion?

STEP 6: Formulation of hypotheses

To answer the above questions, the selection of the most appropriate research population was also considered. Sub-chapter 4.3 provides details of the research population, selected purposefully as a professional population who is assessed on its ability to successfully engage in all three dimensions of innovative work behavior.

To answer the above questions, the research will seek to test the following hypotheses:

- Hypothesis 1 (H1): The assessment of wellness by long-term meditators will not change over the course of the study.
- Hypothesis 2 (H2): The assessment of wellness by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
- Hypothesis 3 (H3): The assessment of innovative work behavior by long-term meditators will not change over the course of the study
- Hypothesis 4 (H4): The assessment of innovative work behavior by to-date non-meditators will improve over the course of the study.
- Hypothesis 5 (H5): The assessment of innovative work behavior of enterprise process architects will be higher initially and improve more than of non-architects over the course of the study.
- Hypothesis 6 (H6): The assessment of all three dimensions of innovative work by long-term meditators will not change over the course of the study.
- Hypothesis 7 (H7): The assessment of all three dimensions of innovative work behaviour by to-date non-meditators will improve over the course of the study.
- Hypothesis 8 (H8): The assessment of all three dimensions of innovative work behavior of enterprise process architects will improve more than of non-architects over the course of the study.

Table 4.1 below provides a succinct overview of the research questions and the related hypotheses, making the connections between hypotheses and questions clearer.

Table 4.1: Research questions and related hypotheses of this study

Research questions	**Hypotheses**	
	Long-term meditators	**To-date non-meditators**
Q1: Does the practice of mindful meditation have a positive impact on wellness?	H1: The assessment of wellness by long-term meditators will not change over the course of the study.	H2: The assessment of wellness by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
Q2: Does the practice of mindful meditation have a positive impact on innovative work behavior?	H3: The assessment of innovative work behavior by long-term meditators will not change over the course of the study	H4: The assessment of innovative work behavior by to-date non-meditators will improve over the course of the study.

	H5: The assessment of innovative work behavior of enterprise process architects will be higher initially and improve more than of non-architects over the course of the study.	
Q3: Does the practice of mindful meditation have a positive impact on all three facets of innovative work behavior, i.e. idea generation, idea implementation, and idea promotion?	H6: The assessment of all three dimensions of innovative work behavior by long-term meditators will not change over the course of the study.	H7: The assessment of all three dimensions of innovative work by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
	H8: The assessment of all three dimensions of innovative work behavior of enterprise process architects will improve more than of non-architects over the course of the study	

Source: Own compilation.

Based on to-date academic research and studies, it is highly likely that H1 & H2, H3 & H4, H6 & H7 will be proven in affirmative as the most likely outcome of such a study given earlier research studies conducted on the impact of mindfulness meditation on wellness and job performance (as innovative work behavior is an integral part of the job performance expected of the selected research populations) of long-term meditators as well as non-meditators. Meanwhile, hypotheses H5 and H8 which juxtapose the population of enterprise process architects and non-architects, which has not been found to be done in earlier research, are expected to be prove in affirmative by deduction of what was found in earlier scientific research. Regardless of whether hypotheses H5 and H8 are prove in affirmative or negative they will contribute new findings to this area of research.

4.3 Research methodology

In 2012, Sedlmeier, Eberth, Schwarz, Zimmermann, Haarig, Jaeger and Kunze published a meta-analysis of the effects of meditation on psychological variables (Sedlmeier et al., 2012). The analysis of 163 case studies that qualified for the meta-analysis yielded two clear conclusions: meditation has an effect on psychological variables, however the type of meditation that is practiced, including mindful meditation, does not make a difference. What is key is for the meditation to be practiced regularly.

Following the conclusions of the above meta-analysis, for the purposes of the research, the following definition was adopted for the practice of meditation: the practice of meditation involves meditating at least 3 times a week, for a minimum of 20 minutes at a time. The to-date meditators were asked to continue to meditate as they done to date. The participants who chose to meditate during the duration of the study, were given some sources to decide on which meditation technique to follow, with an emphasis on adopting the technique that seemed most natural and with which they were most likely to stick. The key requirement was the regularly of meditation, that they ensure at minimum to meditate thrice a week for a least 20 minutes at a time. Those that agreed had to meditate for a minimum of three months, at least 3 times a week, for a minimum 20 minutes at a time; thereafter they could choose to stop engaging in meditation or they could continue.

STEP 7: Identification of research methods

To investigate the longer-term impact of mindful meditation on innovative work behavior participants of the study – both those who chose to meditate during the study and those who chose not do, were asked to regularly respond to two questionnaires. One to gauge their wellness, the second to gauge their innovative work behavior. Finally, the study seeks to confirm that the benefits of mindful meditation on wellness and innovative work behavior aggregate and can be habituated (Hodgins & Adair, 2010; Walach et al., 2006); to this end the study population is asked to meditate from three to six months and they are asked to respond to questionnaires repeatedly to document the effect of meditation on their wellness and IWB over time.

Assessment of wellness

Evidence suggests that mindfulness tends to increase physical and mental health, interpersonal relationship quality, and behavioral regulation as well as resilience (Brown et al., 2007; Dane, 2011; Kraśnicka &Wronka-Pośpiech, 2014); it has been shown to reduce anxiety and increase vitality (Brown & Ryan, 2003). In 1984, Hettler identified six dimensions in his individual wellness model: Social, Occupational, Spiritual, Physical, Intellectual, and Emotional (Hettler, 1984). For the purposes of assessing the wellness of participant relevant to potential impact of mindful intervention, an abridged wellness questionnaire was used (Hatti et al., 2004; Piagatti, 2021), requiring all participants to

conduct a self-assessment of emotional, intellectual and occupational wellbeing four times over the duration of the study.

Table 4.2. Wellness questionnaire used to assess the wellness of study participants

Emotional Wellness	Scale: 1 (strongly disagree) – 5 (strongly agree)				
I am resilient and can bounce back after a disappointment or problem					
I am flexible and adapt to change in a positive way					
I am able to recognize and manage the things that cause me stress.					
Intellectual Wellness	**Scale: 1 (strongly disagree) – 5 (strongly agree)**				
I am intellectually stimulated by my work and non-work activities					
I can critically consider the options and information presented by others and provide constructive feedback					
I am capable of making important decisions					
Occupational Wellness	**Scale: 1 (strongly disagree) – 5 (strongly agree)**				
My work is manageable					
I find my work satisfying					
I am developing the necessary skills to achieve my career goals					
I feel understood and appreciated by co-workers					
I balance work with play and other aspects of my life					

Source: Own compilation based on an abridged wellness questionnaire by Piagatti, 2021.

Assessment of innovative work behavior

Innovative work behavior is the intentional introduction and application within a job of ideas, processes, products and procedures that are new to that job and which are designed to benefit it. As Janssen (2003) noted, IWB is composed of three distinct forms of behavior representing the three main stages of the innovation process: idea generation (closely related to creativity, it implies the production of new ideas), idea promotion (finding support and help to carry out the newly generated ideas), and idea implementation (the bringing into life of these new ideas). Thus, innovative performance in the workplace means the accomplishment of work tasks or duties through a set of behaviors that involve workers' generation, promotion, and implementation of new and improved was of doing things.

In order to secure as credible as possible assessment of the participants' innovative work behavior, there assessment of IWB was gathered from both directly from the study participants, and also from assessors, i.e. persons who regularly interact with the study participants at work (either their managers or colleagues).

To measure innovative behavior, the peers of respondents were asked to rate their IWB using Janssen's (Janssen, 2003) nine-item scale for individual innovative behavior in the workplace. They had to indicate how often the respondents perform innovative activities, among which were 'creating new ideas for difficult issues' (idea generation); 'mobilizing support for innovative ideas' (idea promotion); and 'transforming innovative ideas into useful applications' (idea implementation). The response format is a 7-point scale ranging from 1(never) to 7(always).

The generic innovative work behavior scale was used in order to be equally relevant and equally abstract for both architects and non-architects, as well as their respective peers.

Table 4.3. Janssen's Innovative Work Behavior Scale used to assess IWB of study participants

Question	**Scale: 1 (never) – 7 (always)**						
The person creates new ideas for difficult issues							
The person makes important organizational members enthusiastic for innovative ideas							
The person mobilizes support for innovative ideas							
The person transforms innovative ideas into useful applications							
The person searches out for new working methods, techniques or instructions							
The person introduces innovative ideas into the work environment in a systematic way							
The person evaluates the utility of innovative ideas							
The person acquires approval for innovative ideas							
The person generates original solutions to problems							

Source: Own compilation based on Janssen's Innovative Work Behaviour Scale (2003).

Then, a shortened version of Janssen's Innovative Work Behavior Scale (Janssen, 2003), of a single question per each dimension of innovation, was included in the monthly self-assessment required of the study participants, in order to also enrich the data by individual's own assessment of their innovative work behavior.

Table 4.4. Abridged version of Janssen's Innovative Work Behaviour Scale used in the self-assessment of study participants

Questions	**Scale: 1 (never) – 5 (always)**				
I am good at generating novel ideas					
I have confidence in my ability to solve problems creatively					
I am skilled in further developing the ideas of others					

Source: Own compilation based on abridged IWB questionnaire by Janssen (2003).

The thus gathered data and quantitative analysis were reviewed and analyzed within the context of to-date research and literature relating to innovative work behavior, mindfulness, and mindful meditation, to identify the scale of the impact of meditation on innovative work behavior. This analysis aimed at helping to identify how mindfulness techniques affect innovative work behavior, i.e. which dimensions are impacted by an effect on specific underlying behaviors. This would for a basis for the formulation of recommendations as well guidance for organizations seeking to identify levers to enhance their organization's ability to innovate, as a means of securing competitive advantage**.**

STEP 8: Identification of population to be surveyed

The theoretical framework provided for research to be conducted on a population for which skill and expertise in the separate facets of innovative work behavior, i.e. idea generation, idea promotion, and idea implementation, are important to job performance and success. The profession of an enterprise process architect exhibits such characteristics. An enterprise process architect is an IT professional who ensures an organization's IT strategy is aligned with its business goals. They analyze business processes, define all business needs, and the external environment[4].

Organizations within the ICT sector are increasingly faced with the need to maximize the innovative potential of employees to sustain or obtain a competitive advantage (Hanif & Bukhari, 2015). IWBs is therefore expected to be vital within the ICT sector as it directly impacts organizational performance (Kim & Park, 2017; Shanker et al., 2017). As a reflection of the significance of innovation to performance, some organizations are explicitly adding the dimension of innovation or innovative work behavior into their role and

[4] A detailed overview of the enterprise architect role, skills and qualifications, career path and certification, may be viewed here: https://www.leanix.net/en/wiki/ea/enterprise-architect#:~:text=An%20enterprise%20architect%20is%20an,needs%2C%20and%20the%20external%20environment.

competency frameworks. One such company is Capgemini, a technology and professional services company that employs over 350,000 people worldwide.

More than 5,000 enterprise process architects are employed within Capgemini. Innovation is a key professional competency for architects, and five levels of innovation competency are defined in the architect competency matrix. As part of their competence model, enterprise architects are expected to exhibit innovative work behavior. Five levels of competency in the Capgemini Architect Competency Matrix:

- Master: promotes and fosters an environment where innovation can take place;
- Experienced: is able to sell innovations to Capgemini managers and clients;
- Proficient: develops and implements innovations;
- Progressing: develops innovations;
- Baseline: proposes innovations.

According to Capgemini's Architect Career Framework (Capgemini, 2016) "the role of an architect is to drive change that creates business opportunity through technology innovation." To this end, architects shape and translate business and IT strategy and needs into realizable, sustainable technology solutions. Capgemini's Architect Competency Matrix is shown in Table 4.5.

Table 4.5. Capgemini's Architect Competency Matrix

	Competencies	**Associate Process Architect**	**Enterprise Process Architect**	**Managing Enterprise Process Architect**	**Enterprise Process Architect Director**
Professional competencies	Foundation	5	3	2	1
	People Leadership	5	3	2	1
	Client Acquisition & Development	5	3	3	2
	Technological Awareness & Learning	4	3	2	1
	Service & Delivery	4	4	3	2
	Innovation Capability & Growth	4	2	1	1
	Business Leadership	5	3	2	1
Role-specific	Business Knowledge	5	3	2	1
	Integration & Orchestration	5	4	3	2
	Functional Architecture Design	4	2	1	1
	Architecture Knowledge		2	1	1

	Technical Solution Design	5	3	2	1
	Negotiation Skills	4	2	2	1
	Project Financials, KPI & Reporting	4	2	1	1
	Risk Management	5	3	2	2
	Manage the Innovation Ecosystem	5	3	2	1
	Keep an outside-in approach	5	3	2	1

Source: Own compilation based on Capgemini, 2016.

Innovation and Capability Growth is a professional competency, in which progress is expected as an Architect moves from an Associate Architect upwards in seniority. There are five levels of competency specified for Innovation (see Table 4.6).

Table 4.6. Innovation Competency in Capgemini's Architect Competency Matrix

Level of competency	**Behaviour sought as proof of a defined level of competency**
1. Master	• Influences and develops the future direction of our client base • Has substantial knowledge of Capgemini Group's capabilities and value to the market – considers this knowledge when implementing solutions • Creates and drives business plans for own area • Promotes and fosters an environment where innovation can take place
2. Experienced	• Exhibits strong commercial management skills • Is aware of Capgemini Group's capabilities and value to the market • Involved in the creation of own area business plan • Able to sell innovations to Capgemini managers and clients
3. Proficient	• Anticipates internal/external business issues; uses knowledge to focus work and drive improvements • Is able to use business plans to focus and drive work • Develops and implements innovations
4. Progressing	• Interprets internal/external business issues and recommends best practice • Is able to relate the Capgemini business plans to own business plans • Develops innovations
5. Baseline	• Able to relate industry and client knowledge to own area • Is aware of Capgemini and own area business plans • Proposes innovations

Source: Own compilation based on Capgemini, 2016.

In support of the identified gap in to-date research, our study addressed a population of enterprise architects and non-architects. The non-architects formed a group of comparison, as a control population of professionals who are not architects, and are not subjects to the same in-role requirements. In particular, the research study aimed at investigating the effects (and potential differences) of mindful meditation on a population of enterprise process architects and non-architects employed by Capgemini.

STEP 9: Collection of data

The intent of the proposed mindfulness technique was to comprehensively assess the impact over time of the practice of a mindful mediation on innovative work behavior of architects as well as non-architects The study looked at the impact of a mindful technique (meditation) on a group of 54 participants over the course of 6 months. The participants included architects (A) as well as non-architects (a) across multiple countries, with varying work tenure). The survey population was also sub-divided by experienced meditators (E) and non-meditators (e).

Characteristics of the study population

The entire volunteer population was asked to provide basic info: gender, age, home country, role (architect or non-architect), certification level if architect, and to-date experience with meditation.

The study included 54 participants5, including 38 architects and 16 non-architects. From among the architects, 13 were certified at various levels, two with Level 1 certifications, 6 had Level 2 certification, and 5 had Level 3 certification. The 54 participants6 included 32 men and 22 women. From among the men, 27 were architects and 5 were not; from among the women, 13 were architects and 9 were not.

Table 4.7: Study population by age

Age range	Total	men	WomeN	Men architects	Men Non-architects	Women architects	Women non-architects
25-29	5	3	2	2	1	1	1

[5] 54 participants / 38 architects (13 certified: L3:5 /L2: 6 / L1: 2) / 16 Non-Architects
[6] Gender: Male 26A/6a and Female: 12A/11a

30-34	5	2	3	2		2	1
35-39	12	6	6	3	3	3	3
40-44	9	6	3	6		2	1
45-49	6	3	3	3		2	1
50-54	12	8	4	7	1	2	2
55-59	3	2	1	2		1	
60-64	2	2		2			

Source: Own calculations based on study findings.

Participants ranged in age from 25 to 64 years. Figure 4.3 has the age distribution.

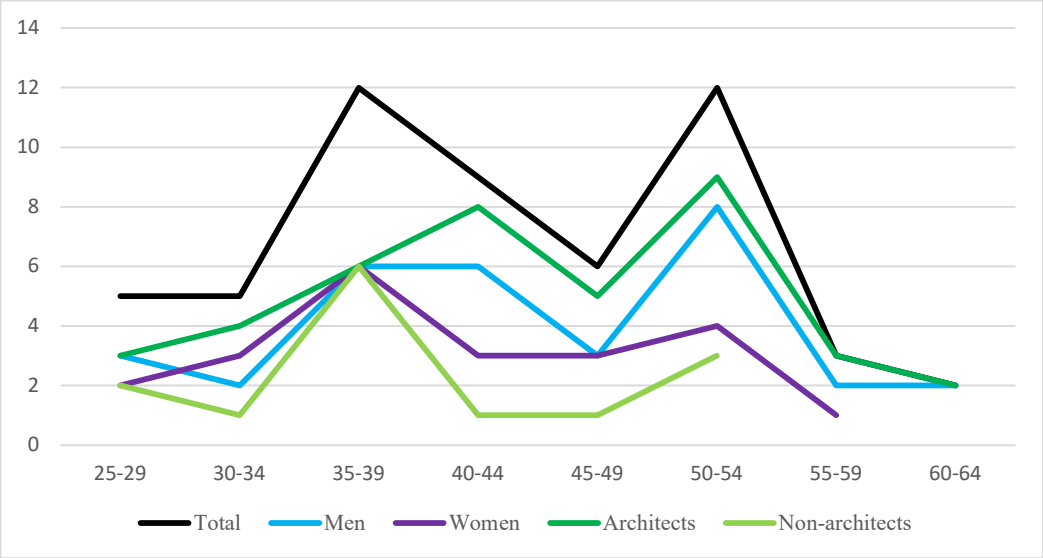

Figure 4.3. Study population age distribution, by gender and role

Source: Own calculations based on study findings.

The surveyed population participated in the study remotely, thus it was possible to include participants from across the globe. Table 4.8 shows the distribution of the study population by home country. Figures 4.4 and 4.5 provide more detail on the population distribution by home country, firstly with an overview of participant gender distribution across countries, and then home country distribution by participant role (architect and non-architect).

Table 4.8. Study population home country distribution, by gender and role

Country	**Total**	Men	Women	**Architects**	**Non-architects**
India	22	14	8	18	4
France	4	3	1	3	1
Netherlands	2	2		2	
Germany	6	2	4	3	1

Poland	3	2	1	1	2
UK	11	6	5	6	5
Italy	1		1		1
US	1	1		1	
Norway	3	1	2	2	1
Belgium	1	1		1	

Source: Own calculations based on study findings.

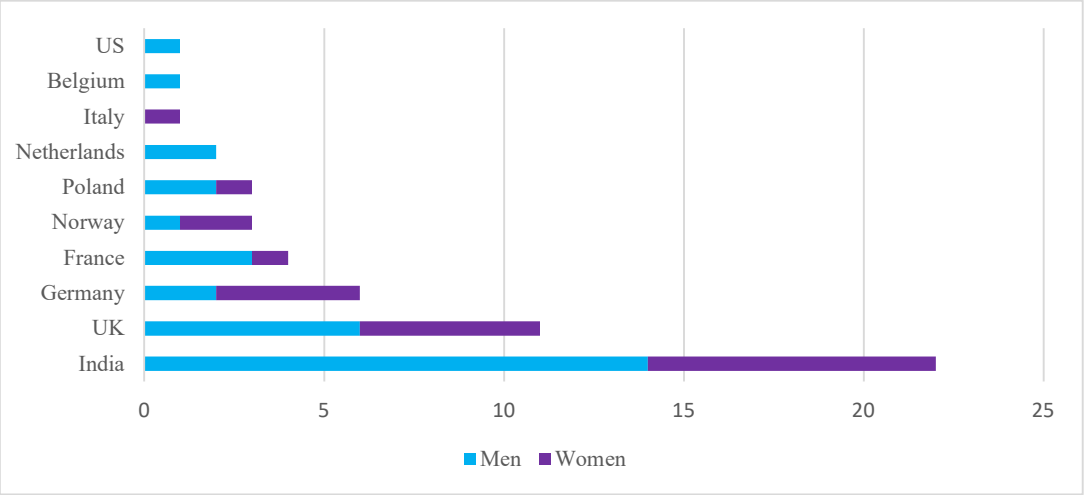

Figure 4.4. Study population home country distribution, by gender

Source: Own calculations based on study findings.

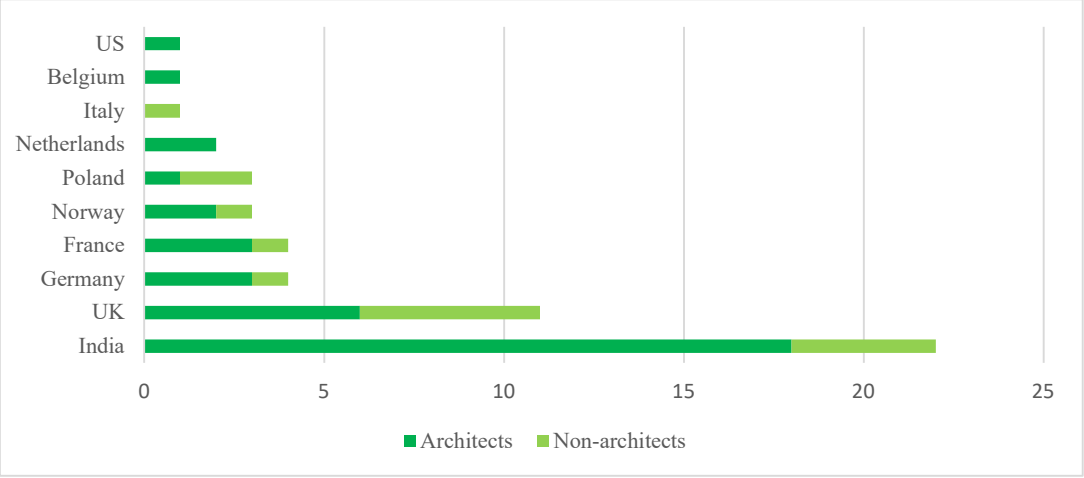

Figure 4.5. Study population home country distribution, by role

Source: Own calculations based on study findings.

The population split evenly across Europe and Asia, with Asia wholly represented by India. Out of the 54 participants, 23 were from India, 11 from the UK, six from Germany, four from the UK, three apiece from Poland and Norway, two from the Netherlands, and

individual participants also came from Italy, Belgium and the United States. The above table and figures illustrate the home country distribution of the surveyed population.

Allocation of study participants into cohorts

The study population was divided into six cohorts. Table 4.9 lists the six cohorts.

Table 4.9: Study population allocated into cohorts

#	Cohort symbol	Cohort description
1	AEMM	Architects who are experienced meditators and meditated in Phase 1 and Phase 2
2	aEMM	non-architects who are experienced meditators and meditated in Phase 1 and Phase 2
3	AeMM	architects who are non-meditators and meditated in Phase 1 and Phase 2
4	aeMM	non-architects who are non-meditators and meditated in Phase 1 and Phase 2
5	AeMm	architects who are non-meditators and meditated in Phase 1 and not in Phase 2
6	aeMm	non-architects who are non-meditators and meditated in Phase 1 and not in Phase 2

Source: Own compilation.

Firstly, the participants were spit by profession, they were either architects or non-architects. Secondly, they were divided into long-term mediators and non-meditators. Long-term meditators were those who practiced mindful meditation regularly before participating in the study, and continued the practice during the study term. Lastly, the participants were split by their decision to either meditate through both three-month phases of the study or to meditate only through the first phase of the study. In Phase 1 all participants had to agree to meditate. In Phase 2, the to-date non-meditators (e) could choose to meditate (M) or not to meditate (m).

Some of the participants were already long-term meditators. Out of the 54 participants, 10 were regularly mediating, including four men and six women. All men were architects, three of the meditating women were architects and three were not architects.

Table 4.10. Study population previous meditation experience, by gender and role

Do you regularly meditate?	Total	Men	Women	Men architects	Men non-architects	Women architects	Women non-architects
Yes	10	4	6	4		3	3
No	44	28	16	22	6	9	7

Source: Own calculations based on study findings.

While all 54 participants meditated in the three-month Phase 1, they were given a choice to meditate or not to meditate in Phase 2. In all, seven chose not to meditate in the three months of Phase 2 of the study, including four male architects and three female non-architects.

Table 4.11 provides an overview of the allocation of the study participants into those who chose to meditate just in Phase 1 and those who chose to meditate through both phases. Table 4.12 provides summary numbers for the population cohorts of the study.

Table 4.11. Study population meditating in Phase 1 and Phase 2 of the study

Participants who chose to meditate	**Total**	**Men**	**Women**	**Men A**	**Men a**	**Women A**	**Women a**
Phase 1	54	32	24	26	6	12	10
Phase 2	47 (-7)	28 (-4)	19 (-3)	22 (-4)	6	12	7 (-3)

Source: Own calculations based on study findings.

Table 4.12 Study population allocated into cohorts

#	**Cohort symbol**	**Cohort size**
1	AEMM	7
2	aEMM	3
3	AeMM	27
4	aeMM	10
5	AeMm	4
6	aeMm	3

Source: Own calculations based on study findings.

Identification of Innovative Work Behaviour Assessors

In addition to making a commitment to either meditate or not meditate for either Phase 1 or both Phase 1 and Phase 2 of the study, the participants were asked to identify an innovative work assessor, someone who regularly interacted with them at work and was aware of what they did at work, either a supervisor or a colleague, in order for this assessor to agree to assess the participants' innovative work behavior regularly in the course of the duration of the study.

All the required questionnaires, sent on a monthly basis to study participants and their assessors/peers, were created in MS forms, and shared on a monthly basis with those who

had agreed to complete them. Most times the participants and assessors did not need to be prompted, but in some cases the collection of the required responses necessitated several prompts. The gathered data was consolidated in a single excel file which listed all the responses for all the participants and their assessors.

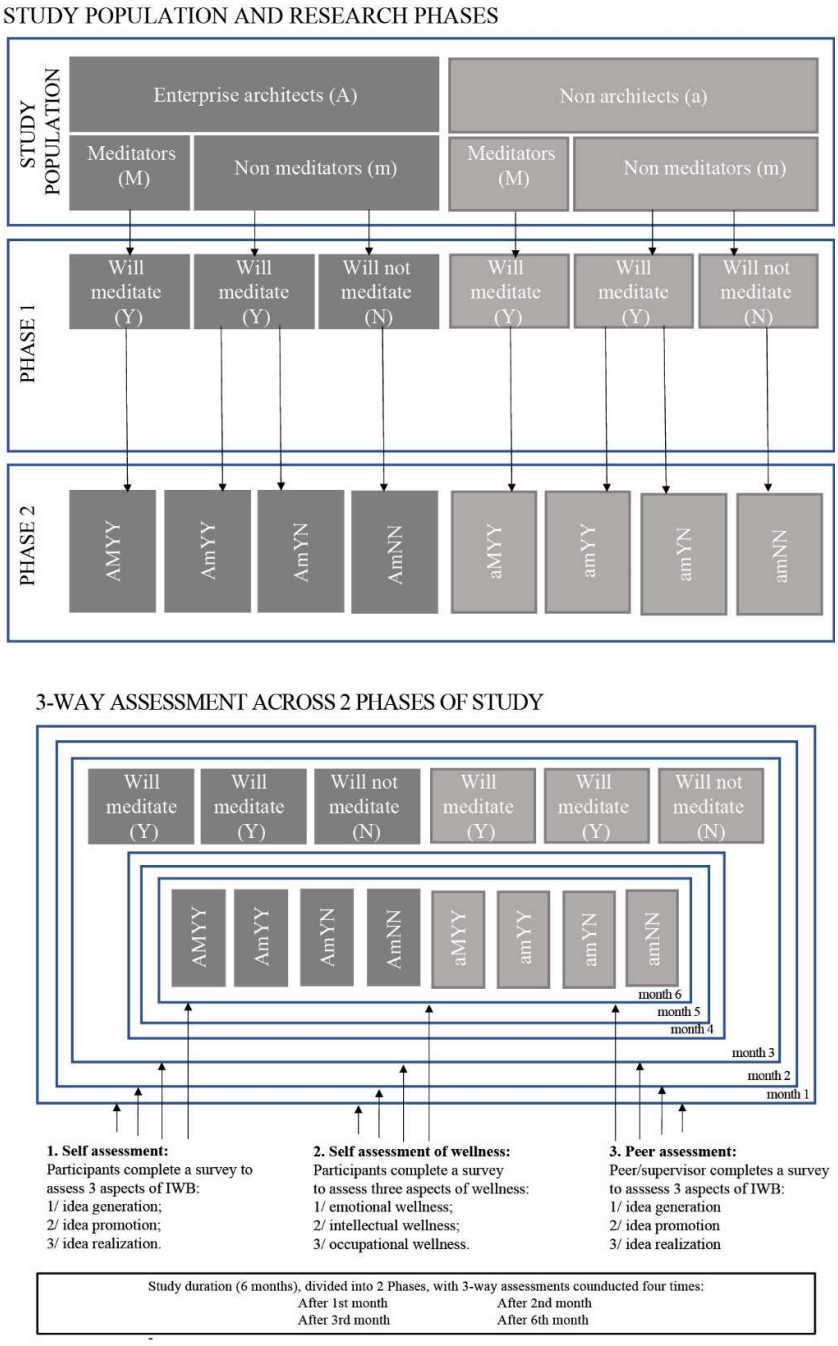

Figure 4.6. Data collection in support of the research model

Source: Own compilation.

Figure 4.6 overviews the research model, with detailed information on study population, study phases, tasks assigned to the participants, and related assessments. As visualized, for the duration of Phase 1 of the study, once a month, the participants were prompted to complete two questionnaires. One to assess their wellness, and the other to secure a self-assessment of their innovative work behavior. Additionally their IWB assessor was also prompted once a month to assess the participants' innovative work behavior, in order to secure a peer-assessment of the IWB. In Phase 2, the participants are asked to complete the two self-assessments only once, at end of Phase 2; their assessors are also asked to complete the participants' IWB only once, i.e. at the end of the three months of Phase 2.

The impact was assessed through an analysis of data collected in the course of the six-month study constructed to assess the impact of mindful meditation directly from participants, and also through a third-party assessment provided by the participants' work supervisors or peers. The objective of the data gathering methods described below was to generate sufficient and robust data to run a quantitative analysis in order to confirm and analyze the beneficial impact of mindful meditation as a mindfulness technique on the innovative work behaviour of the participants.

4.4. Analysis and assessment of findings

In order to ensure materiality of the collected data to responding to the hypotheses, the data was tested for robustness. The IBM SPSS package was used to analyses the basic data. A statistical analysis was conducted using IBM SPSS Statistics 25 package, in order to verify the formulated hypotheses. Shapiro-Wilk tests as well as two-factor analysis of variance in a within-group scheme were used. The classical threshold of $\alpha = .05$ was considered the level of significance, additionally interpreting the probability results of the test statistic in the range of $.05 < p < .1$ as significant at the level of statistical trend.

First, the basic descriptive statistics of the quantitative variables under study were calculated. Shapiro-Wilk tests were also calculated, which check the normality of the distribution of the variables under study. A distribution different from the Gaussian distribution was recorded for all the studied variables. Thus additional verification of the value of the skewness of the distribution is recommended. If it is within +/- 2, it can be assumed that the distribution of the studied variable is not significantly asymmetric with respect to the mean (George & Mallery, 2016). Such a value was noted for all the studied

variables. It was decided that statistical analyses would be performed using parametric tests. To further ensure materiality and robustness of findings, the population was only compared on two dimensions, namely:

- Meditators versus non-meditators;
- Architects versus non-architects.

The effects of gathered demographic info, namely gender, age, home location, were not taken into consideration. Notably, previous meta-analysis of the impact of mindful meditation had noted that gender and age did not have any material effect on outcomes (Sedimeier et al., 2012). In addition, though the data was gathered, no interpretations were made of data collected on the impact of meditation on the wellness and innovative work behaviour of certified versus non-certified architects.

Study size and duration: a comparative analysis

The surveyed population size in absolute numbers is quite small, i.e. 54. Studies that investigate the impact of mindfulness interventions, including mediation, tend to be small. Figure 4.7 graphs the population size of all studies that involved a mindfulness intervention that were referenced in this dissertation (N= 102).

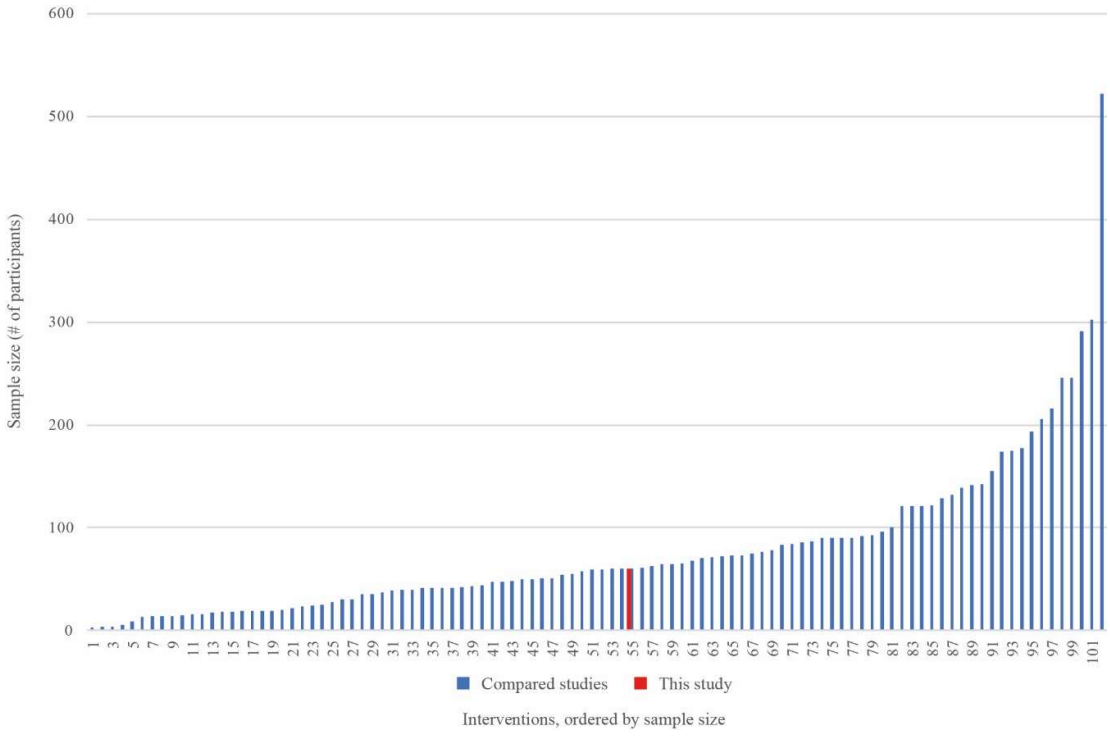

Figure 4.7. Population size of mindfulness intervention studies relevant to this study

Source: Own calculations based on a review of all sources used in this dissertation.

An analysis of all the case studies presented in academic publications used in this dissertation a total of 102 case studies concerning the application to of mindfulness techniques to a defined population to gauge the impact of the techniques. For a detailed view of which cited publications contain the studies and the size of their populations as well as the intervention methods they applied, go to Appendix 1. As can be seen in Figure 4.7, such case studies rely on a small sample size; in fact, across the publications analysed in this dissertation, the study populations ranged from 3 participants to 522, with the mean of 77, median of 59, and trimodal mode of 19, 41, 90. In this context, the sample size of 54 is average and material.

Given that the effects of mindfulness techniques are habituated and have been documented to bring long-term behavioural as well as neurological changes, the duration of the studies is also an important factor. Thus, in analysing the mindfulness technique interventions, their duration was also considered. Figure 4.8 orders the interventions by duration.

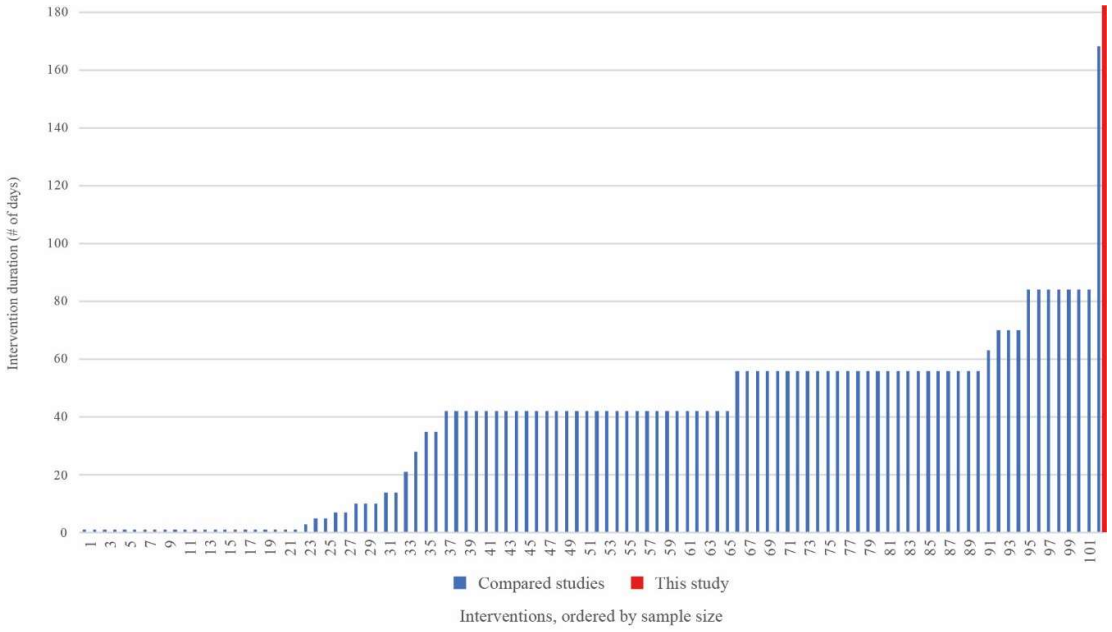

Figure 4.8. Duration of mindfulness intervention studies relevant to this study

Source: Own calculations based on a review of all sources used in this dissertation.

The period of studies under analysis ranged from one-off interventions (displayed as one-day duration) to 24 weeks (168 days) with the mean of 38 days (5 1/3 weeks), median

and mode of 42 (6 weeks). Given the importance of understanding progressive and long-term impact of mindfulness techniques, the lengthiness of the current intervention, may yield valuable and unique insights.

In their meta-analysis on the impact of mindful meditation, Sedlmeier et al. (2012) excluded from consideration almost ¾ of the originally selected studies (595). There were two primary reasons which let them to exclude studies. Firstly, they found a surprising large number of studies to have only single meditation groups, no control groups. Such studies give rise to serious concerns, namely that dependent variables usually lead to larger effect sizes (as measurements are positively correlated). In studies with no control group effect sizes are hard to interpret because they might be biased by other factors not controlled for, thus internal validity is usually low (Rosenthal & Rosnow, 1991). The study in this dissertation includes a control group (non-meditators), meaning that its design supports a more dependable data analysis and conclusions. The second prevalent issue that Sedlmeier at al. (2012) was that many studies measure only short-term effect, often after a specific meditation session. Meanwhile it is important to consider the effect of relatively stable meditation, effects that persist over time. The study in this dissertation considers the impact of meditation over a half year period, thus also contributing to a strong study design.

Given the above conservative approach to study design as well as what factors were the subject of a comparison and analysis, within the context of to date academic conclusion what is material and not material to the design of a credible and robust study that looks at the impact of mindful meditation, it is the author's conclusion that the present study is of sound design and its findings are credible.

CHAPTER 5.

ANALYSIS AND INTERPRETATION OF STUDY FINDINGS

This chapter contains an analysis of the quantitative data collected over the duration of the meditation study from the study participants and their assessors. Section 5.3 analyses the identified correlations. The analyzed data is then interpreted in Section 5.3.

5.1 Analysis of quantitative results

In the first order, an analysis was conducted of the qualitative results on wellbeing. These results are grouped by populations, i.e. non-meditators and meditators and then non-architects and architects.

Self-assessment of wellbeing by non-meditators and meditators

In order to gauge whether the level of self-assessed wellbeing was significantly different between meditators and non-meditators, a series of two-factor analyses of variance were performed in a mixed design.

To remind, in order to conduct the analysis of participants' wellbeing, the participants were asked to conduct a self-assessment of their overall wellbeing, as well as emotional, intellectual and occupational wellbeing. Below we provide initially the summary results on overall wellbeing, followed by those on the emotional, intellectual and occupational wellness.

Overall wellbeing

As a whole, the population of non-meditators and meditators did not show any meaningful variance in self-assessment of overall wellbeing from measurement period to measurement period. Table 5.1 presents the basic descriptive statistics.

Table 5.1. Basic descriptive statistics of self-assessment of wellbeing by non-meditators and meditators, in three measurement periods

Measure	Group	Median	Standard Deviation
Start	Non-meditators	4.13	0.57
	Meditators	4.38	0.74

	All participants	4.18	0.61
End of phase I	Non-meditators	4.20	0.61
	Meditators	4.38	0.74
	All participants	4.24	0.63
End of phase II	Non-meditators	4.13	0.78
	Meditators	4.25	0.46
	All participants	4.16	0.72

Source: Own compilation based on study findings.

No statistically significant difference was recorded for the interaction effect of the meditation factor and the within-group factor, $F(2; 72) = 0.07$; $p = .930$; $\eta 2 = 0$. A simple effects analysis was nevertheless performed, but no results were recorded even at the level of statistical trend. The results are summarized in Figure 5.1.

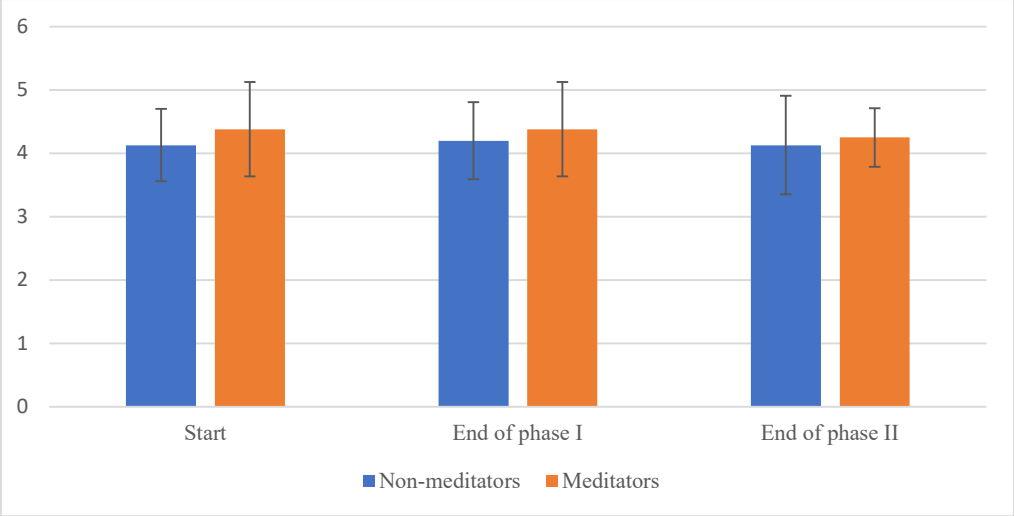

Figure 5.1. Self-assessment of overall wellbeing by non-meditators and meditators, in the three measurement periods

Source: Own compilation based on study findings.

Emotional wellbeing

In the next step, self-assessment of emotional wellbeing was analysed. Table 5.2 presents the basic descriptive statistics.

Table 5.2: Basic descriptive statistics of self-assessment of emotional well-being by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	3.92	0.55
	Meditators	3.83	0.40
	All population	3.90	0.52
End of phase I	Non-meditators	4.11	0.49
	Meditators	3.92	0.46
	All population	4.07	0.48
End of phase II	Non-meditators	4.09	0.68
	Meditators	4.17	0.59
	All population	4.11	0.66

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(1.65; 5959.54 = 0.86$; $p = .426$; $\eta 2 = .02$. Despite this, a simple effects analysis was performed. A simple effect of the moment of measurement in the non-meditators group was noted to be close to statistically significant, $F(2; 35) = 3.08$; $p = .059$; $\eta 2 = .15$. This result did not allow a simple effects analysis to be performed. In contrast, the corresponding simple effect in the meditators group was found not to be even close to statistical significance, $F(2; 35) = 1.17$; $p = .322$; $\eta 2 = .06$. The simple effect of meditation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.2.

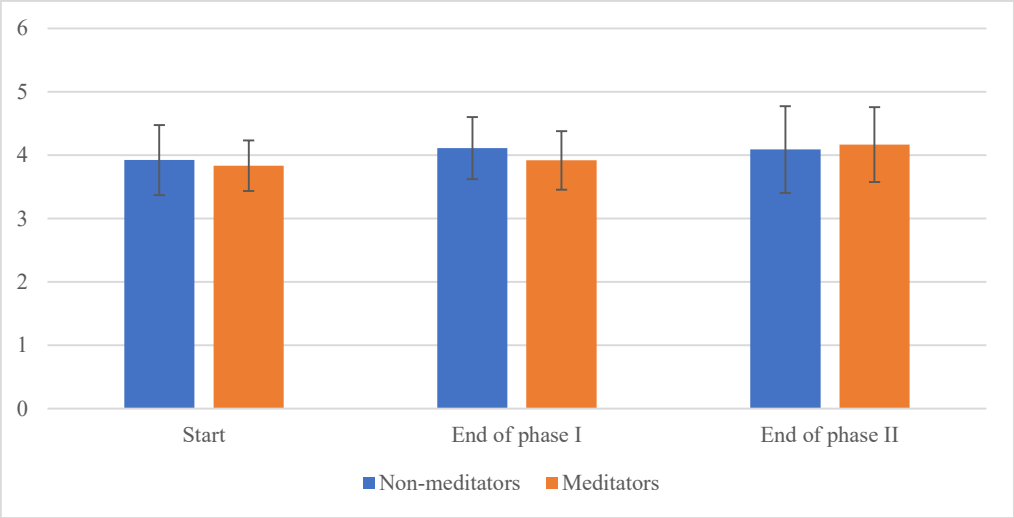

Figure 5.2. Self-assessment of emotional well-being by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their emotional wellness, in relation to three statements, namely:

- I am resilient and can bounce back after a disappointment or problem.
- I am flexible and adapt to change in a positive way.
- I am able to recognize and manage the things that cause me stress.

Table 5.3 presents a summary of participant responses to statement 1/

Table 5.3. Self-assessment of emotional wellbeing statement 1 ("I am resilient and can bound back after a disappointment or problem") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	1.97	0.72
	Meditators	2.38	0.74
	Total	2.05	0.73
End of phase I	Non-meditators	1.93	0.69
	Meditators	2.13	0.64
	Total	1.97	0.68
End of phase II	Non-meditators	2.00	0.91
	Meditators	1.75	0.46
	Total	1.95	0.84

Source: Own compilation based on study findings.

A close to statistically significant interaction effect of meditation and the within-group factor was noted, F(2; 72) = 2.60; p = .081; η2 = .07. Nevertheless, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the meditators group was noted, F(2; 35) = 3.26; p = .050; η2 = .16. A post-hoc analysis was therefore performed. One statistically significant difference was noted. The score in the initial measure was higher compared to the score obtained at the end of phase II (p = 0.041). The remaining differences were not statistically significant. In contrast, the corresponding simple effect in the non-meditators group was found not to be even close to statistical significance, F(2; 35) = 0.10; p = .906; η2 = .01. The simple effect of meditation was not statistically significant at any of the three measurement points The results are summarized in Figure 5.3.

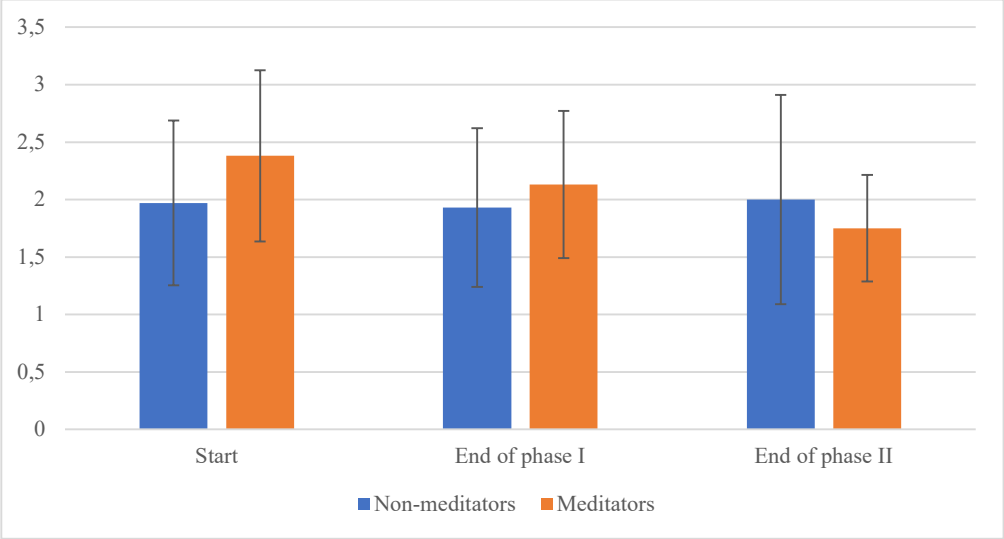

Figure 5.3. Self-assessment of emotional well-being statement 1 (“I am resilient and can bound back after a disappointment or problem”) by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.4 presents a summary of participant responses to statement 2.

Table 5.4. Self-assessment of emotional wellbeing statement 2 ("I am flexible and can adjust to change positively") by non-meditators and meditators, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-meditators	1.93	0.58
	Meditators	2.00	0.54
	Total	1.95	0.57
End of phase I	Non-meditators	1.77	0.63
	Meditators	1.75	0.71
	Total	1.76	0.63
End of phase II	Non-meditators	1.83	0.75
	Meditators	1.75	0.71
	Total	1.82	0.73

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 0.13$; $p = .879$; $\eta 2 = 0$. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend. The results are summarized in Figure 5.4.

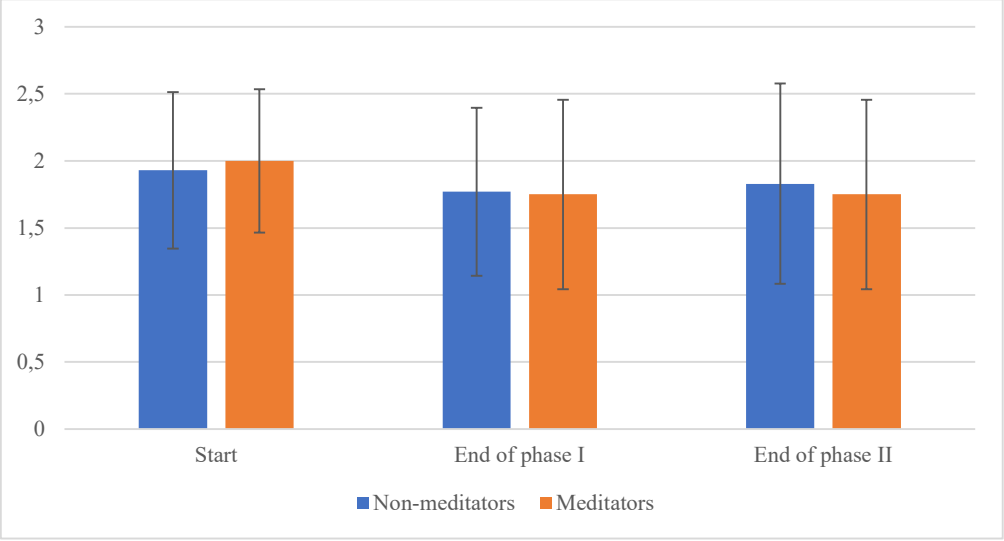

Figure 5.4. Self-assessment of emotional wellbeing statement 2 ("I am flexible and can adjust to change positively") by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.5 presents a summary of participant responses to statement 3.

Table 5.5. Self-assessment of emotional wellbeing statement 3 ("I am able to recognize and manage stress") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	2.33	0.88
	Meditators	2.13	0.64
	Total	2.29	0.84
End of phase I	Non-meditators	1.97	0.56
	Meditators	2.38	0.52
	Total	2.05	0.57
End of phase II	Non-meditators	1.90	0.71
	Meditators	2.00	0.76
	Total	1.92	0.71

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 1.70$; $p = .191$; $\eta 2 = .05$. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, $F(2; 35) = 3.38$; $p = .046$; $\eta 2 = .16$. A post-hoc analysis was therefore performed. Two differences at the level of statistical trend were noted. The score in the initial measurement was higher compared to the score obtained at end of phase I ($p = 0.059$) and end of phase II ($p = 0.59$). The difference between these measurements was not statistically significant. In contrast, the corresponding simple effect in the meditators group was found not to be even close to statistical significance, $F(2; 35) = 1.27$; $p = .293$; $\eta 2 = .07$. The simple effect of meditation was found to be close to statistical significance in the end of phase I measure, $F(1; 36) = 3.50$; $p = .070$; $\eta 2 = .09$. Higher scores were found in the meditators group. The analogous effect was not statistically significant in

the initial measure, F(1; 36) = 0.39; p = .538; η2 = .01; nor in the end of phase II, F(1; 36) = 0.12; p = .729; η2 = 0. The results are summarized in Figure 5.5.

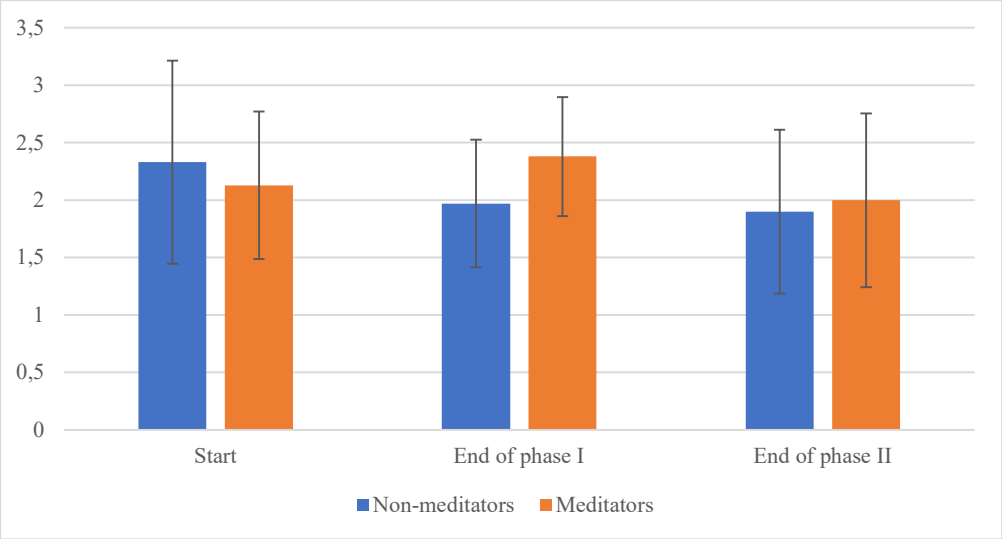

Figure 5.5. Self-assessment of emotional wellbeing statement 3 ("I am able to recognize and manage stress") by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Intellectual wellbeing

The level of the intellectual wellbeing was then examined. Table 5.6 presents the basic descriptive statistics.

Table 5.6. Basic descriptive statistics of self-assessment of intellectual wellbeing by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	4.15	0.41
	Meditators	4.17	0.40
	All population	4.15	0.41
End of phase I	Non-meditators	4.31	0.47
	Meditators	4.04	0.38
	All population	4.25	0.46
End of phase II	Non-meditators	4.21	0.46

	Meditators	4.25	0.46
	All population	4.22	0.45

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(2; 70) = 1.62$; $p = .205$; $\eta 2 = .04$. Despite this, a simple effects analysis was performed. However, no differences were reported even at the level of a statistical trend. Thus, the level of intellectual well-being did not depend significantly on either the timing of measurement or whether the participants were seasoned meditators or not. The results are summarized in Figure 5.6.

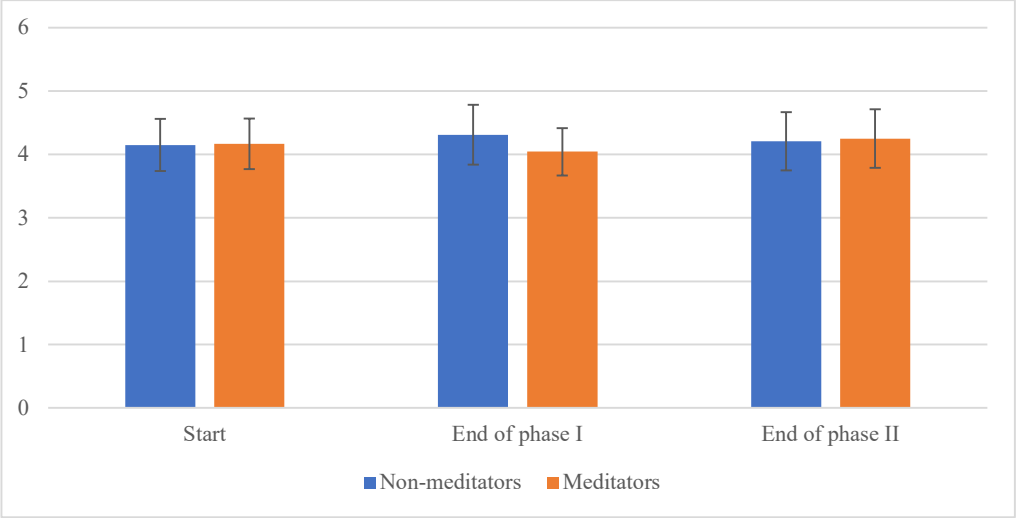

Figure 5.6. Self-assessment of intellectual wellbeing by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their intellectual wellness, in relation to three statements, namely:

- I am intellectually stimulated by work and non-work.
- I can think critically and provide constructive feedback.
- I am capable of making important decisions.

Table 5.7 presents a summary of participant responses to statement 1 above.

Table 5.7. Self-assessment of intellectual wellbeing statement 1 (“I am intellectually stimulated by work and non-work”) by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	1.90	0.67
	Meditators	1.88	0.64
	Total	1.89	0.66
End of phase I	Non-meditators	1.76	0.64
	Meditators	2.13	0.64
	Total	1.84	0.65
End of phase II	Non-meditators	1.93	0.59
	Meditators	1.75	0.71
	Total	1.89	0.61

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 70) = 2.23$; $p = .115$; $\eta 2 = .06$. Despite this, a simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.7).

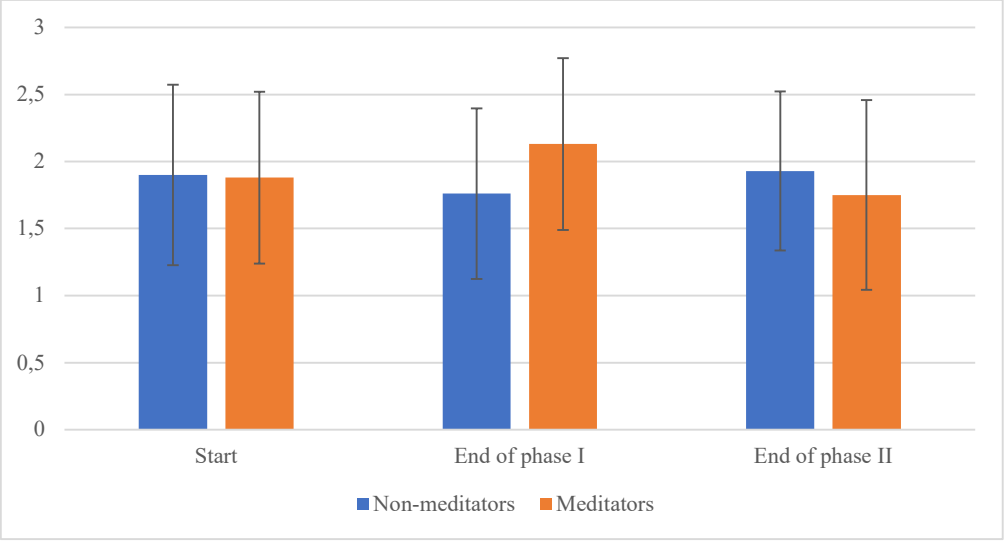

Figure 5.7. Self-assessment of intellectual wellbeing statement 1 (“I am intellectually stimulated by work and non-work”) by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.8 presents a summary of participant responses to statement 2.

Table 5.8. Self-assessment of intellectual wellbeing statement 2 ("I can think critically and provide constructive feedback") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	1.79	0.49
	Meditators	1.75	0.46
	Total	1.78	0.48
End of phase I	Non-meditators	1.66	0.48
	Meditators	1.88	0.35
	Total	1.70	0.46
End of phase II	Non-meditators	1.76	0.58
	Meditators	1.75	0.46
	Total	1.76	0.55

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 70) = 0.55$; $p = .579$; $\eta 2 = .03$. Despite this, a simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.8).

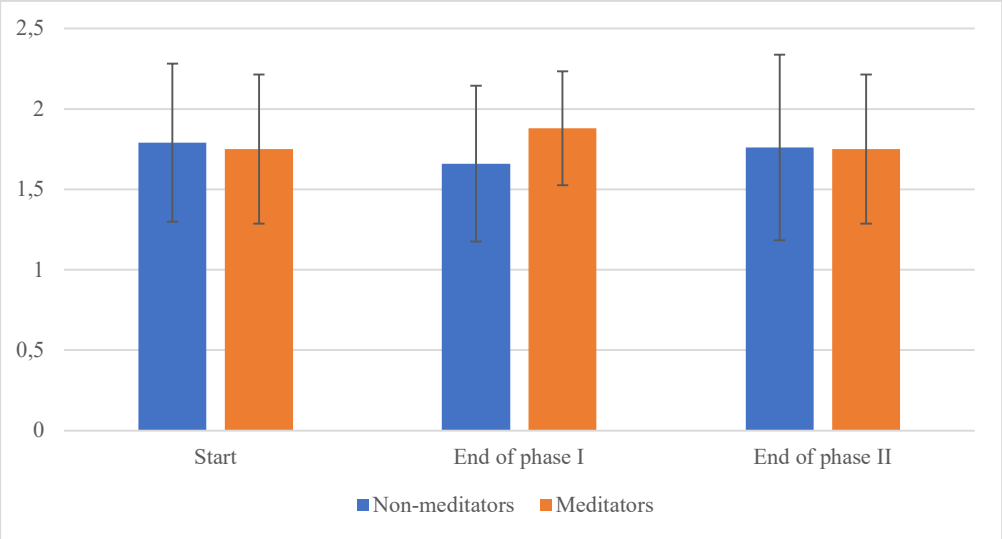

Figure 5.8. Self-assessment of intellectual wellbeing statement 2 ("I can think critically and provide constructive feedback") by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.9 presents a summary of participant responses to statement 3 above.

Table 5.9. Self-assessment of intellectual wellbeing statement 3 ("I can capable of making important decisions") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	1.86	0.58
	Meditators	1.88	0.64
	Total	1.86	0.59
End of phase I	Non-meditators	1.66	0.61
	Meditators	1.88	0.64
	Total	1.70	0.62
End of phase II	Non-meditators	1.69	0.54
	Meditators	1.75	0.46
	Total	1.70	0.52

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 70) = 0.33$; $p = .724$; $\eta 2 = .01$. Despite this, a simple effects analysis

was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.9).

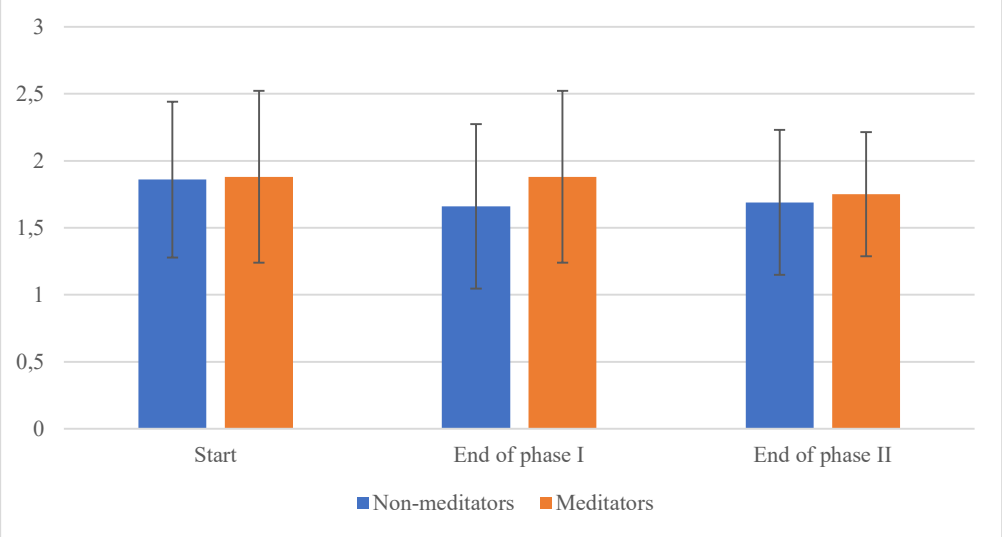

Figure 5.9. Self-assessment of intellectual wellbeing statement 3 ("I am capable of making important decisions") by non-meditators and meditators, in three measurement periods
Source: Own compilation based on study findings.

Occupational wellbeing

The self-assessment of non-meditators and meditators occupational well-being was analysed last. Table 5.10 presents the basic descriptive statistics.

Table 5.10: Basic descriptive statistics of self-assessment of occupational wellbeing by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	3.79	0.51
	Meditators	3.55	0.60
	All participants	3.74	0.53
End of phase I	Non-meditators	3.95	0.46
	Meditators	3.65	0.55
	All participants	3.88	0.49
End of phase II	Non-meditators	3.85	0.64

	Meditators	3.93	0.63
	All participants	3.87	0.63

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(2; 70) = 1.18$; $p = .313$; $\eta 2 = .03$. Despite this, a simple effects analysis was performed. However, no variance was noted even at the level of a statistical trend. Thus, the level of the studied variable did not depend significantly on either the timing of measurement or the experience in meditation of the participants. The results are summarized in Figure 5.10.

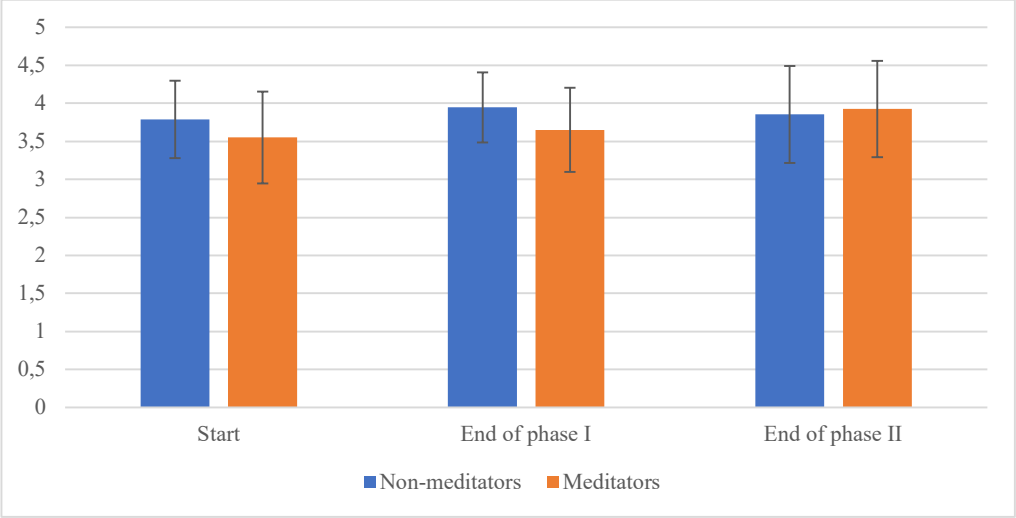

Figure 5.10. Self-assessment of occupational wellbeing by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their occupational wellness, in relation to three statements, namely:

- My work is manageable.
- My work is satisfying.
- I am developing skills to achieve my career goals.
- I feel understood and appreciated by my co-workers.
- I balance work with play and other aspects of my life.

Table 5.11 presents a summary of participant responses to statement 1.

Table 5.11: Self-assessment of occupational wellbeing statement 1 (“My work is manageable”) by non-meditators and meditators, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-meditators	2.30	0.79
	Meditators	2.50	0.93
	Total	2.34	0.82
End of phase I	Non-meditators	1.97	0.67
	Meditators	2.25	0.89
	Total	2.03	0.72
End of phase II	Non-meditators	2.20	0.96
	Meditators	2.13	0.64
	Total	2.18	0.90

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 0.38$; $p = .683$; $\eta 2 = .01$. Despite this, a simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.12).

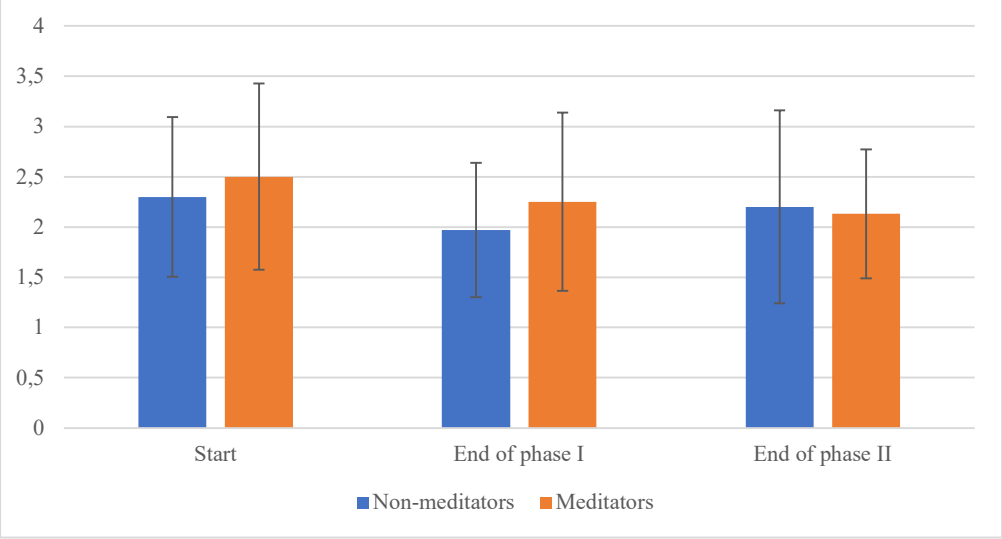

Figure 5.11. Self-assessment of occupational wellbeing statement 1 (“My work is manageable”) by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.12 presents a summary of participant responses to statement 2.

Table 5.12. Self-assessment of occupational wellbeing statement 2 ("My work is satisfying") by non-meditators and meditators, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-meditators	2.27	0.69
	Meditators	2.63	0.92
	Total	2.34	0.75
End of phase I	Non-meditators	2.07	0.79
	Meditators	2.25	0.71
	Total	2.11	0.76
End of phase II	Non-meditators	2.17	0.65
	Meditators	2.25	1.04
	Total	2.18	0.73

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 0.39$; $p = .679$; $\eta 2 = .01$. Despite this, a simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.12).

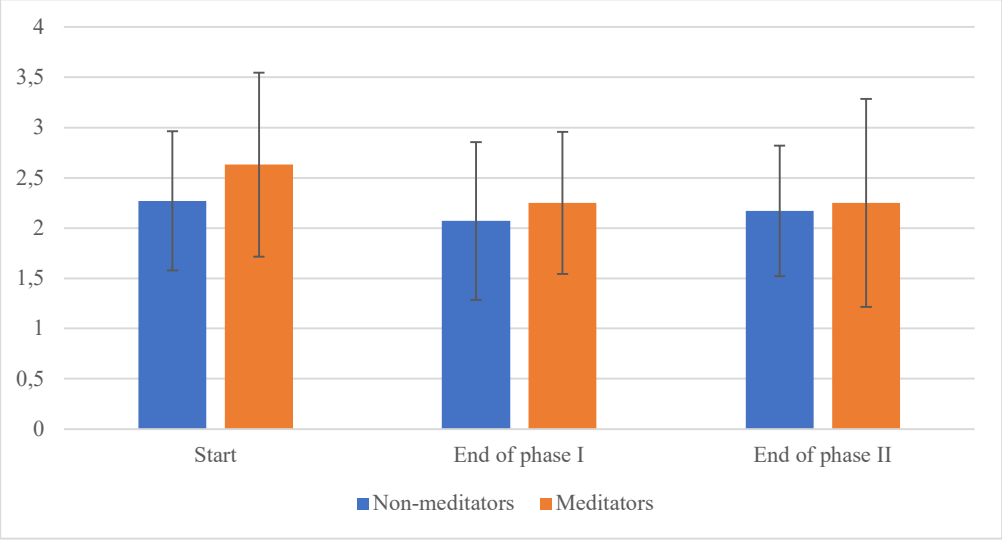

Figure 5.12. Self-assessment of occupational wellbeing statement 2 ("My work is satisfying") by non-meditators and meditators, in three measurement periods
Source: Own compilation based on study findings.

Table 5.3 presents a summary of participant responses to statement 3.

Table 5.13. Self-assessment of occupational wellbeing statement 3 (“I am developing skills to achieve my career goals”) by non-meditators and meditators, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-meditators	2.00	0.79
	Meditators	1.88	0.35
	Total	1.97	0.72
End of phase I	Non-meditators	2.07	0.69
	Meditators	2.13	0.64
	Total	2.08	0.67
End of phase II	Non-meditators	2.03	0.77
	Meditators	1.88	0.64
	Total	2.00	0.74

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 0.28$; $p = .758$; $\eta 2 = .01$. Despite this, a simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.13).

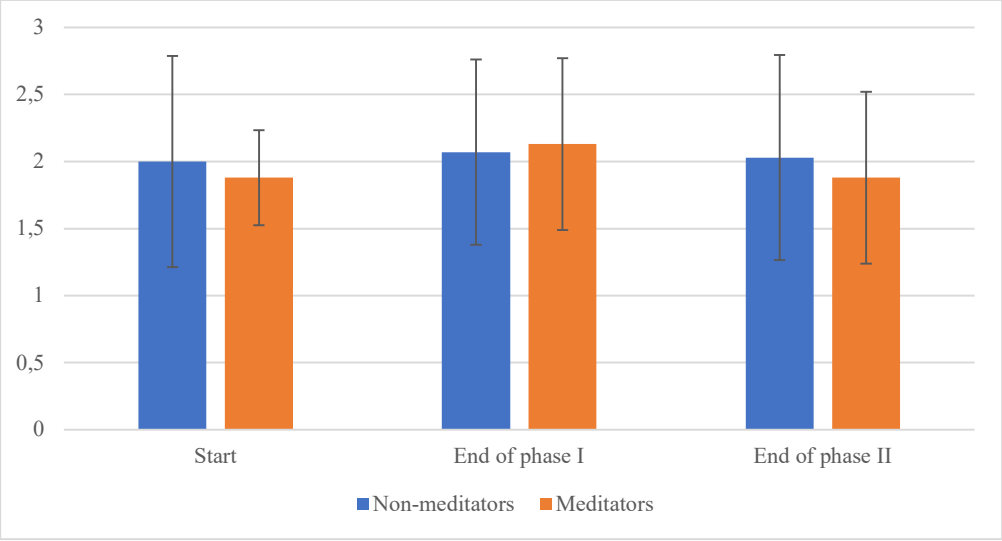

Figure 5.13. Self-assessment of occupational wellbeing statement 3 (“I am developing skills to achieve my career goals”) by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.14 presents a summary of participant responses to statement 4.

Table 5.14. Self-assessment of occupational wellbeing statement 4 ("I feel understood and appreciated by co-workers") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	2.10	0.71
	Meditators	2.50	0.76
	Total	2.18	0.73
End of phase I	Non-meditators	1.90	0.55
	Meditators	2.63	0.74
	Total	2.05	0.66
End of phase II	Non-meditators	2.07	0.64
	Meditators	2.00	0.76
	Total	2.05	0.66

Source: Own compilation based on study findings.

A close to statistically significant interaction effect of meditation and the within-group factor was noted, $F(2; 72) = 2.82$; $p = .066$; $\eta 2 = .07$. A simple effects analysis was performed. The simple effect of meditation was found to be statistically significant in the end of phase I measure, $F(1; 36) = 9.50$; $p = .004$; $\eta 2 = .21$. Higher scores were found in the meditators group. The analogous effect was not statistically significant in the initial measure, $F(1; 36) = 1.95$; $p = .172$; $\eta 2 = .05$; nor in the end of phase II, $F(1; 36) = 0.06$; $p = .802$; $\eta 2 = 0$ (see Figure 5.14).

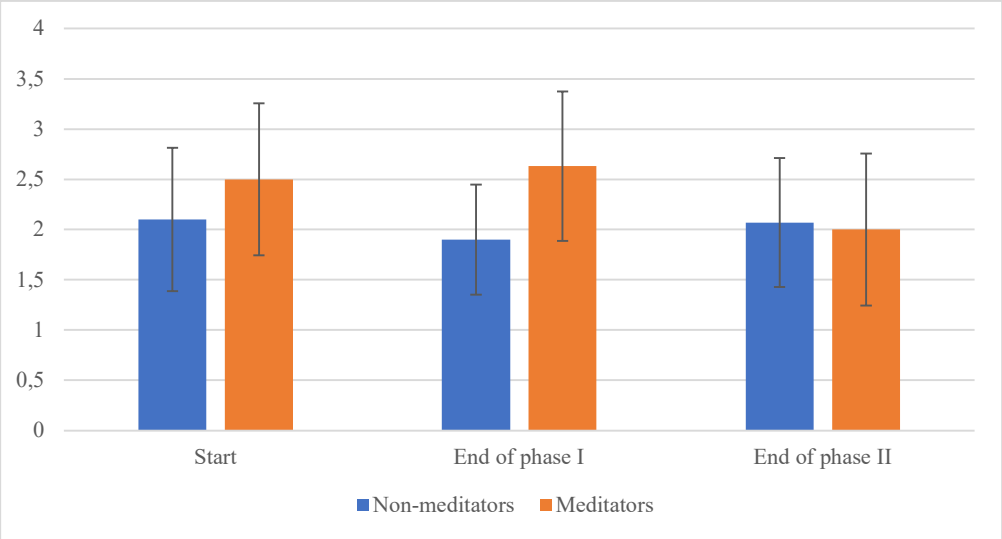

Figure 5.14. Self-assessment of occupational wellbeing statement 4 ("I feel understood and appreciated by co-workers") by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Table 5.15 presents a summary of participant responses to statement 5.

Table 5.15. Self-assessment of occupational wellbeing statement 5 ("I balance work and other aspects of my life") by non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	2.40	0.89
	Meditators	2.75	1.17
	Total	2.47	0.95
End of phase I	Non-meditators	2.27	0.74
	Meditators	2.50	0.93
	Total	2.32	0.78
End of phase II	Non-meditators	2.27	0.87
	Meditators	2.13	0.64
	Total	2.24	0.82

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of meditation and the within-group factor, $F(2; 72) = 0.74$; $p = .482$; $\eta 2 = .02$. Despite this, a

simple effects analysis was performed. Despite this, a simple effects analysis was performed. However, no results were reported even at the level of statistical trend (see Figure 5.15).

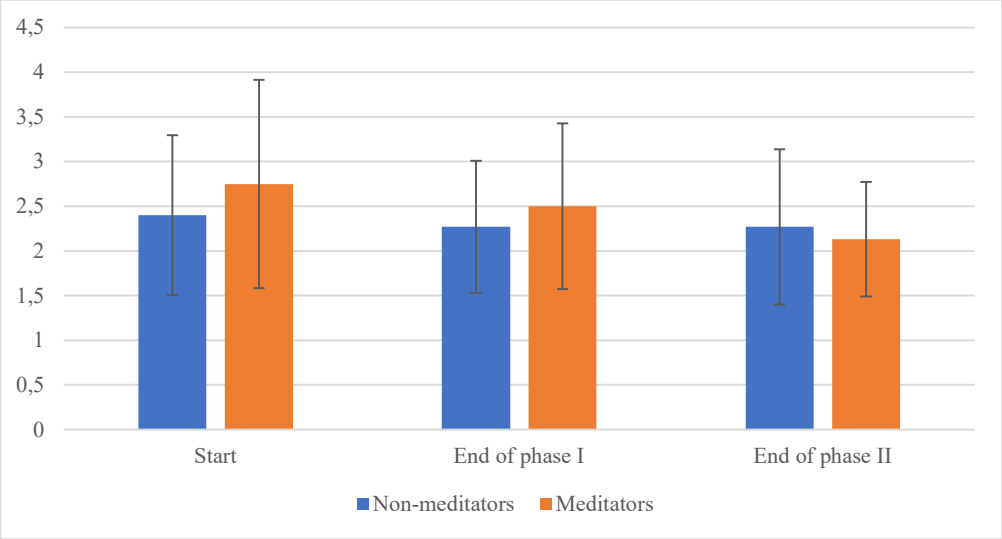

Figure 5.15: Self-assessment of occupational wellbeing statement 5 ("I balance work and other aspects of my life") by non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Self-assessment of wellbeing of non-architects and architects

A comparison was made between the level of change of individual scales and the overall self-assessed wellbeing score to identify any significant difference between self-assessments of wellbeing by the two populations. A series of two-factor analyses of variance in a mixed-model scheme was performed.

Overall wellbeing

The main effect of the group was not reported, as the average score of the three measures was not interpretatively meaningful. Table 5.16 presents descriptive statistics.

Table 5.16 Basic descriptive statistics of self-assessment of overall wellbeing by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	3.55	0.60
	Architects	3.59	0.66

	All participants	3.58	0.63
End of phase I	Non-architects	3.58	0.60
	Architects	3.68	0.75
	All participants	3.65	0.71
End of phase II	Non-architects	3.43	0.60
	Architects	3.69	0.77
	All participants	3.62	0.73

Source: Own compilation based on study findings.

There was not even a close to statistically significant effect of the main within-group factor, $F(2; 72) = 0.76$; $p = .470$; $\eta 2 = .02$. Thus, the differences between individual measurements across the sample were not significantly different (see Figure 5.16).

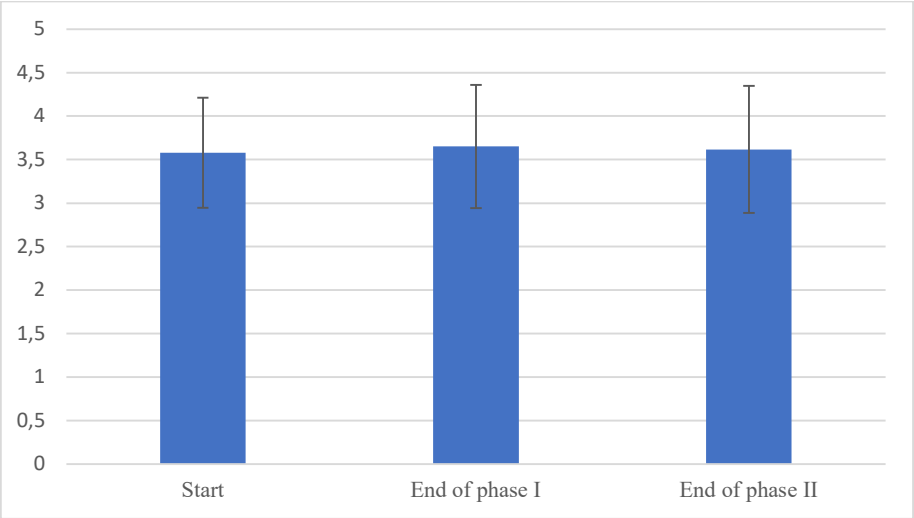

Figure 5.16. Self-assessment of overall wellbeing by non-architects and architects combined, in three measurement points

Source: Own compilation based on study findings.

In turn, a close to statistically significant interaction effect of the occupation factor and the within-group factor was noted, $F(2; 72) = 2.58$; $p = .082$; $\eta 2 = .07$. A simple effects analysis was performed. There were no statistically significant simple effects of moment of measurement. On the other hand, the simple effect of occupation was statistically significant in the measurement of end of phase I, $F(1; 36) = 4.16$; $p = .049$; $\eta 2 = .10$; and end of phase II, $F(1; 36) = 6.32$; $p = .017$; $\eta 2 = .15$. Higher results were noted in the architect group. The analogous effect was not statistically significant in the initial measurement, $F(1; 36) = 0.01$; $p = .925$; $\eta 2 = 0$. The results are summarized in Figure 5.17.

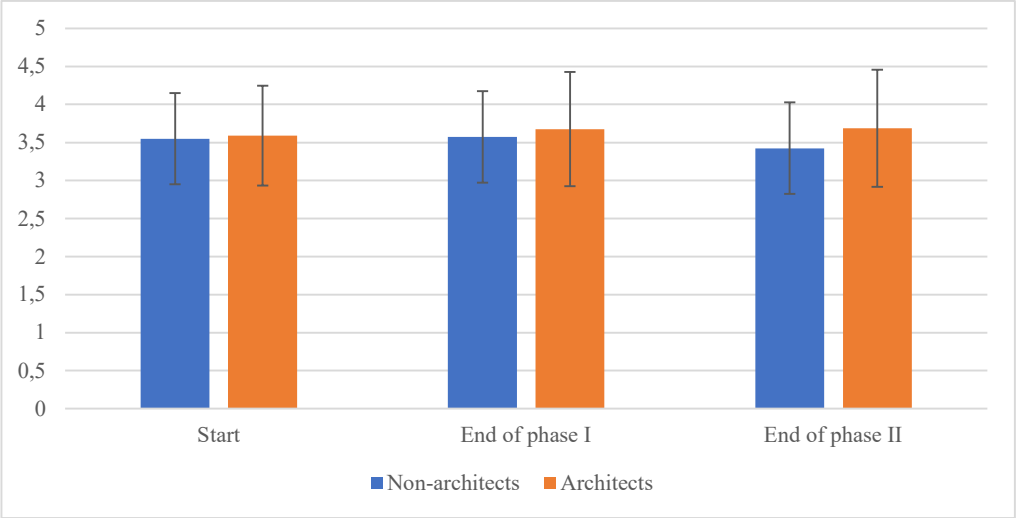

Figure 5.17. Self-assessment of overall wellbeing by non-architects and architects, in three measurement points

Source: Own compilation based on study findings.

Emotional wellbeing

The data on emotional well-being of non-architects and architects was analysed next. Table 5.17 presents the basic descriptive statistics.

Table 5.17. Basic descriptive statistics of self-assessment of emotional wellbeing of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	3.73	0.68
	Architects	3.96	0.45
	All participants	3.90	0.52
End of phase I	Non-architects	4.03	0.53
	Architects	4.08	0.48
	All participants	4.07	0.48
End of phase II	Non-architects	3.77	0.83
	Architects	4.23	0.55
	All participants	4.11	0.66

Source: Own compilation based on study findings.

Only a close to statistically significant main effect of the within-group factor was recorded, F(1.63; 59) = 2.63; p = .091; η2 = .07. The strength of the recorded effect was moderately large. This result did not allow post-hoc analyses to be performed. The results are presented graphically in Figure 5.18.

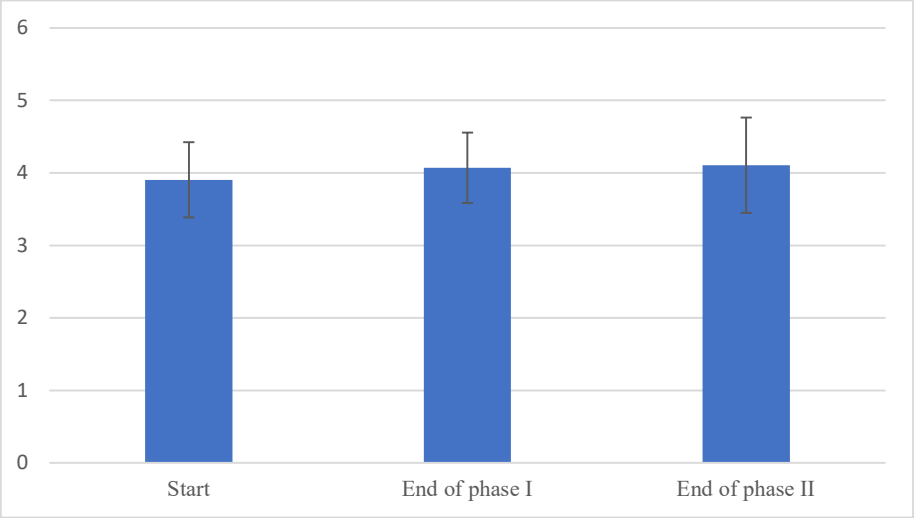

Figure 5.18. Self-assessment of emotional wellbeing by non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings

In contrast, there was no statistically significant interaction effect of the occupation factor and the within-group factor, F(1.63; 59) = 2.34; p = .103; η2 = .06. Despite this, a simple effects analysis was performed. There was a statistically significant simple effect of the moment of measurement in the non-architect group, F(2; 35) = 3.77; p = .033; η2 = .18. The post-hoc analysis performed in the next step using the Sidak test showed one difference at the level of statistical trend. The level of the study variable was higher in the initial measurement than in the end-of-phase I measurement (p = .073). The differences between the end measurement and the other two measurements were not statistically significant. The simple effect in the architect group was only found to be close to statistical significance, F(2; 35) = 2.48; p = .098; η2 = .12, which did not allow for post-hoc analyses. In contrast, the simple effect of occupation was only close to statistical significance in the end of phase II measure, F(1; 36) = 3.87; p = .057; η2 = .10. Higher scores were observed in the architect group. Analogous effects were not statistically significant in the initial measure, F(1; 36) =

1.48; p = .232; η2 = .04; nor end of phase I, F(1; 36) = 3.87; p = .057; η2 = 0. The results are summarized in Figure 5.19.

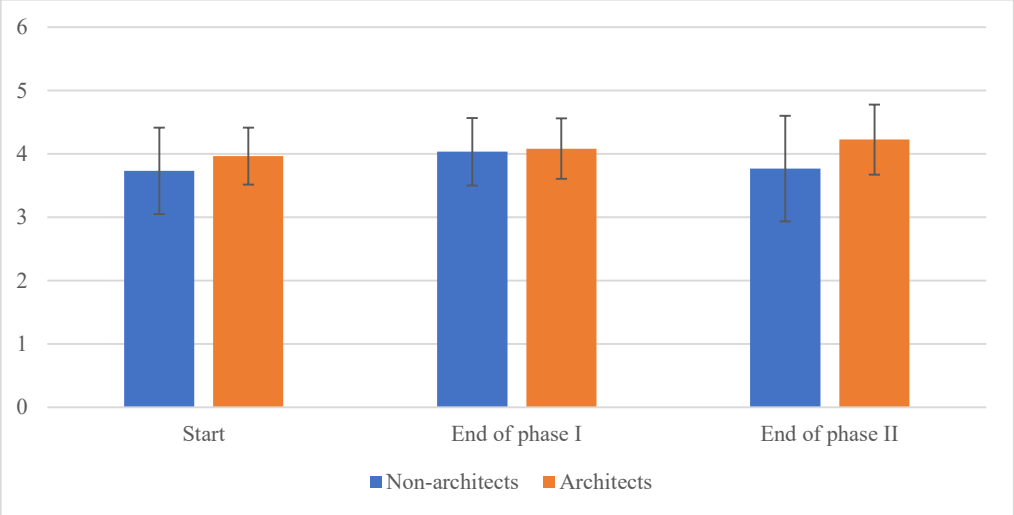

Figure 5.19. Self-assessment of emotional wellbeing by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their emotional wellness, in relation to three statements, namely:

- I am resilient and can bounce back after a disappointment or problem.
- I am flexible and adapt to change in a positive way.
- I am able to recognize and manage the things that cause me stress.

Table 5.18 presents summary of participant responses to statement 1 above.

Table 5.18. Self-assessment of emotional wellbeing statement 1 (“I am resilient and can bound back after a disappointment or problem”) by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.45	0.93
	Architects	1.89	0.58
	Total	2.05	0.73
End of phase I	Non-architects	2.00	0.78
	Architects	1.96	0.65
	Total	1.97	0.68
End of phase II	Non-architects	2.45	1.13
	Architects	1.74	0.59
	Total	1.95	0.84

Source: Own compilation based on study findings.

A statistically significant interaction effect of the occupation factor and the within-group factor was noted, $F(2; 72) = 3.72$; $p = .029$; $\eta 2 = .09$. Thus, an obligatory simple effects analysis was performed. A simple effect of moment of measurement in the non-architects group was found to be close to statistically significant, $F(2; 35) = 2.88$; $p = .070$; $\eta 2 = .14$. In contrast, a simple effect in the architects group analogue was found to be not statistically significant, $F(2; 35) = 1.11$; $p = . 341$; $\eta 2 = .06$. In contrast, the simple effect of occupation was statistically significant in both the initial measure; $F(1; 36) = 5.18$; $p = .029$; $\eta 2 = .13$; and the end of phase II measure, $F(1; 36) = 6.54$; $p = .015$; $\eta 2 = .15$. Higher results were found in the non-architect group. Analogous effects were not statistically significant in the end of phase I measure, $F(1; 36) = 0.02$; $p = .881$; $\eta 2 = 0$. Results are illustrated in Figure 5.20.

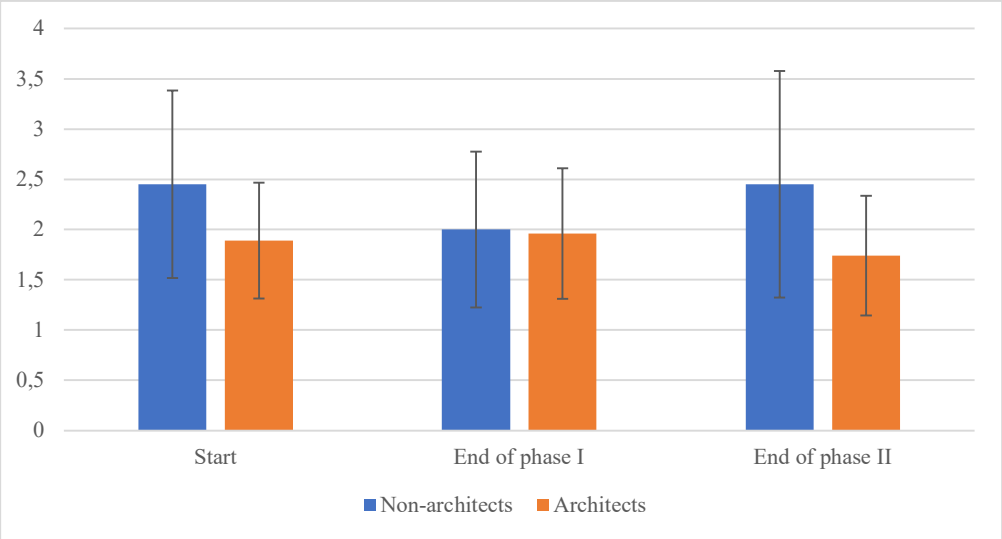

Figure 5.20. Self-assessment of emotional wellbeing statement 1 ("I am resilient and can bound back after a disappointment or problem") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.19 presents a summary of participant responses to statement 2.

Table 5.19. Self-assessment of emotional wellbeing statement 2 ("I am flexible and can adjust to change positively") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.09	0.70
	Architects	1.89	0.51
	Total	1.95	0.57
End of phase I	Non-architects	1.82	0.60
	Architects	1.74	0.66
	Total	1.76	0.63
End of phase II	Non-architects	2.09	0.94
	Architects	1.70	0.61
	Total	1.82	0.73

Source: Own compilation based on study findings.

There was also no statistically significant interaction effect of the occupation factor and the within-group factor, $F(2; 72) = 0.70$; $p = .501$; $\eta 2 = .02$. An additional simple effects analysis was nevertheless performed, but no results were noted even as statistical trend.

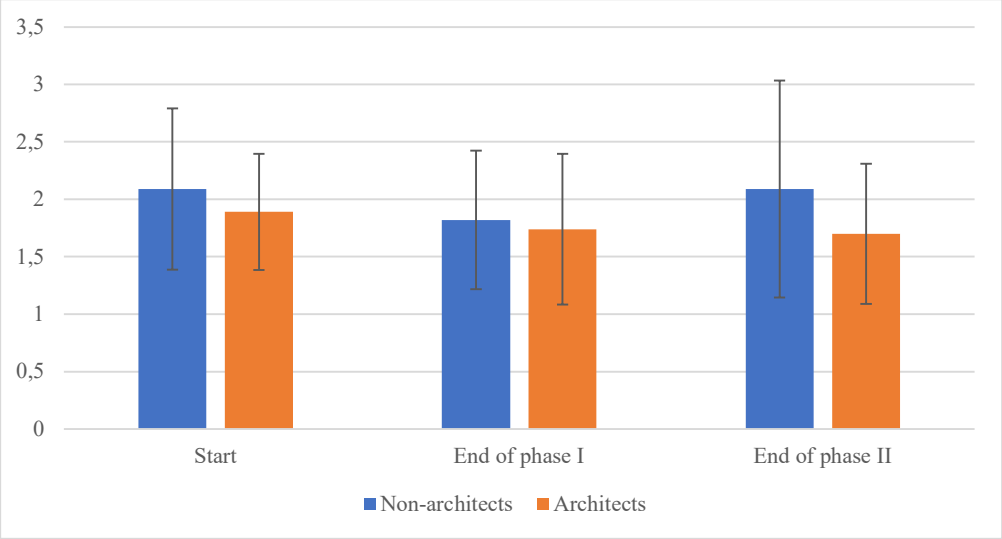

Figure 5.21. Self-assessment of emotional wellbeing statement 2 ("I am flexible and can adjust to change positively") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.20 presents a summary of participant responses to statement 3 above.

Table 5.20. Self-assessment of emotional wellbeing statement 3 ("I am able to recognize and manage stress") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.36	0.92
	Architects	2.26	0.81
	Total	2.29	0.84
End of phase I	Non-architects	2.27	0.79
	Architects	1.96	0.44
	Total	2.05	0.57
End of phase II	Non-architects	2.09	0.83
	Architects	1.85	0.66
	Total	1.92	0.71

Source: Own compilation based on study findings.

There was a near statistical significance for the main effect of the within-group factor, F(2; 72) = 2.47; p = .092; η2 = .06. See results in Figure 5.22.

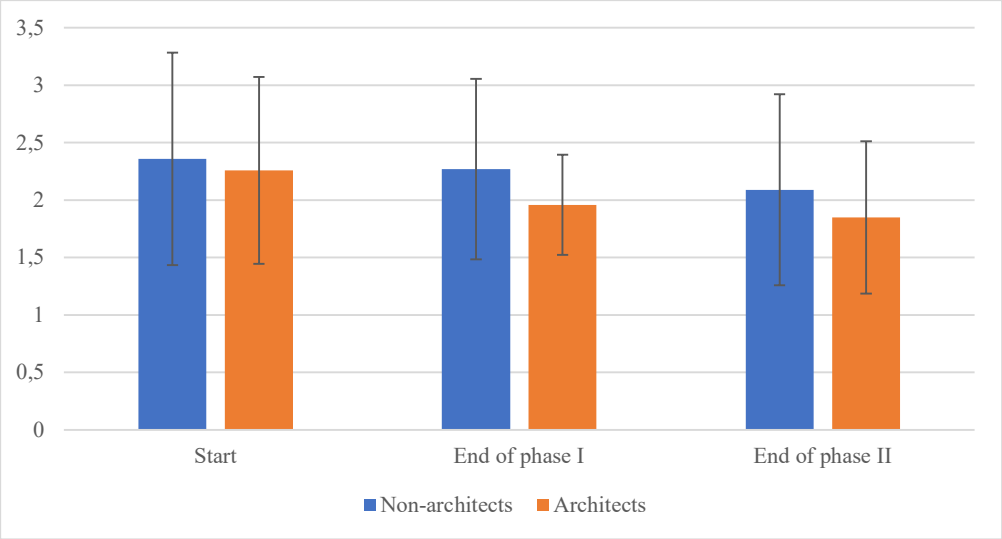

Figure 5.22. Self-assessment of emotional wellbeing statement 3 ("I am able to recognize and manage stress") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Intellectual wellbeing

The analysis then looked at the self-assessment of intellectual wellbeing. Table 5.21 presents descriptive statistics.

Table 5.21. Basic descriptive statistics of self-assessment of intellectual wellbeing of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	4.11	0.29
	Architects	4.17	0.44
	All participants	4.15	0.41
End of phase I	Non-architects	4.26	0.43
	Architects	4.25	0.48
	All participants	4.25	0.46
End of phase II	Non-architects	4.04	0.65

	Architects	4.27	0.36
	All participants	4.22	0.45

Source: Own compilation based on study findings.

There was no statistically significant effect of the main within-group factor, F(2; 70) = 0.91; p = .409; η2 = .02. Thus, the differences between individual measurements across the sample were not significantly different. The results are presented graphically in Figure 5.23.

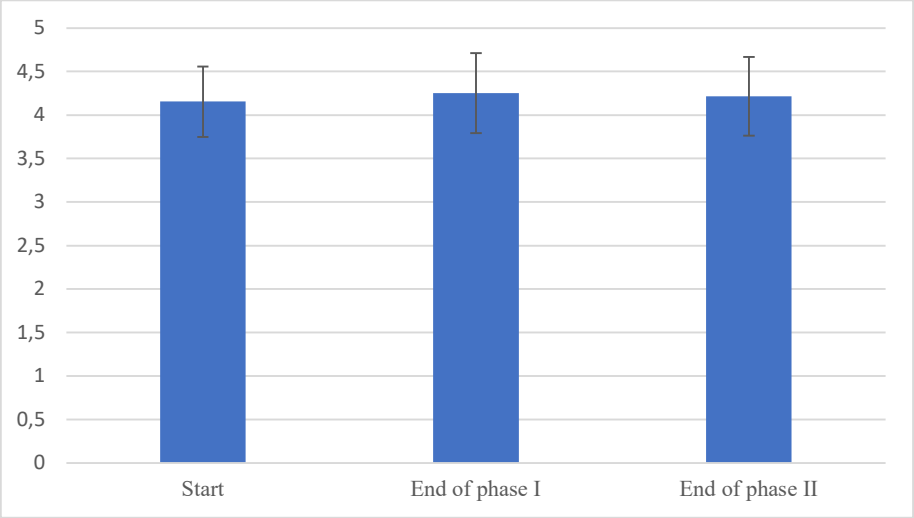

Figure 5.23. Self-assessment of intellectual wellbeing by non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was also no statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 70) = 0.94; p = .396; η2 = .03. Despite this, a simple effects analysis was performed. No significant variations or statistical trends were noted. Thus, the level of intellectual well-being did not depend significantly on either the time of measurement or the occupation of the subjects. The results are summarized in Figure 5.24.

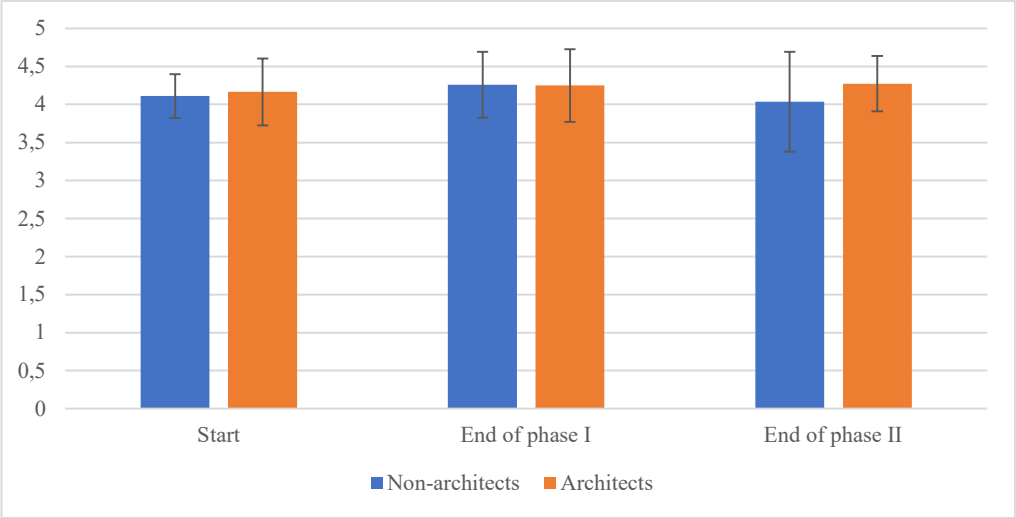

Figure 5.24. Self-assessment of intellectual wellbeing by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their intellectual wellness, in relation to three statements, namely:

- I am intellectually stimulated by work and non-work.
- I can think critically and provide constructive feedback.
- I am capable of making important decisions.

Table 5.22 presents a summary of participant responses to statement 1 above.

Table 5.22. Self-assessment of intellectual wellbeing statement 1 ("I am intellectually stimulated by work and non-work") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.00	0.67
	Architects	1.85	0.66
	Total	1.89	0.66
End of phase I	Non-architects	1.80	0.63
	Architects	1.85	0.66
	Total	1.84	0.65
End of phase II	Non-architects	2.20	0.79
	Architects	1.78	0.51
	Total	1.89	0.61

Source: Own compilation based on study findings.

There was not even close to statistical significance for the interaction effect of the occupation factor and the within-group factor, $F(2; 70) = 1.84$; $p = .167$; $\eta 2 = .05$. Despite this, a simple effects analysis was performed. The simple effect of occupation was close to statistical significance in the end-of-phase II measure, $F(1; 35) = 3.71$; $p = .062$; $\eta 2 = .10$. Higher results were found in the non-architect group. Analogous effects were not statistically significant in the initial measurement, $F(1; 35) = 0.36$; $p = .550$; $\eta 2 = .01$; and end of phase I, $F(1; 35) = 0.05$; $p = .832$; $\eta 2 = 0$. In contrast, simple moment of measurement effects was not even close to statistical significance in both groups. See Figure 5.25.

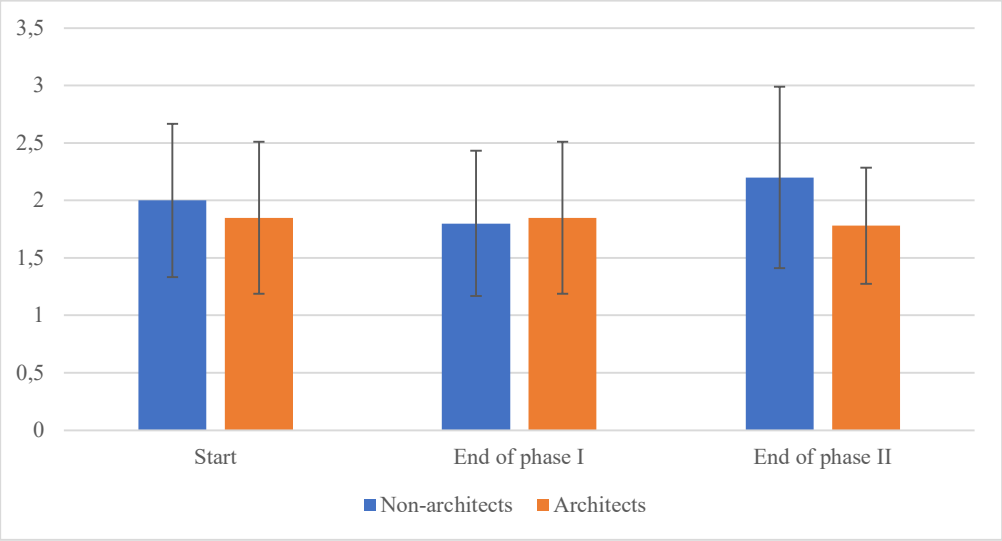

Figure 5.25. Self-assessment of intellectual wellbeing statement 1 (“I am intellectually stimulated by work and non-work”) by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.23 presents a summary of participant responses to statement 2.

Table 5.23. Self-assessment of intellectual wellbeing statement 2 ("I can think critically and provide constructive feedback") by non-architects and architects, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-architects	1.80	0.42
	Architects	1.78	0.51
	Total	1.78	0.48
End of phase I	Non-architects	1.70	0.48
	Architects	1.70	0.47
	Total	1.70	0.46
End of phase II	Non-architects	1.90	0.74
	Architects	1.70	0.47
	Total	1.76	0.55

Source: Own compilation based on study findings.

There was also no statistically significant interaction effect of the occupation factor and the within-group factor, $F(2; 70) = 0.37$; $p = .693$; $\eta 2 = .01$. An additional simple effects analysis was nevertheless performed, but no results were noted even at the level of statistical trend (see Figure 5.26).

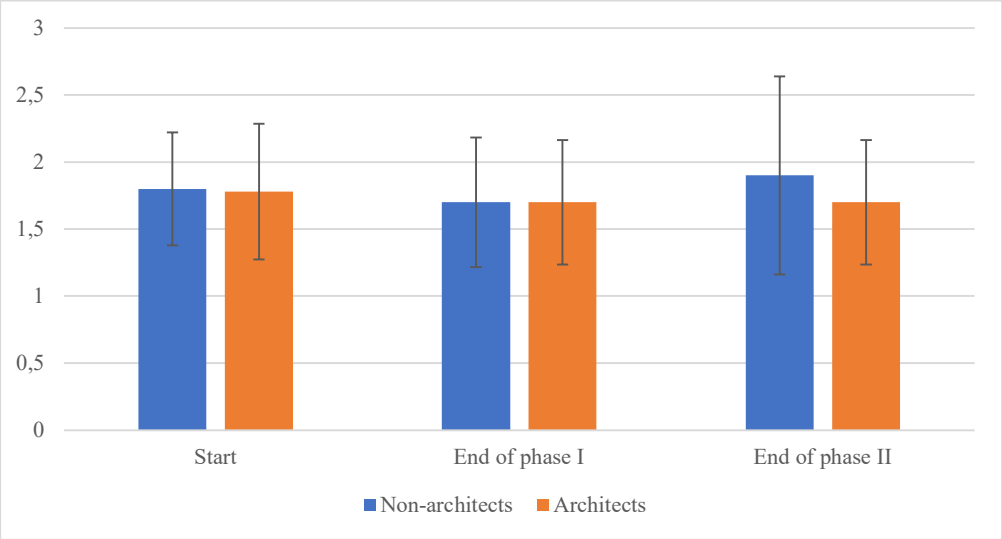

Figure 5.26. Self-assessment of intellectual wellbeing statement 2 ("I can think critically and provide constructive feedback") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.24 presents a summary of participant responses to statement 3 above.

Table 5.24. Self-assessment of intellectual wellbeing statement 3 ("I am capable of making important decisions") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.00	0.47
	Architects	1.81	0.62
	Total	1.86	0.59
End of phase I	Non-architects	1.90	0.74
	Architects	1.63	0.57
	Total	1.70	0.62
End of phase II	Non-architects	1.80	0.63
	Architects	1.67	0.48
	Total	1.70	0.52

Source: Own compilation based on study findings.

There was no statistically significant interaction of the occupation factor and the within-group factor, $F(2; 70) = 0.15$; $p = .858$; $\eta 2 = 0$. An additional simple effects analysis was nevertheless performed, but no results were noted even at the level of statistical trend.

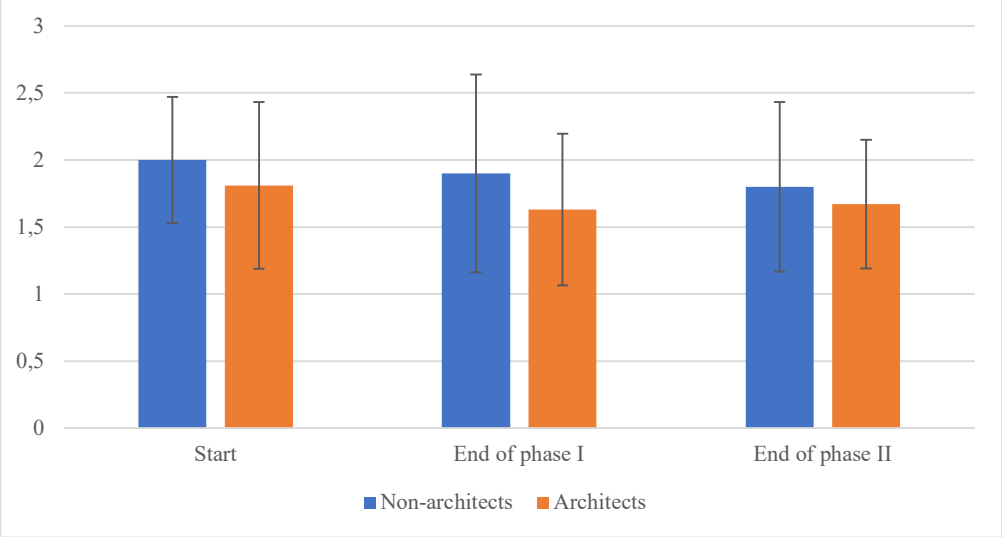

Figure 5.27. Self-assessment of intellectual wellbeing statement 3 ("I am capable of making important decisions") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Occupational wellbeing

Lastly, the level of the occupational wellbeing was analysed. Table 5.25 presents the basic descriptive statistics.

Table 5.25. Basic descriptive statistics of self-assessment of occupational wellbeing of non-architects and architects, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-architects	3.80	0.37
	Architects	3.71	0.58
	All participants	3.74	0.53
End of phase I	Non-architects	3.76	0.58
	Architects	3.93	0.46
	All participants	3.88	0.49
End of phase II	Non-architects	3.52	0.53
	Architects	3.99	0.62
	All participants	3.87	0.63

Source: Own compilation based on study findings.

There was no statistically significant effect of the main within-group factor, $F(2; 72) = 0.38$; $p = .687$; $\eta 2 = .01$. Thus, the differences between individual measurements across the sample were not significantly different. The results are presented in Figure 5.28.

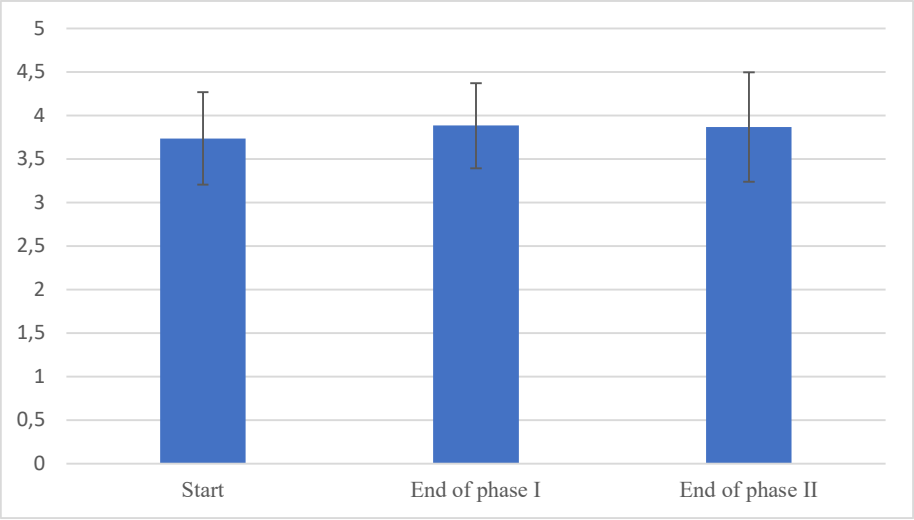

Figure 5.28. Self-assessment of occupational wellbeing by non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

In turn, a close to statistically significant interaction effect of the occupation factor and the within-group factor was recorded, F(2; 72) = 0.38; p = .687; η2 = .01. A simple effects analysis was performed. A simple effect of moment of measurement in the architect group was found to be close to statistical significance, F(2; 35) = 2.82; p = .074; η2 = .14. However, this result did not allow post-hoc analyses to be performed. In the non-architect group, the analogous effect was not found to be statistically significant, F(2; 35) = 0.86; p = .431 η2 = .05. The simple occupation effect was statistically significant only in the end of phase II measurement, F(1; 36) = 4.59; p = .039; η2 = .11. Higher results were observed among architects. Analogous effects were not statistically significant in the initial measure, F(1; 36) = 0.19; p = .667; η2 = .01; nor end of phase I, F(1; 36) = 0.87; p = .357; η2 = .02. The results are summarized in Figure 5.29.

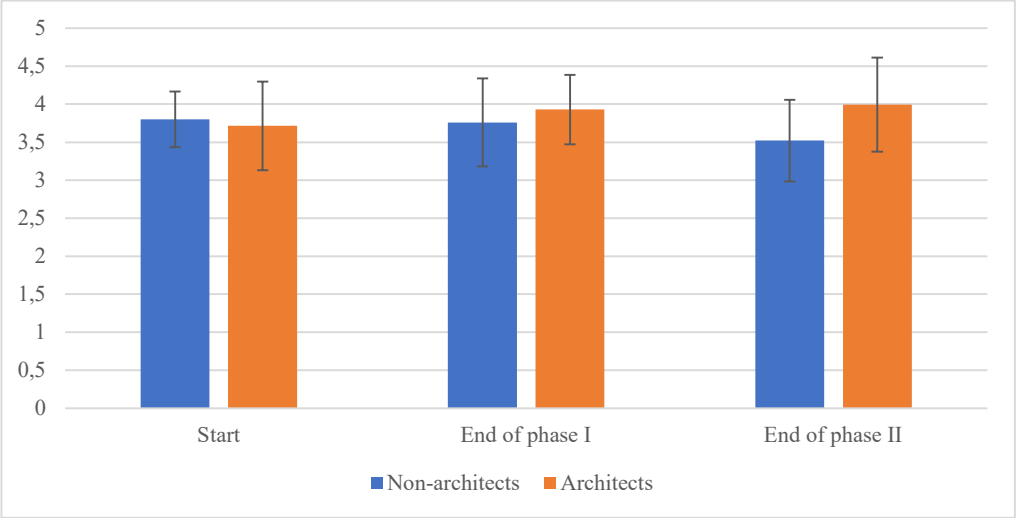

Figure 5.29. Self-assessment of occupational wellbeing by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

The following subsection provides the data related to the study participants assessment of their occupational wellness, in relation to three statements, namely:

- My work is manageable.
- My work is satisfying.
- I am developing skills to achieve my career goals.
- I feel understood and appreciated by my co-workers
- I balance work with play and other aspects of my life.

Table 5.26 presents a summary of participant responses to statement 1.

Table 5.26. Self-assessment of occupational wellbeing statement 1 ("My work is manageable") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.36	0.67
	Architects	2.33	0.88
	Total	2.34	0.82
End of phase I	Non-architects	2.27	0.91
	Architects	1.93	0.62
	Total	2.03	0.72
End of phase II	Non-architects	2.55	0.93
	Architects	2.04	0.85
	Total	2.18	0.90

Source: Own compilation based on study findings.

There was no statistically significant interaction of the occupation factor and the within-group factor, $F(2; 72) = 0.81$; $p = .450$; $\eta 2 = .02$. An additional simple effects analysis was nevertheless performed, but no results were noted even as statistical trend (Figure 5.30).

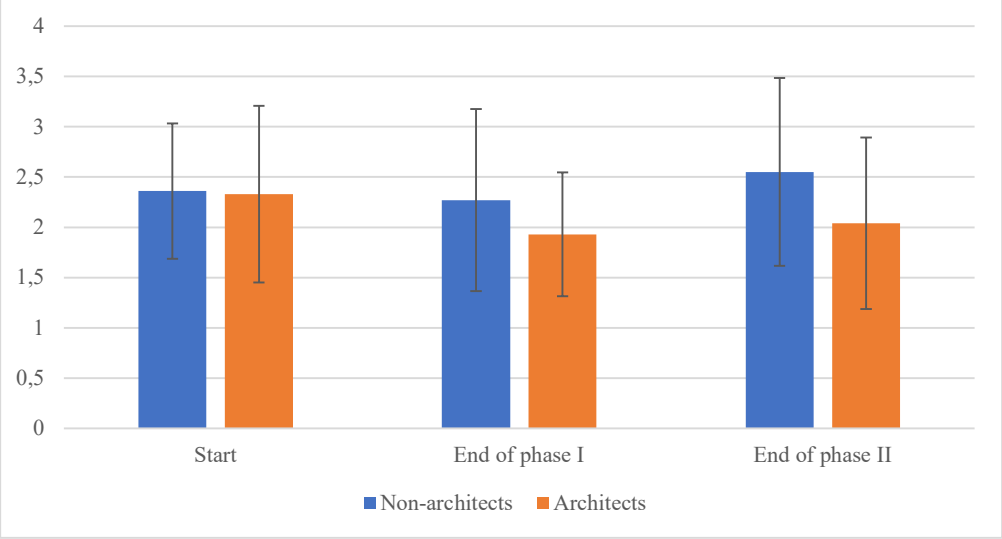

Figure 5.30. Self-assessment of occupational wellbeing statement 1 ("My work is manageable") by non-architects and architects, in three measurement periods
Source: Own compilation based on study findings.

Table 5.27 presents a summary of participant responses to statement 2 above.

Table 5.27. Self-assessment of occupational wellbeing statement 2 ("My work is satisfying") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.45	0.82
	Architects	2.30	0.72
	Total	2.34	0.75
End of phase I	Non-architects	2.27	1.01
	Architects	2.04	0.65
	Total	2.11	0.76
End of phase II	Non-architects	2.45	0.52
	Architects	2.07	0.78
	Total	2.18	0.73

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the occupation factor and the within-group factor, $F(2; 72) = 0.32$; $p = .730$; $\eta 2 = .01$. An additional simple effects analysis was performed, but no results were noted even at statistical trend (see Figure 5.31).

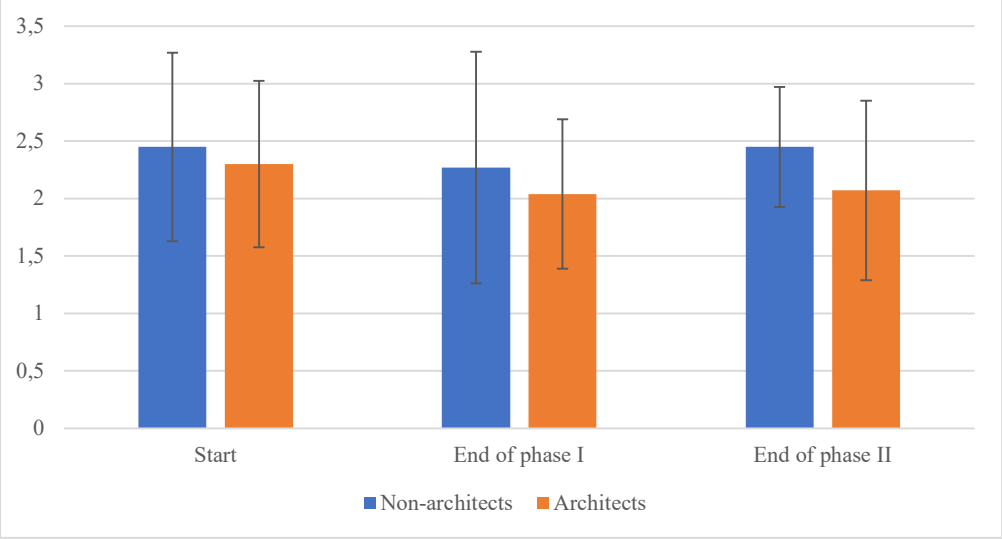

Figure 5.31. Self-assessment of occupational wellbeing statement 2 ("My work is satisfying") by non-architects and architects, in three measurement periods
Source: Own compilation based on study findings.

Table 5.28 presents a summary of participant responses to statement 3 above.

Table 5.28. Self-assessment of occupational wellbeing statement 3 ("I am developing skills to achieve my career goals") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.18	0.75
	Architects	1.89	0.70
	Total	1.97	0.72
End of phase I	Non-architects	2.00	0.89
	Architects	2.11	0.58
	Total	2.08	0.67
End of phase II	Non-architects	2.18	0.75
	Architects	1.93	0.73
	Total	2.00	0.74

Source: Own compilation based on study findings.

There was a near statistical significance for the interaction effect of the occupation factor and the within-group factor, $F(2; 72) = 1.30$; $p = .280$; $\eta 2 = .04$. A simple effects analysis was performed. The simple effect of moment of measurement was close to statistical significance in the architect group, $F(2; 35) = 2.53$; $p = .094$; $\eta 2 = .13$. However, such a result did not allow for a post-hoc analysis. In the non-architect group, the corresponding effect was not statistically significant even at the level of statistical trend, $F(2; 35) = 0.84$; $p = .442$; $\eta 2 = .05$. In contrast, the study group's simple effects were not even close to statistical significance at any of the three time points (see Figure 5.32).

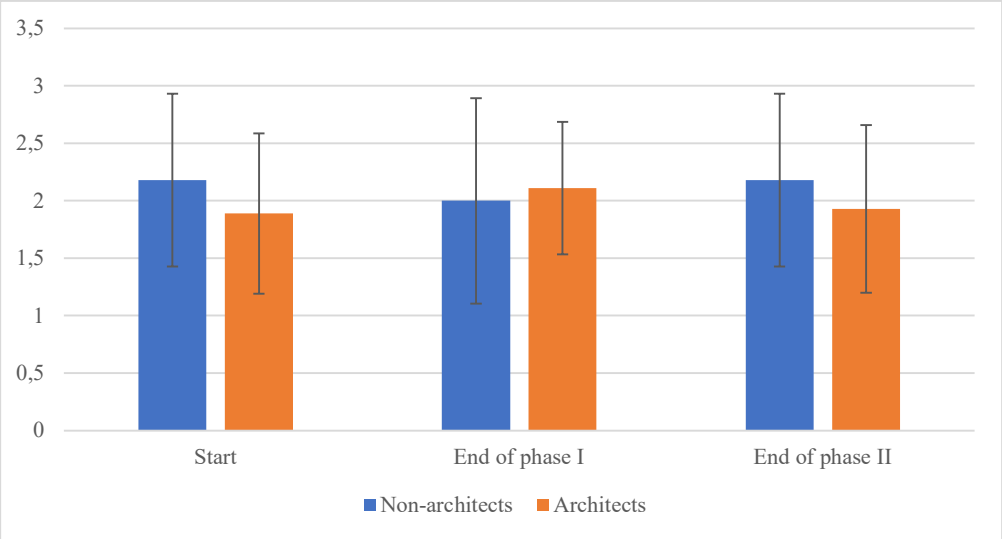

Figure 5.32. Self-assessment of occupational wellbeing statement 3 ("I am developing skills to achieve my career goals") by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.29 presents a summary of participant responses to statement 4.

Table 5.29. Self-assessment of occupational wellbeing statement 4 ("I feel understood and appreciated by my co-workers") by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.27	0.79
	Architects	2.15	0.72
	Total	2.18	0.73
End of phase I	Non-architects	1.91	0.70
	Architects	2.11	0.64
	Total	2.05	0.66
End of phase II	Non-architects	2.36	0.51
	Architects	1.93	0.68
	Total	2.05	0.66

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 72) = 2.22; p = .116; η2 = .06. An additional simple effects analysis was nevertheless performed. A close to statistically significant simple effect of occupation in the end of phase II measure was found, F(1; 36) = 3.74; p = .061; η2 = .09. Higher results were found in the non-architect group. Analogous effects were not statistically significant in the initial measurement, F(1; 36) = 0.22; p = .640; η2 = 0.01; and end of phase I, F(1; 36) = 0.74; p = .396; η2 = .02. Simple effects of measurement moment were not even close to statistical significance. The results are summarized in Figure 5.33.

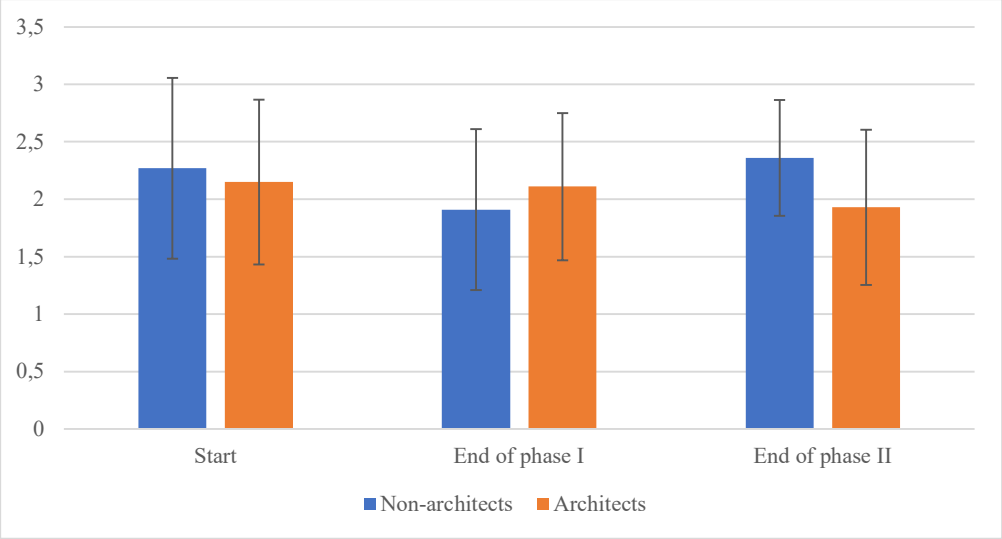

Figure 5.33. Self-assessment of occupational wellbeing statement 4 (“I feel understood and appreciated by my co-workers”) by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Table 5.30 presents a summary of participant responses to statement 5.

Table 5.30. Self-assessment of occupational wellbeing statement 5 (“I balance work with play and other aspects of my life”) by non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	2.27	1.01
	Architects	2.56	0.93

	Total	2.47	0.95
End of phase I	Non-architects	2.82	0.75
	Architects	2.11	0.70
	Total	2.32	0.78
End of phase II	Non-architects	2.82	0.87
	Architects	2.00	0.68
	Total	2.24	0.82

Source: Own compilation based on study findings.

There was a statistically significant interaction effect of the occupation factor and the within-group factor, $F(2; 72) = 5.77$; $p = .005$; $\eta 2 = .14$. Thus, an obligatory simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the architect group was noted, $F(2; 35) = 4.24$; $p = .022$; $\eta 2 = .20$. Post-hoc analyses were therefore performed. One statistically significant difference was noted. Higher scores were recorded in the initial measure compared to the end-of-phase II outcome ($p = 0.018$). The other differences were not statistically significant. In contrast, in the non-architect group, the analogue effect was found not to be statistically significant, $F(2; 35) = 1.88$; $p = .167$; $\eta 2 = .10$. In contrast, the simple occupation effect was statistically significant in both the end of phase I measure; $F(1; 36) = 7.69$; $p = .009$; $\eta 2 = .18$; and in the end of phase II measure, $F(1; 36) = 9.59$; $p = .004$; $\eta 2 = .21$. Higher scores were reported in the non-architects' group. Analogous effects were not statistically significant in the initial measurement, $F(1; 36) = 0.69$; $p = .413$; $\eta 2 = .02$ (see Figure 5.34).

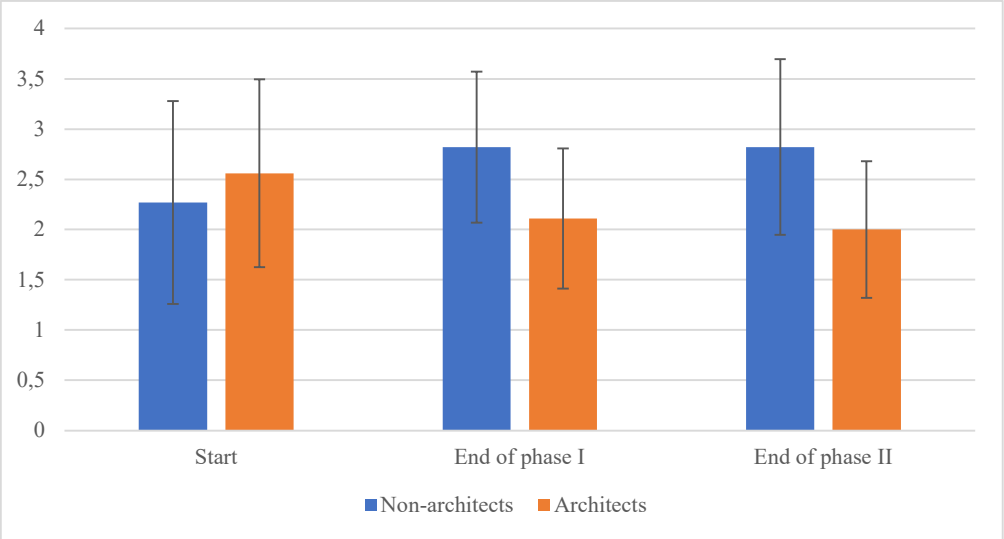

Figure 5.34. Self-assessment of occupational wellbeing statement 5 ("I balance work with play and other aspects of my life") by non-architects and architects, in three measurement period

Source: Own compilation based on study findings.

As second step, an analysis was conducted of the quantitative results on overall innovative work behaviour. These results are also grouped by populations, i.e. non-meditators and meditators and then non-architects and architects.

Self-assessment of overall innovative work behavior of non-meditators and meditators

In the next step, a test was carried out to see whether the level of change of self-assessment of the overall IWB was significantly different between meditators and non-meditators. A series of two-factor analyses of variance were performed in a mixed design. Table 5.31 presents the basic descriptive statistics.

Table 5.31. Basic descriptive statistics of self-assessment of overall innovative work behaviour of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	11.33	1.47
	Meditators	11.40	0.70
	All participants	11.35	1.34
End of phase I	Non-meditators	11.69	1.65

	Meditators	11.80	1.32
	All participants	11.72	1.57
End of phase II	Non-meditators	12.42	1.87
	Meditators	12.00	1.16
	All participants	12.33	1.74

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, F(2; 88) = 0.49; p = .614; η2 = .01. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, F(2; 43) = 6.59; p = .003; η2 = .24. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted. The level of overall innovative work behaviour scale was higher in the end of phase II measurement compared to the initial measurement (p = .002) and end of phase I (p = .027). The difference between the two measurements, on the other hand, was not even close to statistical significance. The simple effect in the meditators group was found not to be even close to statistical significance, F(2; 43) = 0.58; p = .563; η2 = .03. The simple effect of meditation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.35.

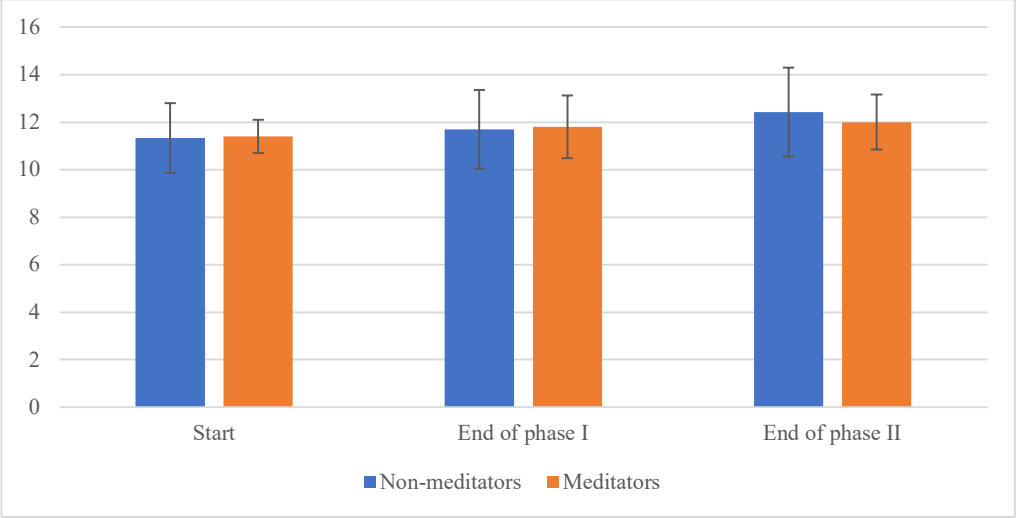

Figure 5.35 Self-assessment of overall innovative work behavior of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Peer-assessment of overall innovative work behavior of non-meditators and meditators

To test whether there was any significant difference between peer-assessed overall IWB for non-meditators and meditators, a series of two-factor analyses of variance were performed in a mixed design. Table 5.32 presents the basic descriptive statistics.

Table 5.32. Basic descriptive statistics of peer-assessment of overall innovative work behaviour of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	5.34	0.93
	Meditators	6.17	0.78
	All participants	5.46	0.95
End of phase I	Non-meditators	5.75	0.71
	Meditators	6.33	0.51
	All participants	5.83	0.70
End of phase II	Non-meditators	5.80	0.77
	Meditators	6.31	0.42
	All participants	5.87	0.74

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(2; 54) = 0.35$; $p = .706$; $\eta 2 = .01$. A simple effects analysis was nevertheless performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, $F(2; 26) = 4.88$; $p = .016$; $\eta 2 = .27$. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted. The results of the initial measurement were lower compared to the results in the end of phase I ($p = .023$) and end of phase II ($p = .028$) measurements. In contrast, these two measurements did not differ even at the level of statistical trend. The simple effect in the meditators group, on the other hand, was found not to be even close to statistical significance, $F(2; 26) = 0.11$; $p = .897$; $\eta 2 = .01$. The results are summarized in Figure 5.36.

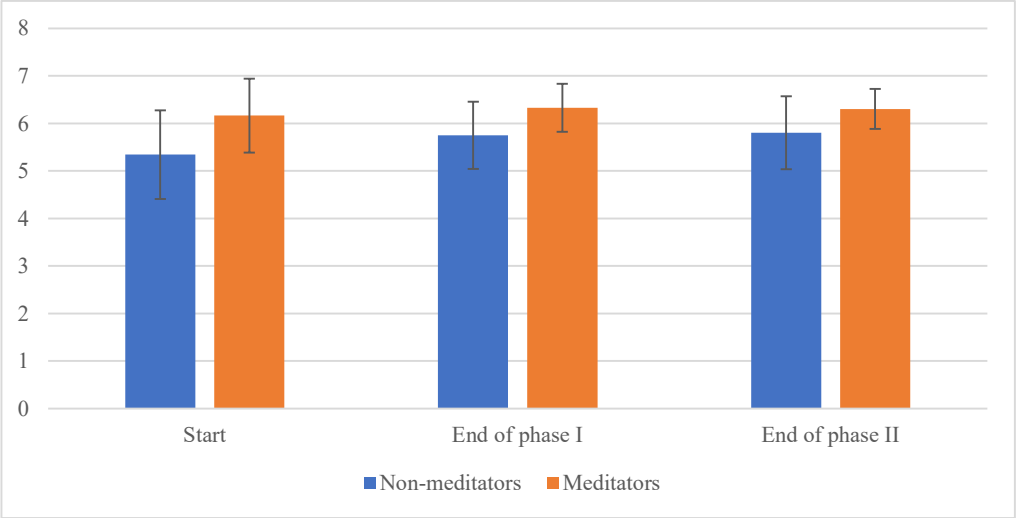

Figure 5.36. Peer-assessment of overall innovative work behavior of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Self-assessment of overall innovative work behavior of non-architects and architects

The data gathered on changes in self-assessment of overall IWB was used to check whether there were any differences between the self-assessment of non-architects and architects. Table 5.33 presents the basic descriptive statistics.

Table 5.33. Basic descriptive statistics of self-assessment of overall innovative work behaviour of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	11.23	1.79
	Architects	11.39	1.14
	All participants	11.35	1.34
End of phase I	Non-architects	11.15	1.41
	Architects	11.94	1.60
	All participants	11.72	1.57
End of phase II	Non-architects	11.08	2.06
	Architects	12.82	1.33
	All participants	12.33	1.74

Source: Own compilation based on study findings.

There was a statistically significant main effect of the within-group factor, F(2; 88) = 3.12; p = .049; η2 = .07. The strength of the observed effect was moderately large. Post-hoc analyses were performed using the Sidak test. One difference at the level of statistical trend was noted. Scores in the final measure were higher compared to scores in the initial measure (p = .071). The results in the middle measurement were not significantly different from the two extreme measurements. The results are presented graphically in Figure 5.37.

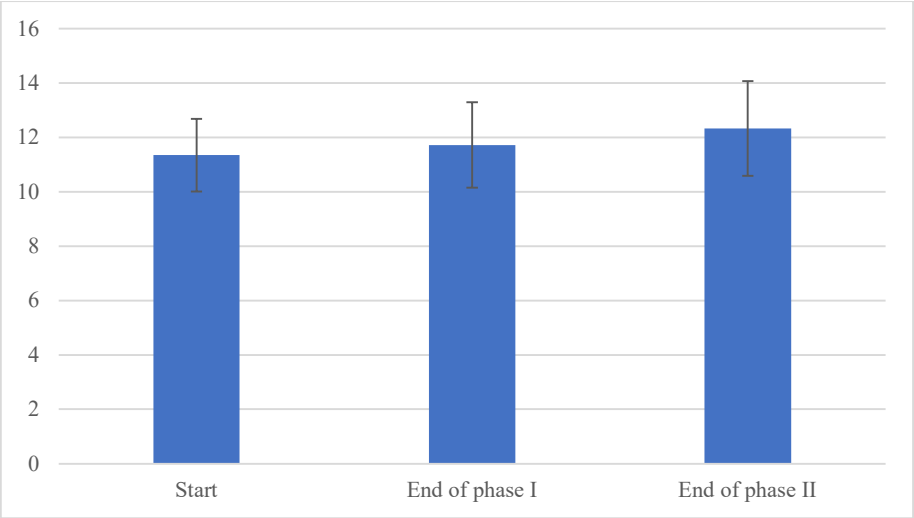

Figure 5.37. Self-assessment of overall innovative work behavior of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was also a statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 88) = 4.78; p = .011; η2 = .09. The strength of the observed effect was moderately large. Thus, an obligatory simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the group of architects was noted, F(2; 43) = 12.00; p < .001; η2 = .36. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted. The level of innovative behaviour scale was statistically significantly higher in the final measure compared to the middle measure (p = .006) and the initial measure (p < .001). In contrast, scores on the two measures were not significantly different. In contrast, the simple effect in the non-architects group appeared not to be even close to statistical significance, F(2; 43) = 0.05; p = .947; η2 = 0. The simple effect of occupation was statistically significant only in the final measurement, F(1; 44) = 11.54; p = .001; η2 = .21. Higher scores were observed

among the architects. However, there were no statistically significant differences in the initial measure, $F(1; 44) = 0.14$; $p = .714$; $\eta 2 = 0$; nor in the middle measure, $F(1; 44) = 2.40$; $p = .129$; $\eta 2 = .05$. The results are summarized in Figure 5.38.

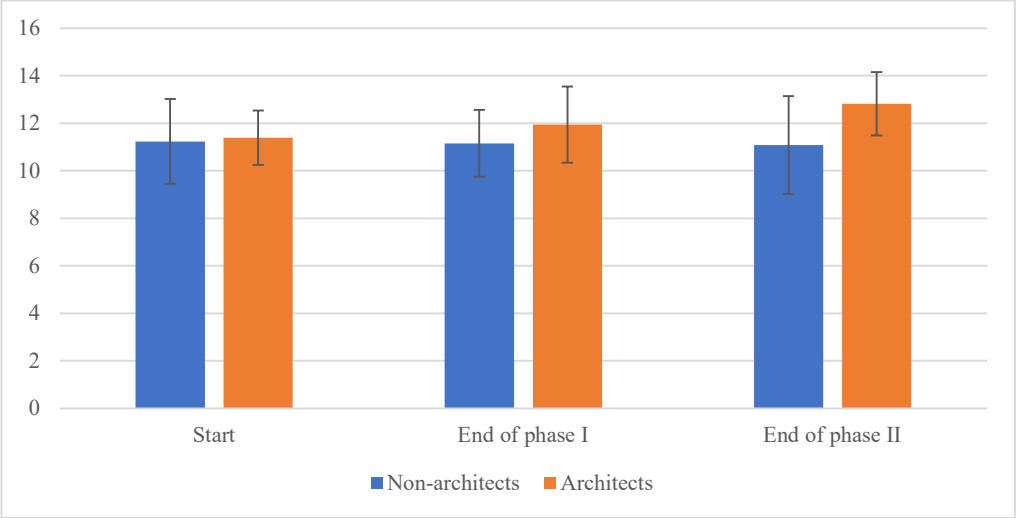

Figure 5.38. Self-assessment of overall innovative work behavior by non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Peer-assessment of overall innovative work behavior of non-architects and architects

In the next step, the level of change in peer-assessment of innovative work behavior was analyzed for differences between non-architects and architects. A two-factor analysis of variance in a mixed design was performed. Table 5.34 presents descriptive statistics.

Table 5.34. Basic descriptive statistics of peer-assessment of overall innovative work behaviour of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	5.53	0.87
	Architects	5.42	1.00
	All participants	5.46	0.95
End of phase I	Non-architects	5.67	0.64
	Architects	5.91	0.73
	All participants	5.83	0.70
End of phase II	Non-architects	5.95	0.49

	Architects	5.84	0.84
	All participants	5.87	0.74

Source: Own compilation based on study findings.

There was a statistically significant main effect of the within-group factor, F(2; 54) = 4.29; p = .019; η2 = .14. The strength of the observed effect was moderately large. Post-hoc analyses were performed using the Sidak test. One difference at the level of statistical trend was noted. Scores in the final measure were higher compared to scores in the initial measure (p = .055). The results in the middle measurement were not significantly different from the two extreme measurements. The results are presented graphically in Figure 5.39.

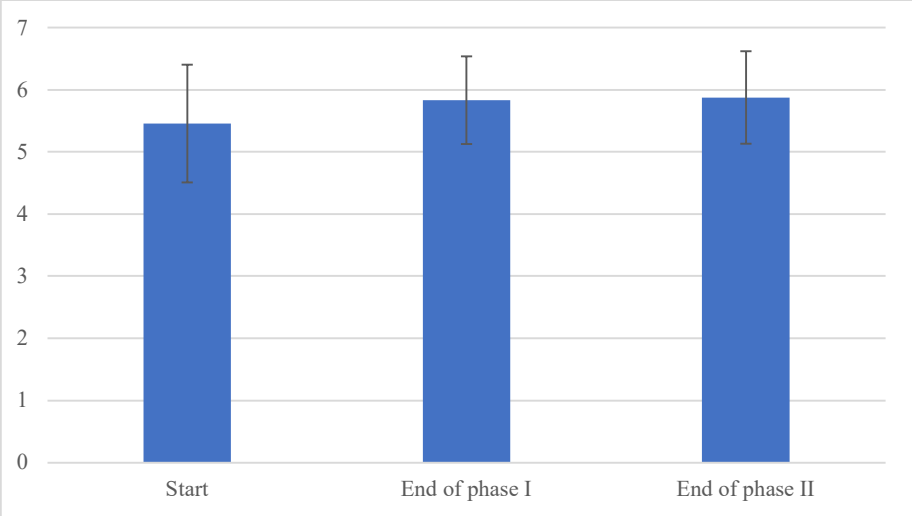

Figure 5.39. Peer-assessment of overall innovative work behaviour by non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 54) = 0.93; p = .4403; η2 = .03. A simple effects analysis was nevertheless performed. There was a statistically significant simple effect of moment of measurement in the group of architects, F(2; 26) = 4.74; p = .018; η2 = .27. A post-hoc analysis was performed using the Sidak test. One statistically significant difference and one at the level of statistical trend were noted. Among the peer-assessment of architects, the results of the initial measurement were lower compared to the results in the end of phase I (p = .013) and end of phase II (p = .098) measurements. These two measurements did not

differ even at the level of statistical trend. In contrast, the simple effect in the non-architect group was found not to be even close to statistical significance, $F(2; 26) = 1.19$; $p = .319$; $\eta 2 = .08$. In contrast, the simple effect of occupation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.40.

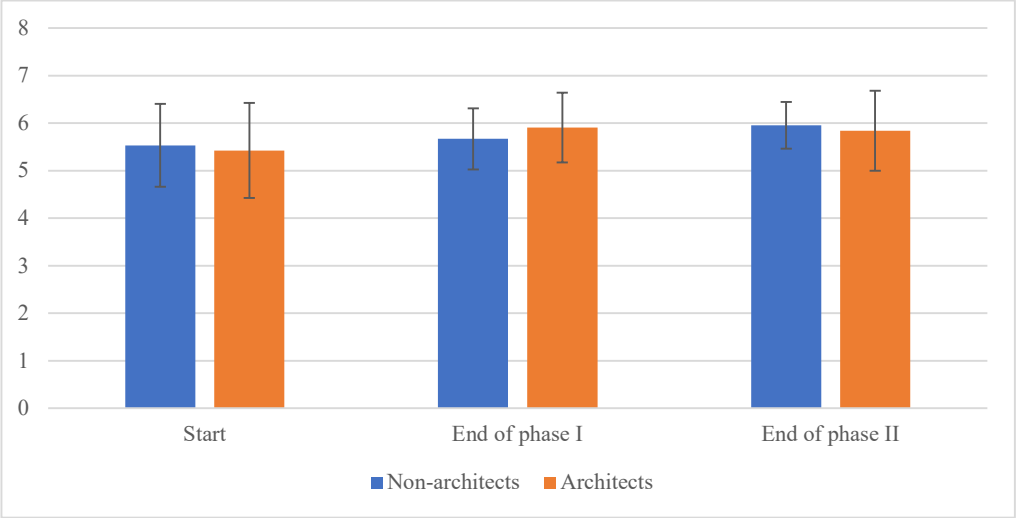

Figure 5.40. Peer-assessment of overall innovative work behaviour of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Lastly step, an analysis was conducted of the quantitative results on the three discrete facets of innovative work behaviour. These results are also grouped by populations, i.e. non-meditators and meditators and then non-architects and architects.

Self-assessment of dimensions of innovative work behavior of non-meditators and meditators

In the next step, an analysis was conducted to check whether there were any significant changes in the self-assessment of the separate dimensions of IWB between meditators and non-meditators. A series of two-factor analyses of variance were performed in a mixed design. The main effect of the group was not reported, as the average score of the three measures was not interpretatively meaningful.

Idea generation

Data on self-assessment of idea generation was considered first.

Table 5.35. Basic descriptive statistics of self-assessment of idea generation of non-meditators and meditators, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-meditators	3.92	0.76
	Meditators	3.79	0.49
	All participants	3.83	0.57
End of phase I	Non-meditators	3.54	0.78
	Meditators	3.91	0.68
	All participants	3.80	0.72
End of phase II	Non-meditators	3.54	0.88
	Meditators	4.18	0.47
	All participants	4.00	0.67

Source: Own compilation based on study findings.

No statistically significant variations were recorded for the interaction effect of the meditation factor and the within-group factor, $F(2; 88) = 0.12$; $p = .883$; $\eta 2 = 0$. A simple effects analysis was nevertheless performed, but no results were recorded even at the level of statistical trend. The results are summarized in Figure 5.41.

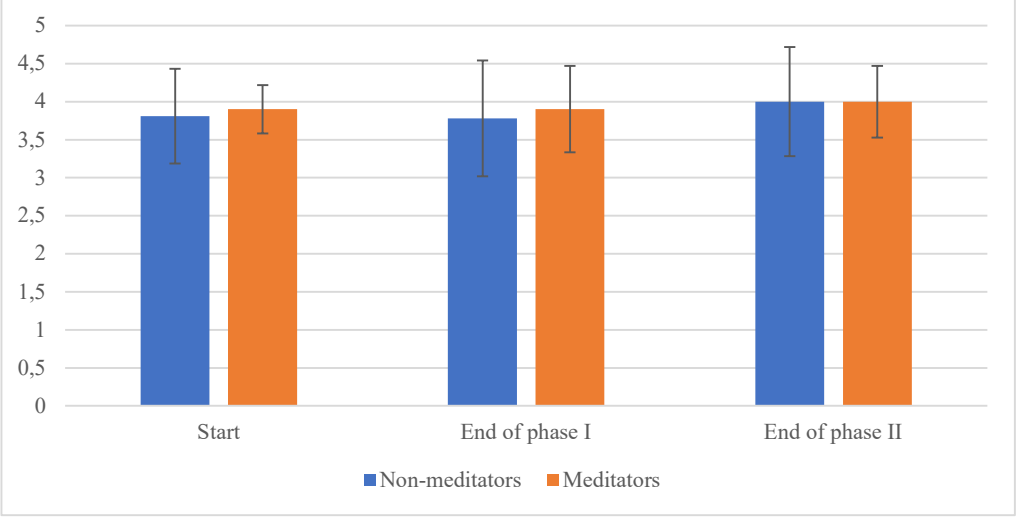

Figure 5.41. Self-assessment of idea generation of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Idea promotion

An analogous analysis was then performed for the dimension of idea promotion. Table 5.36 presents the basic descriptive statistics.

Table 5.36. Basic descriptive statistics of self-assessment of idea promotion of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	3.64	0.59
	Meditators	3.60	0.70
	All participants	3.63	0.61
End of phase I	Non-meditators	3.89	0.62
	Meditators	4.00	0.47
	All participants	3.91	0.59
End of phase II	Non-meditators	4.17	0.74
	Meditators	3.90	0.57
	All participants	4.11	0.71

Source: Own compilation based on study findings.

There was also no statistically significant interaction effect for the meditation factor and the within-group factor, $F(2; 88) = 1.36$; $p = .267$; $\eta 2 = .06$. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, $F(2; 43) = 7.45$; $p = .002$; $\eta 2 = .26$. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted for non-meditators. The level of idea promotion scale was higher in the end of phase II measurement compared to the initial measurement ($p = .001$) and end of phase I ($p = .038$). The difference between the two measures, in turn, was close to statistical significance ($p = .081$). The simple effect in the meditators group, on the other hand, was found not to be even close to statistical significance, $F(2; 43) = 1.80$; $p = .178$; $\eta 2 = .08$. The simple effect of meditation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.42.

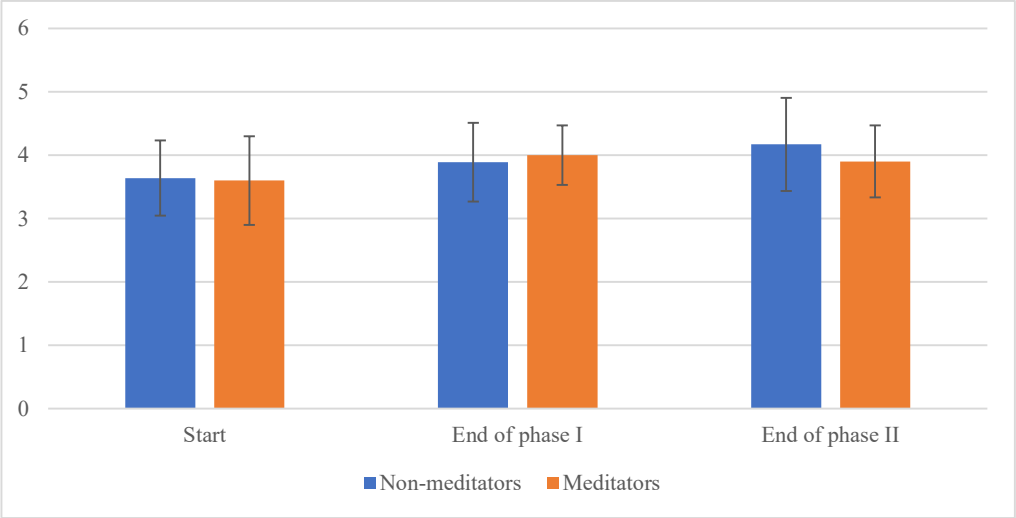

Figure 5.42. Self-assessment of idea promotion of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Idea implementation

An analogous analysis was performed for the idea implementation dimension. Table 5.37 presents the basic descriptive statistics.

Table 5.37. Basic descriptive statistics of self-assessment of idea implementation of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	3.89	0.62
	Meditators	3.90	0.57
	All participants	3.89	0.61
End of phase I	Non-meditators	4.03	0.56
	Meditators	3.90	0.57
	All participants	4.00	0.56
End of phase II	Non-meditators	4.25	0.69
	Meditators	4.10	0.32
	All participants	4.22	0.63

Source: Own compilation based on study findings.

There was no statistically significant interaction effect between the meditation factor and the within-group factor, F(2; 88) = 0.23; p = .794; η2 = .01. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, F(2; 43) = 4.78; p = .013; η2 = .18. A post-hoc analysis was therefore performed using the Sidak test. One statistically significant difference was noted for the non-meditators group. The level of idea implementation scale was higher in the end of phase II measure compared to the initial measure (p = .011). The results in the end of phase I measure were not significantly different compared to the other two measurements. In contrast, the simple effect in the meditators group was not found to be even close to statistical significance, F(2; 43) = 0.55; p = .584; η2 = .03. The simple effect of meditation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.43.

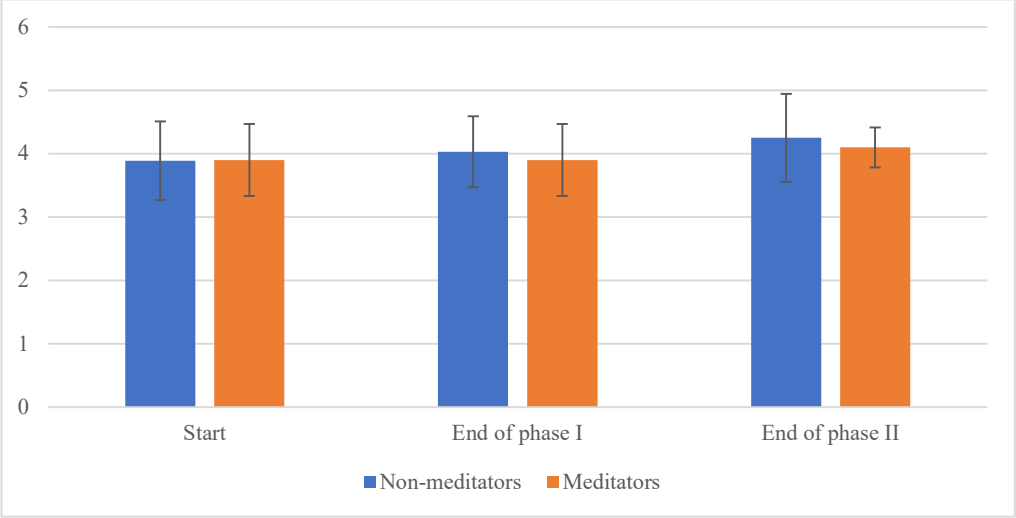

Figure 5.43. Self-assessment of idea implementation of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Peer-assessment of dimensions of innovative work behavior of non-meditators and meditators

In the next step, the data from peer-assessment of the individual dimensions of innovative work behaviour were compared between meditators and non-meditators. A series of two-factor analyses of variance were performed in a mixed design. The main effect of the

group was not reported, as the average score of the three measures was not interpretatively meaningful, while the main effect of the measure was already presented in the previous analysis.

Idea generation

Idea generation was analysed first. Table 5.38 presents the basic descriptive statistics.

Table 5.38. Basic descriptive statistics of peer-assessment of idea generation of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	5.51	1.00
	Meditators	6.17	0.79
	All participants	5.60	0.99
End of phase I	Non-meditators	5.77	0.76
	Meditators	6.33	0.47
	All participants	5.85	0.74
End of phase II	Non-meditators	5.93	0.84
	Meditators	6.25	0.32
	All participants	5.98	0.79

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(2; 54) = 0.33$; $p = .718$; $\eta 2 = .01$. A simple effects analysis was nevertheless performed. A simple effect of moment of measurement in the non-meditator group was found to be close to statistical significance, $F(2; 26) = 3.06$; $p = .064$; $\eta 2 = .19$. However, this result did not allow for post-hoc analysis. The simple effect in the meditators group, on the other hand, was found not to be even close to statistical significance, $F(2; 26) = 0.08$; $p = .925$; $\eta 2 = .01$. In contrast, the simple effect of meditating was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.44.

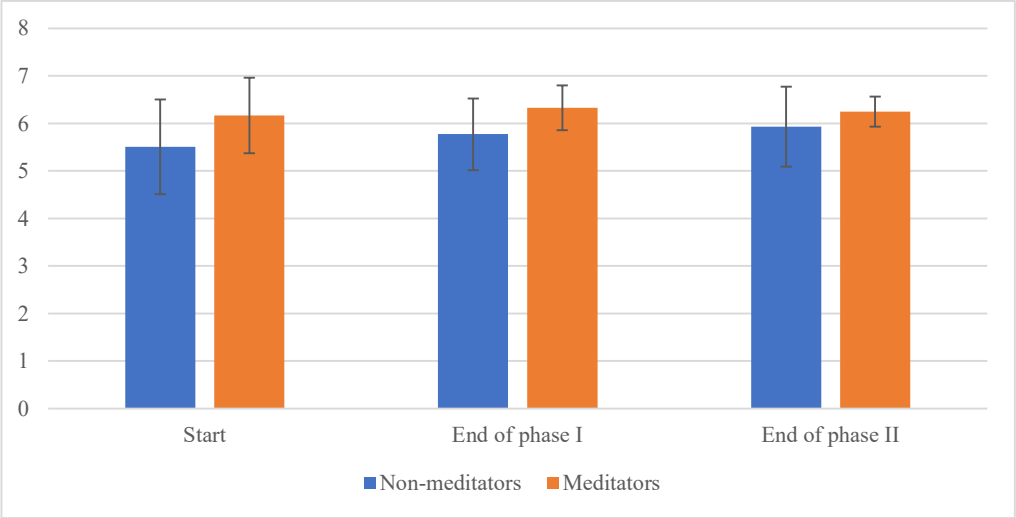

Figure 5.44. Peer-assessment of idea generation of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Idea promotion

An analogous analysis was then performed for the dimension of the idea promotion. Table 5.39 presents the basic descriptive statistics.

Table 5.39. Basic descriptive statistics of peer-assessment of idea promotion of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	5.47	0.99
	Meditators	6.00	0.72
	All participants	5.54	0.96
End of phase I	Non-meditators	5.85	0.76
	Meditators	6.33	0.47
	All participants	5.92	0.74
End of phase II	Non-meditators	5.77	0.86
	Meditators	6.42	0.50
	All participants	5.86	0.84

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, F(2; 54) = 0.07; p = .937; η2 = 0. A simple effects analysis was nevertheless performed. A simple effect of moment of measurement in the non-meditator group was found to be close to statistical significance, F(2; 26) = 2.61; p = .092; η2 = .17. However, this result did not allow for post-hoc analysis. The simple effect in the meditators group, on the other hand, was found not to be even close to statistical significance, F(2; 26) = 0.39; p = .678; η2 = .03; the simple effect of meditating was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.45.

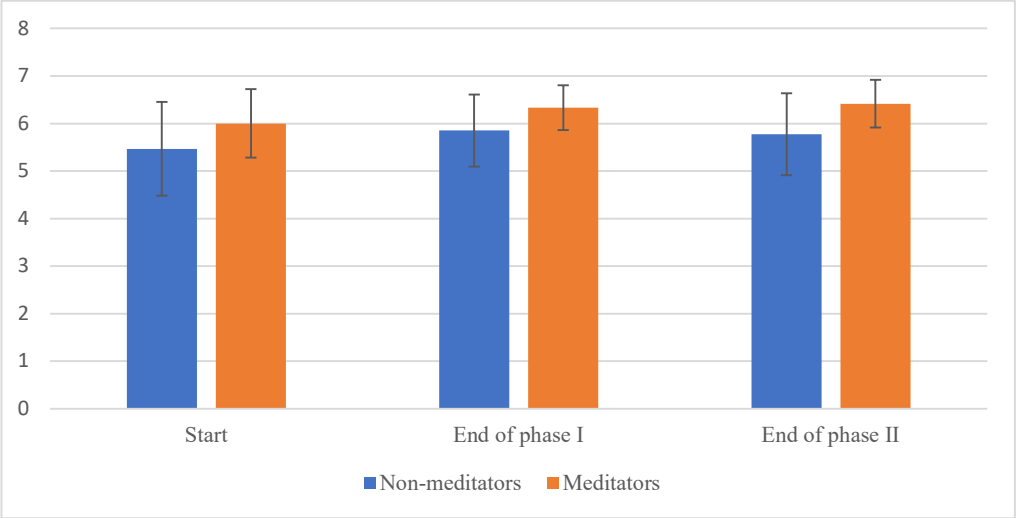

Figure 5.45. Peer-assessment of idea promotion of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Idea implementation

An analogous analysis was performed for the idea implementation dimension. Table 5.40 presents the basic descriptive statistics.

Table 5.40. Basic descriptive statistics of peer-assessment of idea implementation of non-meditators and meditators, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-meditators	5.05	1.03
	Meditators	6.33	0.94

	All participants	5.23	1.10
End of phase I	Non-meditators	5.63	0.81
	Meditators	6.33	0.61
	All participants	5.72	0.82
End of phase II	Non-meditators	5.71	0.80
	Meditators	6.25	0.50
	All participants	5.78	0.78

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the meditation factor and the within-group factor, $F(2; 54) = 1.50$; $p = .233$; $\eta 2 = .05$. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the non-meditators group was noted, $F(2; 26) = 8.58$; $p = .001$; $\eta 2 = .40$. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted for non-meditators. The results of the initial measurement were lower compared to the results in the end of phase I ($p = .002$) and end of phase II ($p = .004$) measurements. In contrast, these two measurements did not differ even at the level of statistical trend. In contrast, the simple effect in the meditators group was found not to be even close to statistical significance, $F(2; 26) = 0.02$; $p = .978$; $\eta 2 = 0$. There was also a statistically significant simple effect of meditation in the initial measurement, $F(1; 27) = 5.46$; $p = .027$; $\eta 2 = .17$. Higher scores were found in the meditators group. This effect was not replicated in the end of phase I measure, $F(1; 27) = 2.74$; $p = .109$; $\eta 2 = .09$; nor end of phase II, $F(1; 27) = 1.73$; $p = .200$; $\eta 2 = .06$. The results are summarized in Figure 5.46.

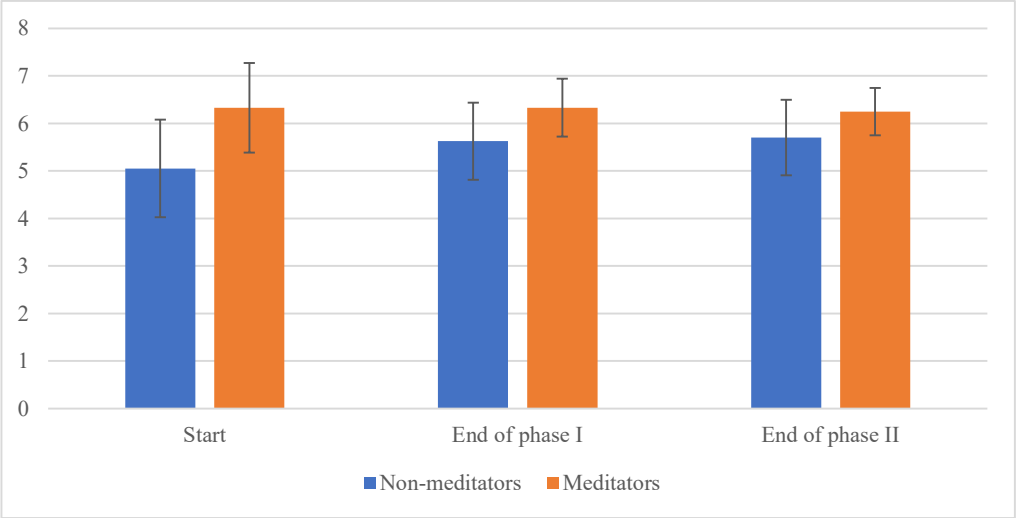

Figure 5.46. Peer-assessment of idea implementation of non-meditators and meditators, in three measurement periods

Source: Own compilation based on study findings.

Self-assessment of dimensions of innovative work behavior of non-architects and architects

In the next step, the analysis looked at the self-assessment by non-architects and architects of the individual dimensions of innovative work behaviour. A series of two-factor analyses of variance were performed in a mixed design.

Idea generation

The idea generation dimension was considered first. Table 5.41 presents the basic descriptive statistics.

Table 5.41. Basic descriptive statistics of self-assessment of idea generation of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	3.92	0.76
	Architects	3.79	0.49
	All participants	3.83	0.57
End of phase I	Non-architects	3.54	0.78

	Architects	3.91	0.68
	All participants	3.80	0.72
End of phase II	Non-architects	3.54	0.88
	Architects	4.18	0.47
	All participants	4.00	0.67

Source: Own compilation based on study findings.

There was no statistically significant within-group main factor effect, F(2; 88) = 0.98; p = .379; η2 = .02. Changes in the level of the study variable over the space of three consecutive measurement points were not significantly different across the group of respondents. The results are presented graphically in Figure 5.47.

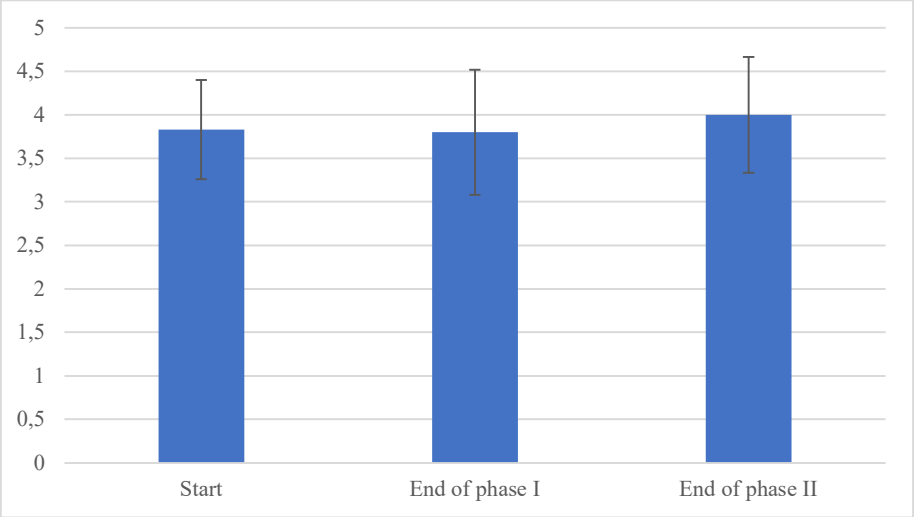

Figure 5.47. Self-assessment of idea generation of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

However, there was a statistically significant interaction effect of the occupation factor and the intragroup factor, F(2; 88) = 6.39; p = .003; η2 = .13. The strength of the observed effect was moderately large. A simple effects analysis was therefore performed. There was a statistically significant simple effect of moment of measurement in the group of architects, F(2; 43) = 5.70; p = .006; η2 = .21. A post-hoc analysis was performed using the Sidak test. One statistically significant difference and one at the level of statistical trend were noted for architects. The level of idea generation scale was higher in the end of phase II

measurement compared to the initial measurement (p = .006) and end of phase I (p = .059). The difference between the two measurements was not statistically significantly different. In contrast, the simple effect in the non-architect group was only found to be close to statistical significance, F(2; 43) = 2.56; p = .089; η2 = .11, preventing post-hoc analyses. Notably, the effect of simple occupation was statistically significant in the final measure, F(1; 44) = 10.52; p = .002; η2 = .19. Higher scores were observed in the architect group. In the other two measurements, the differences between the study groups were not even close to statistical significance - initial measurement, F(1; 44) = 0.52; p = .475; η2 = .01; end of phase I measurement, F(1; 44) = 2.57; p = .116; η2 = .06. The results are summarized in Figure 5.48.

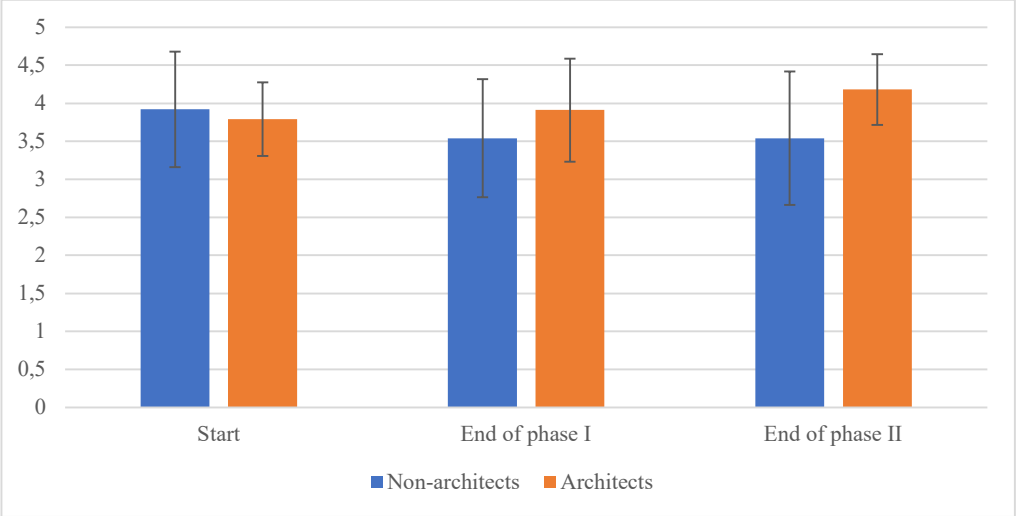

Figure 5.48. Self-assessment of idea generation of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Idea promotion

An analogous analysis was then performed for the dimension of idea promotion. Table 5.42 presents the basic descriptive statistics.

Table 5.42. Basic descriptive statistics of self-assessment of idea promotion of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	3.54	0.66

	Architects	3.67	0.60
	All participants	3.63	0.61
End of phase I	Non-architects	3.69	0.63
	Architects	4.00	0.56
	All participants	3.91	0.59
End of phase II	Non-architects	3.62	0.65
	Architects	4.30	0.64
	All participants	4.11	0.71

Source: Own compilation based on study findings.

There was a statistically significant main effect of the within-group factor, F(2; 88) = 5.15; p = .009; η2 = .11. The strength of the observed effect was moderately large. Post-hoc analyses were performed using the Sidak test. One statistically significant difference was noted. Scores in the final measure were higher compared to scores in the initial measure (p = .022). The results in the middle measure, on the other hand, were higher than the results in the initial measure at the level of statistical tendency (p = .084), and were not significantly different from the final measure. The results are presented graphically in Figure 5.49.

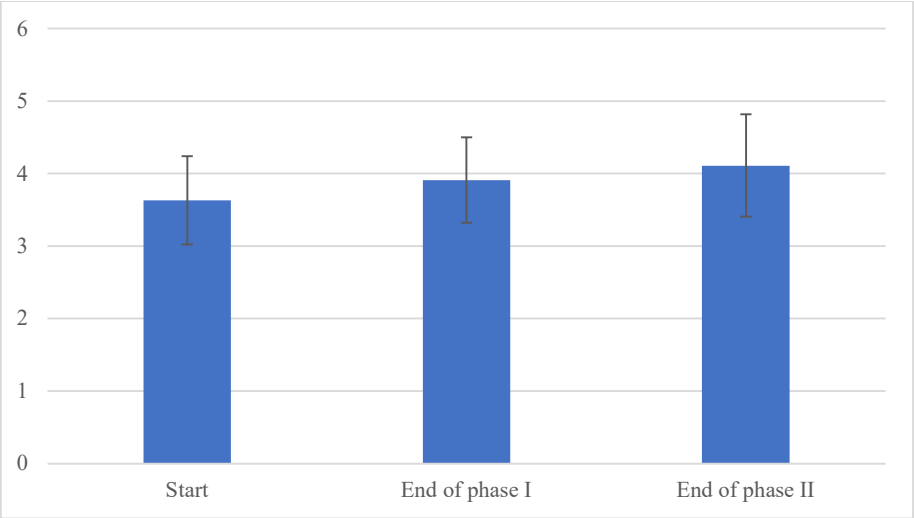

Figure 5.49. Self-assessment of idea promotion of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was also a statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 88) = 3.17; p = .047; η2 = .07. The strength of the observed

effect was moderately large. Thus, an obligatory simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the group of architects was noted, $F(2; 43) = 10.82$; $p < .001$; $\eta 2 = .34$. A post-hoc analysis was therefore performed using the Sidak test. All differences were statistically significant. The level of idea promotion scale was statistically significantly lower in the initial measurement compared to the middle ($p = .017$) and final measurements ($p < .001$). Scores on these two measures were also statistically significantly different ($p = .027$). In contrast, the simple effect in the non-architects group appeared not to be even close to statistical significance, $F(2; 43) = 0.37$; $p = .694$; $\eta 2 = .02$. In contrast, the simple effect of occupation was statistically significant only in the final measurement, $F(1; 44) = 10.75$; $p = .002$; $\eta 2 = .20$. Higher scores were observed in the architect group. However, there were no statistically significant differences in the initial measure, $F(1; 44) = 0.41$; $p = .527$; $\eta 2 = .01$; nor in the middle measure, $F(1; 44) = 2.63$; $p = .112$; $\eta 2 = .06$. The results are summarized in Figure 5.50.

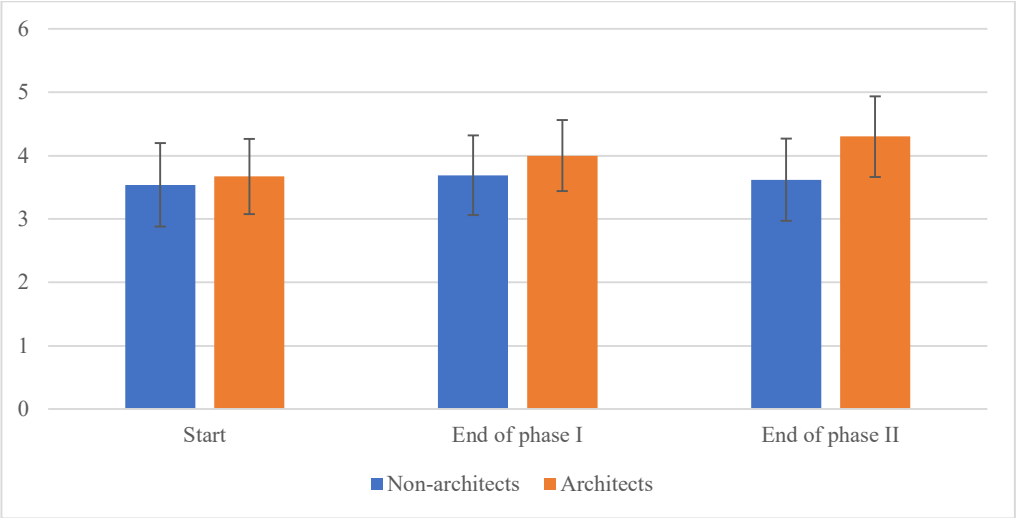

Figure 5.50. Self-assessment of idea promotion of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Idea implementation

An analogous analysis was performed for idea implementation. Table 5.43 presents the basic descriptive statistics.

Table 5.43. Basic descriptive statistics of self-assessment of idea implementation of non-architects and architects, in three measurement periods

Measure	Group	*Median*	*Standard Deviation*
Start	Non-architects	3.77	0.73
	Architects	3.94	0.56
	All participants	3.89	0.61
End of phase I	Non-architects	3.92	0.28
	Architects	4.03	0.64
	All participants	4.00	0.56
End of phase II	Non-architects	3.92	0.76
	Architects	4.33	0.54
	All participants	4.22	0.63

Source: Own compilation based on study findings.

The main effect of the within-group factor was reported to be close to statistical significance, $F(2; 88) = 2.77$; $p = .068$; $\eta 2 = .06$. The strength of the reported effect was moderately large. However, this result did not allow post-hoc analyses to be performed. The results are presented graphically in Figure 5.51.

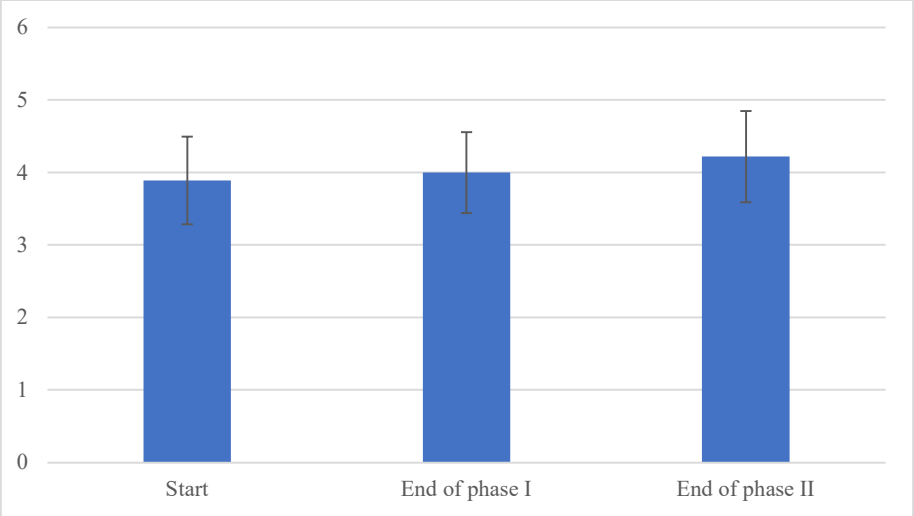

Figure 5.51. Self-assessment of idea implementation of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was also not even close to statistical significance for the interaction effect of the occupation factor and the within-group factor, $F(2; 88) = 0.94$; $p = .394$; $\eta 2 = .02$. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the group of architects was noted, $F(2; 43) = 5.89$; $p = .006$; $\eta 2 = .22$. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted for architects. The level of idea implementation scale was higher in the end of phase II measurement compared to the initial measurement ($p = .007$) and end of phase I ($p = .045$). The difference between the two measurements was not statistically significantly different. In contrast, the simple effect in the non-architects group appeared not to be even close to statistical significance, $F(2; 43) = 0.38$; $p = .690$; $\eta 2 = .02$. Notably, the simple effect of occupation was statistically significant only in the end of phase II measurement, $F(1; 44) = 4.25$; $p = .045$; $\eta 2 = .09$. Higher scores were observed in the architect group. There were no statistically significant differences in the other two measurement points initial measurement, $F(1; 44) = 0.73$; $p = .396$; $\eta 2 = .02$; end of phase I measurement, $F(1; 44) = 0.34$; $p = .563$; $\eta 2 = .01$. The results are summarized in Figure 5.52.

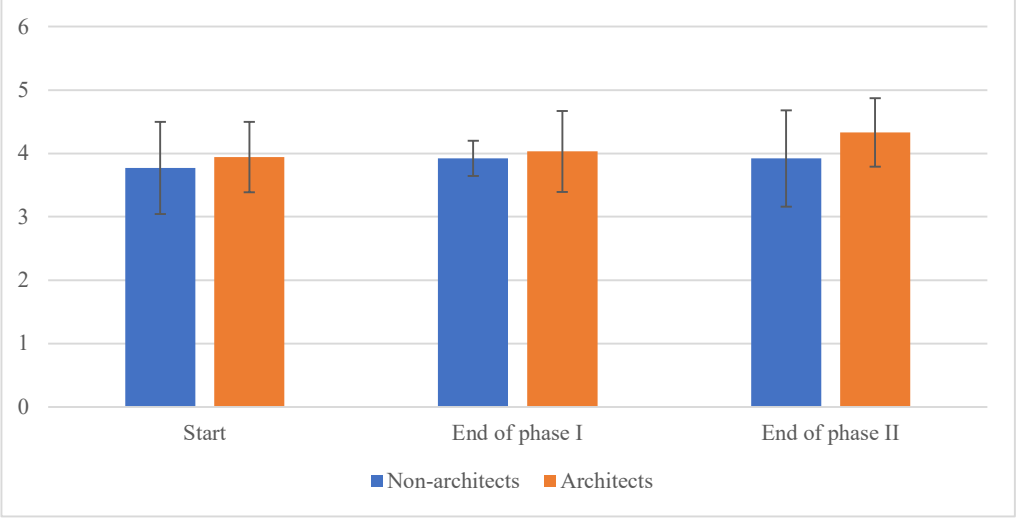

Figure 5.52. Self-assessment of idea implementation of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Peer-assessment of dimensions of innovative work behavior of non-architects and architects

In the next step, an analysis was conducted of whether there were any significant variations in peer-assessments of the individual dimensions of innovative work behavior for non-architects and architects. A series of two-factor analyses of variance were performed in a mixed design.

Idea generation

The idea generation dimension was considered first. Table 5.44 presents the basic descriptive statistics.

Table 5.44. Basic descriptive statistics of peer-assessment of idea generation of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	5.48	0.93
	Architects	5.65	1.03
	All architects	5.60	0.99
End of phase I	Non-architects	5.67	0.67
	Architects	5.93	0.78
	All architects	5.85	0.74
End of phase II	Non-architects	6.00	0.53
	All architects	5.97	0.90
	All architects	5.98	0.79

Source: Own compilation based on study findings.

There was a statistically significant main effect of the within-group factor, $F(2; 54) = 3.39$; $p = .041$; $\eta 2 = .11$. Thus, a post-hoc analysis was performed using Sidak tests. There was a difference at the level of statistical trend between the initial and end of Phase II levels ($p = 0.062$). A higher level of idea generation scale was noted in the end-of-phase measure. The results in the end of phase I measure did not differ at the level of trend compared to the other two measurements. The results are presented graphically in Figure 5.53.

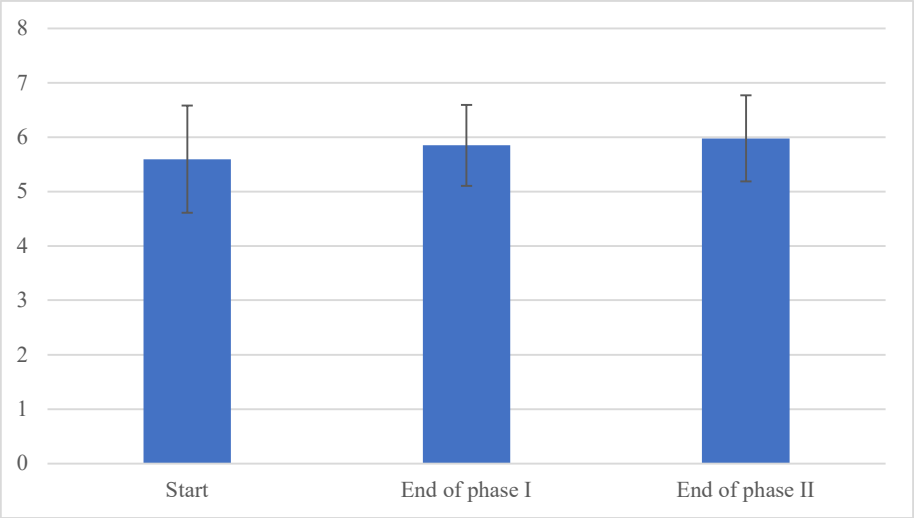

Figure 5.53. Peer-assessment of idea generation of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

In contrast, there was no statistically significant interaction effect of the occupation factor and the intragroup factor, $F(2; 54) = 0.45$; $p = .638$; $\eta 2 = .02$. Despite this, simple effects analyses were performed, with one noting no results that were statistically significant or even close to statistical significance. The results are summarized in Figure 5.54.

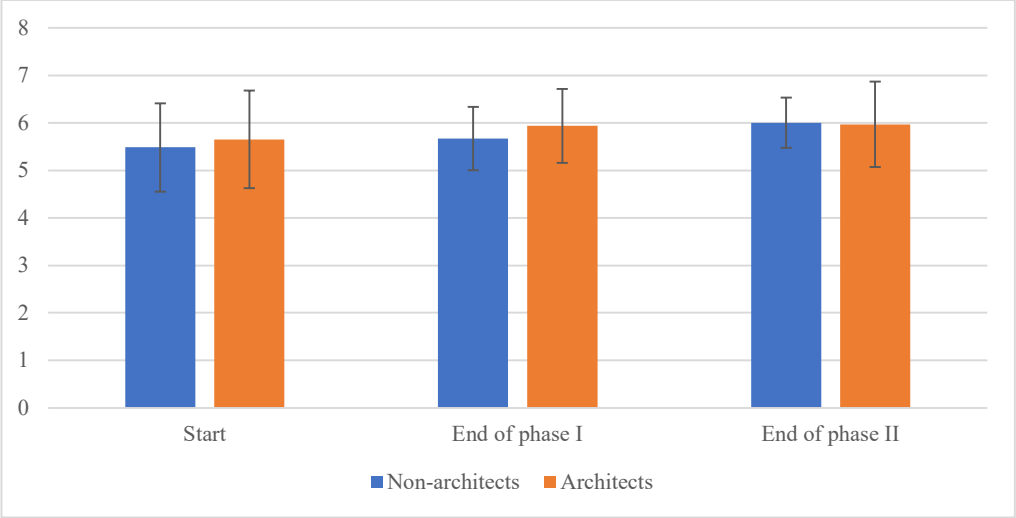

Figure 5.54: Peer-assessment of idea generation of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Idea promotion

An analogous analysis was then performed for the dimension of idea promotion. Table5.45 presents the basic descriptive statistics.

Table 5.45. Basic descriptive statistics of peer assessment of idea promotion of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	5.56	1.01
	Architects	5.53	0.96
	All architects	5.54	0.96
End of phase I	Non-architects	5.70	0.72
	Architects	6.02	0.75
	All architects	5.92	0.74
End of phase II	Non-architects	5.93	0.55
	Architects	5.83	0.96
	All architects	5.86	0.84

Source: Own compilation based on study findings.

The main effect of the within-group factor was reported to be close to statistical significance, $F(2; 54) = 2.45$; $p = .096$; $\eta 2 = .08$. The strength of the reported effect was moderately large. However, this result did not allow post-hoc analyses to be performed. The results are presented graphically in Figure 5.55.

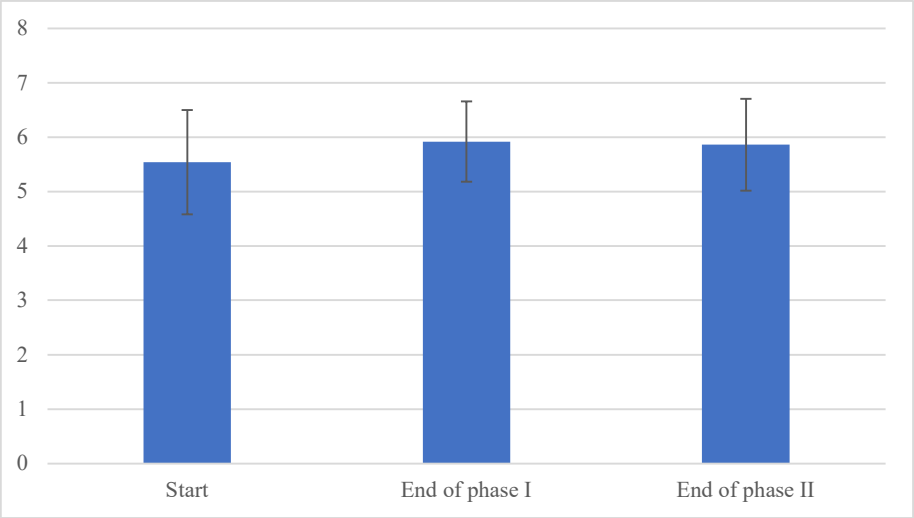

Figure 5.55. Peer-assessment of idea promotion of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 54) = 0.81; p = .449; η2 = .03. A simple effects analysis was nevertheless performed. There was a statistically significant simple effect of moment of measurement in the group of architects, F(2; 26) = 3.60; p = .042; η2 = .22. So a post-hoc analysis was performed using the Sidak test. One statistically significant difference was noted in the case of architects. The results obtained in the initial measurement were lower compared to the results in the end of phase I measurement (p = .039). The results obtained in end of phase II were not significantly different from the other two measurements. In contrast, the simple effect in the non-architects group proved not to be even close to statistical significance, F(2; 26) = 0.67; p = .522; η2 = .05. The simple effect of occupation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.56.

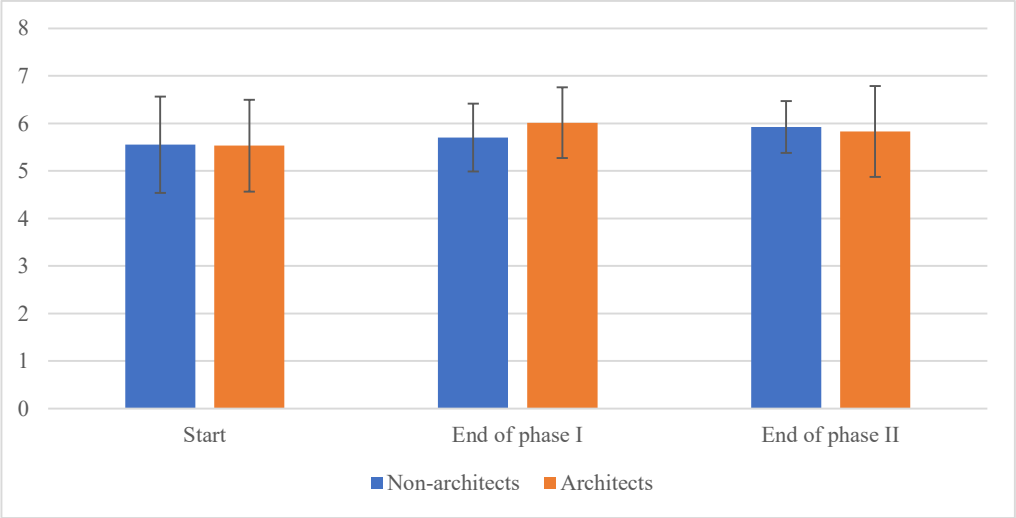

Figure 5.56. Peer-assessment of idea promotion of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

Idea implementation

An analogous analysis was performed for idea implementation. Table 5.46 presents the basic descriptive statistics.

Table 5.46. Basic descriptive statistics of peer assessment of idea implementation of non-architects and architects, in three measurement periods

Measure	**Group**	***Median***	***Standard Deviation***
Start	Non-architects	5.56	0.91
	Architects	5.08	1.16
	All participants	5.23	1.10
End of phase I	Non-architects	5.63	0.75
	Architects	5.77	0.86
	All participants	5.72	0.82
End of phase II	Non-architects	5.93	0.52
	Architects	5.72	0.87
	All participants	5.78	0.78

Source: Own compilation based on study findings.

There was a statistically significant main effect of the within-group factor, $F(2; 54) = 4.97$; $p = .010$; $\eta 2 = .16$. The strength of the observed effect was large. Post-hoc analyses

were performed using the Sidak test. Two statistically significant differences were noted. The results of the initial measurement were lower compared to the results in the end of phase I (p = .043) and end of phase II (p = .040) measurements. In contrast, the two measurements did not differ even at the level of statistical trend. The results are presented graphically in Figure 5.57.

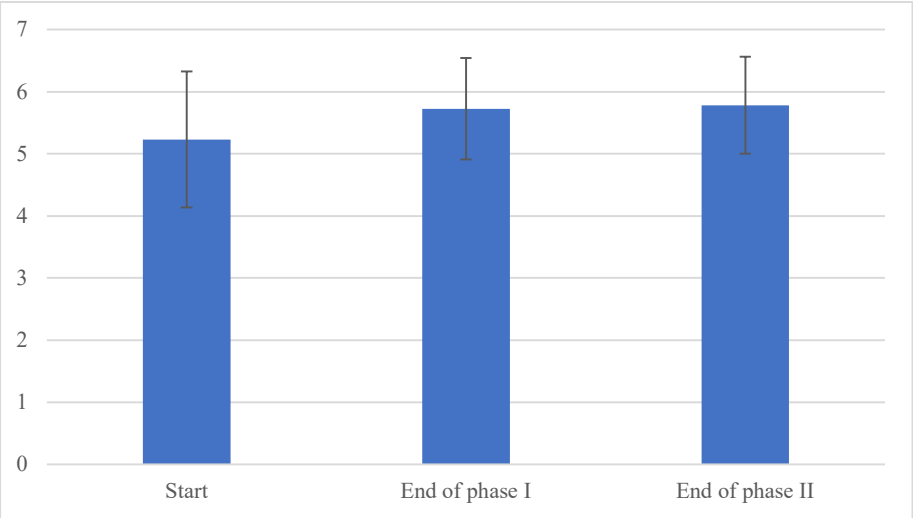

Figure 5.57. Peer-assessment of idea implementation of non-architects and architects combined, in three measurement periods

Source: Own compilation based on study findings.

There was no statistically significant interaction effect of the occupation factor and the within-group factor, F(2; 54) = 1.70; p = .193; η2 = .06. Despite this, a simple effects analysis was performed. A statistically significant simple effect of moment of measurement in the group of architects was noted, F(2; 26) = 8.89; p = .001; η2 = .41. A post-hoc analysis was therefore performed using the Sidak test. Two statistically significant differences were noted. The results of the initial measurement for architects were lower compared to the results in the end of phase I (p = .001) and end of phase II (p = .017) measurements. In contrast, these two measurements did not differ even at the level of statistical trend. The simple effect in the non-architect group, on the other hand, was found not to be even close to statistical significance, F(2; 26) = 0.64; p = .479; η2 = .06. The simple effect of occupation was not statistically significant at any of the three measurement points. The results are summarized in Figure 5.58.

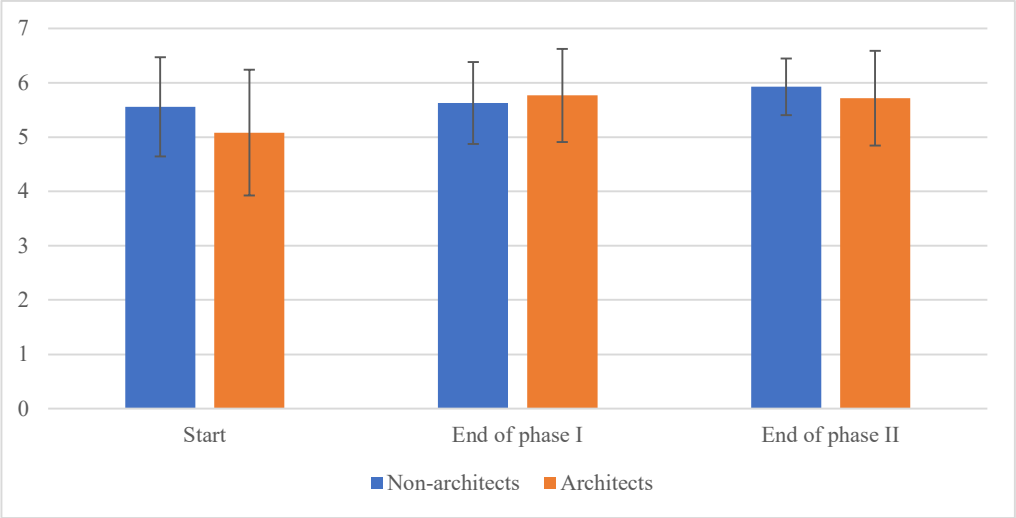

Figure 5.58. Peer-assessment of idea implementation of non-architects and architects, in three measurement periods

Source: Own compilation based on study findings.

5.2 Analysis of correlations in quantitative results

The next step examined whether there were correlations in data between self- and peer-assessment of innovative work behavior. Pearson's r correlation analyses were performed.

All participants at initial measurement period

First, the analysis was performed in the initial measurement period for the entire population. However, as can be seen in Table 5.47, there were no statistically significant correlations.

Table 5.47. Correlation between self- and peer-assessment of innovative work behavior at initial measurement, for all participants

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**
Idea generation	*r* Pearson	-0.05	-0.14	-0.03	-0.10
	Significance	0.733	0.348	0.825	0.518
Idea promotion	*r* Pearson	-0.12	-0.14	-0.09	-0.15

	Significance	0.420	0.358	0.529	0.313
Idea implementation	*r* Pearson	-0.04	-0.16	-0.12	-0.14
	Significance	0.776	0.290	0.423	0.348
Overall IWB	*r* Pearson	-0.07	-0.15	-0.09	-0.14
	Significance	0.614	0.300	0.539	0.353

Source: Own compilation based on study findings.

Non-architects and architects at initial measurement point

The correlation analysis was also performed for non-architects and architects. As can be seen in Table 5.48, two statistically significant correlations were noted - both for non-architects. Self-assessed idea promotion was negatively related to peer-assessed idea promotion and overall innovative work behaviour. Thus, the higher the level of self-assessed idea promotion, the lower the level of peer-assessed idea promotion and overall innovative work behaviour. The strength of both correlations was high. There were also two correlations at the level of statistical trend - between self-assessed idea promotion and peer-assessed idea generation, and between self-assessed overall innovative work behaviour and peer-assessed idea promotion, again in the group of non-architects. Both relationships were characterized by a negative sign of high strength. The remaining correlations were not even close to statistically significant.

Table 5.48. Correlation between self- and peer-assessment of innovative work behaviour at initial measurement, for non-architects and architects

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**
Non-architects					
Idea generation	*r* Pearson	0.03	-0.**57**	**-0.**12	-0.25
	Significance	0.922	0.**051**	**0.**704	0.442
Idea promotion	*r* Pearson	-0.29	**-0.69**	-0.35	**-0.52**
	Significance	0.362	**0.012**	0.267	**0.084**
Idea implementation	*r* Pearson	-0.01	-0.36	-0.14	-0.19
	Significance	0.985	0.258	0.667	0.557

Overall IWB	*r* Pearson	-0.10	**-0.59**	-0.23	-0.35
	Significance	0.748	0.**045**	0.480	0.264
Architects					
Idea generation	*r* Pearson	-0.08	-0.04	-0.03	-0.07
	Significance	0.626	0.833	0.856	0.704
Idea promotion	*r* Pearson	-0.04	0.05	0	0.01
	Significance	0.836	0.758	1,000	0.950
Idea implementation	*r* Pearson	-0.06	-0.08	-0.10	-0.11
	Significance	0.721	0.632	0.553	0.521
Overall IWB	*r* Pearson	-0.06	-0.02	-0.05	-0.06
	Significance	0.711	0.887	0.765	0.725

Source: Own compilation based on study findings.

All participants at Phase 1 measurement period

The analysis was then performed of data gathered at end of Phase 1. However, as can be seen in Table 5.49, no statistically significant correlations were noted.

Table 5.49. Correlation between self-and peer-assessment of innovative work behavior at Phase 1 measurement, for all participants

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**
Idea generation	*r* Pearson	0.19	0.16	0.01	0.15
	Significance	0.224	0.970	0.970	0.358
Idea promotion	*r* Pearson	0.05	0.25	0.07	0.14
	Significance	0.746	0.106	0.646	0.375
Idea implementation	*r* Pearson	0	0.06	-0.05	0
	Significance	1	0.722	0.736	0.992
Overall IWB	*r* Pearson	0.08	0.17	0.01	0.10
	Significance	0.599	0.296	0.959	0.529

Source: Own compilation based on study findings.

Non-architects and architects at Phase 1 measurement point

This analysis was also performed in the subgroups of non-architects and architects. As can be seen in Table 5.50, one statistically significant relationship was noted. In the non-architect group, the level of self-assessed idea generation was positively related to peer-assessment idea generation. Thus, higher self-assessment was associated with higher peer-assessment. The strength of both correlations was high. Three correlations were also recorded at the level of statistical trend - between self-assessed idea generation and peer-assessed idea implementation and innovative behaviour, and between self-assessed idea promotion and peer-assessed idea implementation. These correlations were characterized by a positive sign and high strength. The remaining correlations were not even close to statistical significance.

Table 5.50. Correlations of self- and peer evaluation of innovative work behaviors at Phase 1 measurement, for non-architects and architects

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**
Non-architects					
Idea generation	*r* Pearson	**0.63**	0.25	0.**52**	**0.57**
	Significance	**0.027**	0.437	**0.082**	**0.055**
Idea promotion	*r* Pearson	0.34	0.37	**0.50**	0.46
	Significance	0.273	0.240	**0.098**	0.136
Idea implementation	*r* Pearson	0.28	0	**0.310**	0.22
	Significance	0.383	1	0.321	0.500
Overall IWB	*r* Pearson	0.44	0.22	0.48	0.44
	Significance	0.147	0.500	0.119	0.154
Architects					
Idea generation	*r* Pearson	0.02	0.11	-0.07	0.01
	Significance	0.936	0.561	0.698	0.941
Idea promotion	*r* Pearson	-0.08	0.20	0.01	0.04
	Significance	0.671	0.292	0.967	0.849
Idea implementation	*r* Pearson	-0.11	-0.08	0.11	-0.06
	Significance	0.578	0.683	0.570	0.752

Overall IWB	*r* Pearson	-0.06	0.14	-0.06	0
	significance	0.744	0.472	0.746	0.981

Source: Own compilation based on study findings.

All participants at Phase 2 measurement period

The analysis was then performed for data submitted at end of Phase 2. However, as can be seen in Table 5.51, no statistically significant correlations were noted.

Table 5.51. Correlations of self- and peer evaluation of innovative work behavior at Phase 2 measurement, for all participants

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**
Idea generation	*r* Pearson	0.22	-0.03	0.04	0.09
	Significance	0.262	0.871	0.856	0.664
Idea promotion	*r* Pearson	0.08	-0.16	-0.17	-0.09
	Significance	0.685	0.428	0.379	0.649
Idea implementation	*r* Pearson	0.01	-0.15	-0.12	-0.10
	Significance	0.956	0.442	0.532	0.622
Overall IWB	*r* Pearson	0.11	-0.13	-0.10	-0.04
	Significance	0.575	0.525	0.619	0.840

Source: Own compilation based on study findings.

Non-architects and architects at Phase 2 measurement point

The correlation analysis was also performed for non-architects and architects, but again no statistically significant results were noted (Table 5.52).

Table 5.52. Correlations of self- and peer evaluation of innovative work behavior at Phase 2 measurement, for non-architects and architects

		Self-assessment			
Peer assessment		**Idea generation**	**Idea promotion**	**Idea implementation**	**Overall IWB**

Non-architects					
Idea generation	*r* Pearson	0	0	0.20	0.09
	Significance	1	1	0.602	0.814
Idea promotion	*r* Pearson	-0.01	0.27	0.17	0.16
	Significance	0.976	0.477	0.656	0.685
Idea implementation	*r* Pearson	-0.01	0.13	-0.02	0.03
	Significance	0.975	0.729	0.954	0.947
Overall IWB	*r* Pearson	-0.01	0.15	0.13	0.10
	Significance	0.982	0.702	0.741	0.797
Architects					
Idea generation	*r* Pearson	0.35	-0.10	-0.05	0.08
	Significance	0.145	0.686	0.840	0.735
Idea promotion	*r* Pearson	0.16	-0.33	-0.35	-0.19
	Significance	0.523	0.170	0.144	0.432
Idea implementation	*r* Pearson	0.11	-0.19	-0.14	-0.08
	Significance	0.654	0.431	0.569	0.743
Overall IWB	*r* Pearson	0.22	-0.23	-0.20	-0.07
	Significance	0.367	0.344	0.407	0.762

Source: Own compilation based on study findings.

5.3 Interpretation of quantitative results

This Sub-Chapter contains an interpretation of quantitative results from Sub-Chapter 5.1. The objective of the interpretation is to understand the data collected through the research, also in order to respond to the research questions by interpreting whether the research confirmed or negated the formulated hypotheses.

Important note on figurative visualization of results

In addition to a written interpretation of the analyzed data, for better legibility some data has also been translated into visual representations (Figures 5.59-5.66): Please note, in all the figures in Section 5.3, the changes in intensity of the color should be interpreted as follows:

- Lighter green: close to statistically significant increase;

- Deeper green: statistically significant increase;
- Lighter red: close to statistically significant decrease;
- Deeper red: statistically significant decrease.

Interpretation of quantitative results on the impact of mindful meditation on wellness

Given the fact that many studies have shown that mindful meditation contributes to overall wellness (for overview of to-date research see Chapter 3) the first question sought to confirm whether the current study would also validate the to-date academic research.

Thus the first research questions are:

Q1: Does the practice of mindful meditation have a positive impact on wellness?

This research question is supported by two hypotheses:

H1: The assessment of wellness by long-term meditators will not change over the course of the study.

H2: The assessment of wellness by to-date non-meditators who choose to meditate during the study will improve over the course of the study.

Before responding to Q1, the two hypotheses will be addressed.

Interpretation of quantitative results to validate hypothesis H1

There were no statistically significant changes throughout the study in the self-assessment of overall wellness (Figure 5.1) as well its individual facets, i.e. emotional, intellectual and occupational well-being, provided by to-date meditators (see Figures 5.1, 5.2, 5.6, 5.7). This confirms H1, i.e. the assessment of wellness by long-term meditators did not change over the course of the study.

Interpretation of quantitative results to validate hypothesis H2

The comparative analysis of the self-assessment of wellness by meditators and non-meditators yielded one finding, i.e. there was a close to statistically significant trend noted among non-meditators, of an improved self-assessment of emotional wellness (Figure 5.2). This confirms H2, i.e. the assessment of wellness by to-date non-meditators who chose to meditate during the study improved over the course of the study.

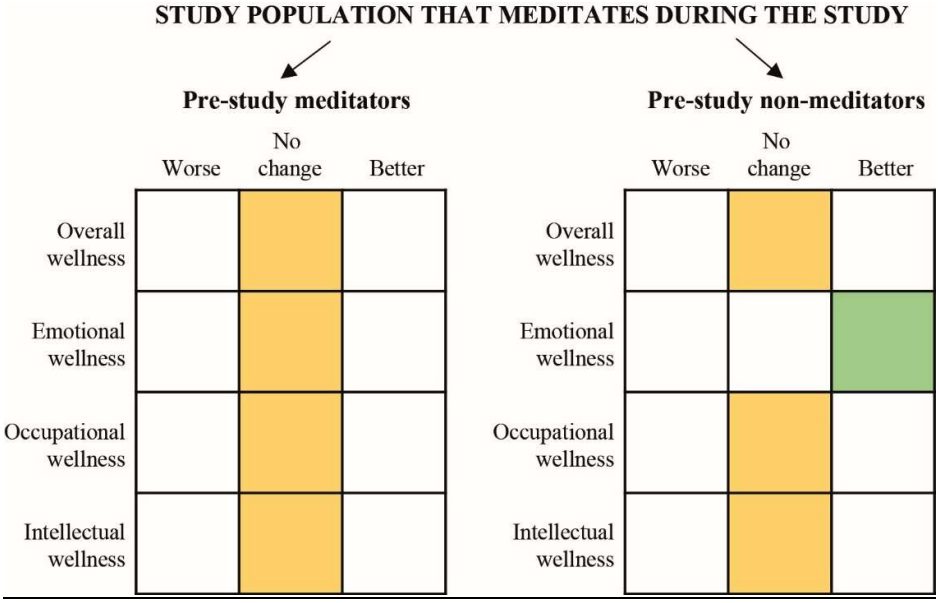

Figure 5.59. Summary of findings on impact of meditation on wellness on pre-study meditators and pre-study non-meditators, all who meditated during the study

Source: Own compilation based on study findings.

Study participants responded to several statements in order to gauge their emotional, intellectual and occupational wellness. In an analysis of responses provided by long-term meditators and non-meditators, the following changes were noted over the duration of the study:

- Emotional wellness q1 ("*I am resilient and can bounce back after a disappointment*") – meditators noted a statistically significant decrease from initial measurement to measurement after Phase II (Figure 5.3).
- Emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*"):
  - Meditators noted a statistically significant increase from initial measurement to after Phase I (Figure 5.5)
  - Non-meditators noted a statistical downtrend from initial measurement to after Phase I and also to measurement after Phase II (Figure 5.3).
- Occupational wellness q4 ("*I feel understood and appreciated by my co-workers*") – meditators noted a statistically significant increase from initial measurement to measurement after Phase I (Figure 5.14).

Interpretation of quantitative results to answer research Question 1

Given that both hypotheses were confirmed by the quantitative results of the study, the response to Q1 is affirmative, i.e. the practice of meditation does have a positive impact on wellness.

Table 5.53. Summary of answers to Question 1 and Hypotheses H1 and H2

Research questions	**Hypotheses**	
	Long-term meditators	**To-date non-meditators**
Q1: Does the practice of mindful meditation have a positive impact on wellness?	H1: The assessment of wellness by long-term meditators will not change over the course of the study.	H2: The assessment of wellness by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
YES	**YES**	**YES**

Source: Own compilation.

Considering the findings on wellness of meditators and non-meditators who participated in the study, mindful meditation has a positive impact on wellness of all study participants, on their emotional wellness in particular.

Additional findings on the impact of mindful meditation on wellness

When considered as a whole, the overall population of architects and non-architects did not note any statistically significant variation on the self-assessment of overall wellbeing throughout the period of the study (Figure 5.16). Yet, when the two populations were divided, the self-assessment of architects noted a statistically significant improvement at end of Phase I as well as Phase II (Figure 5.17). Figure 5.60 visualizes the detailed data analysis, whilst the detail is provided below the figure.

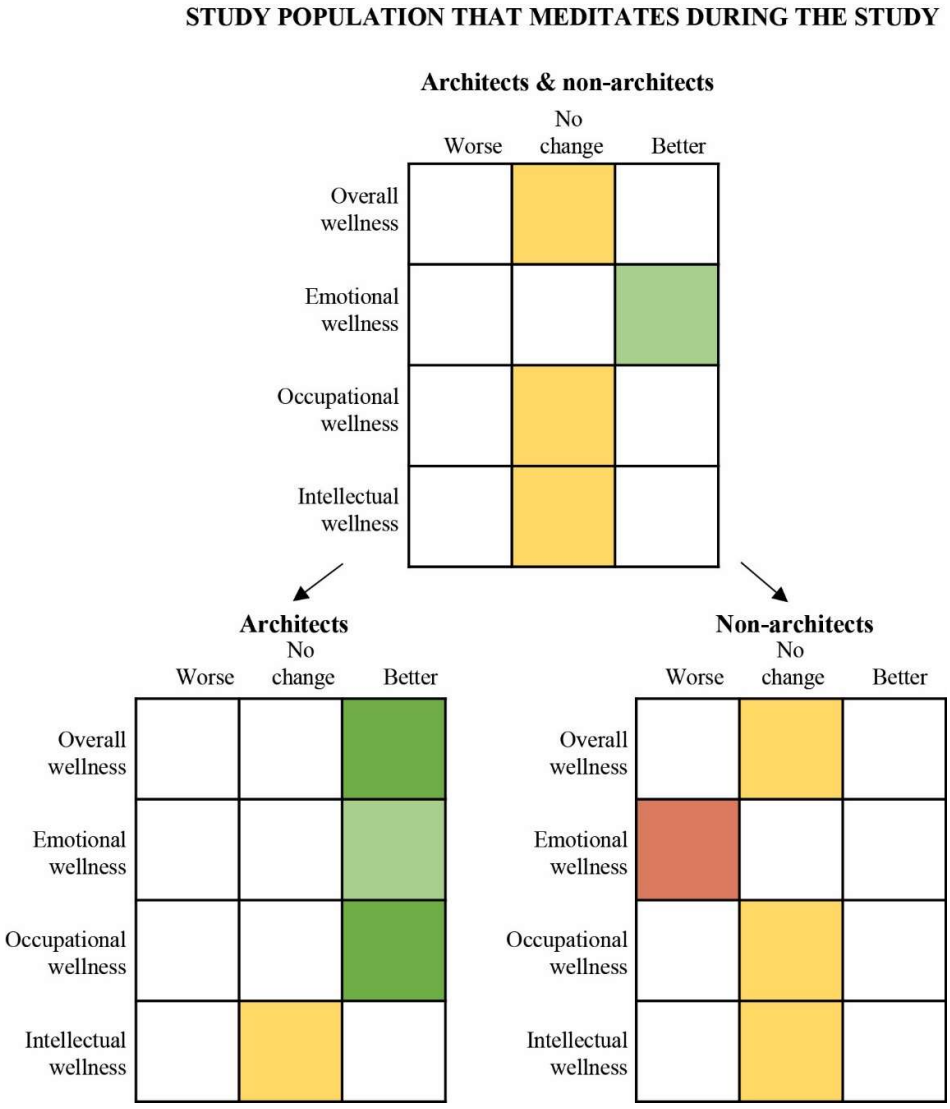

Figure 5.60. Summary of findings on impact of meditation on wellness on non-architects and architects, who meditated during the study

Source: Own compilation based on study findings.

In assessing emotional wellness of the population as a whole, in aggregate the population noted a moderately large incremental change from period to period to period (Figure 5.18). When looking at the two occupational groups separately, the non-architects noted higher assessments of emotional wellbeing at the initial measurement period than at the final measurement period. The reverse, but only at the level of a statistical trend, was noted in the self-assessment of emotional wellbeing of architects (Figure 5.15).

Participant feedback to individual statements related to gauging emotional wellness noted the following changes:

- Emotional wellness q1 ("*I am resilient and can bounce back after a disappointment*") – at initial measurement and also at final measurement, a statistically significant variance was noted between the feedback of non-architects and architects, with non-architects providing more positive feedback (Figure 5.20).
- Emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*") – there was a close to statistically significant down trend noted from measurement to measurement for both non-architects and architects (Figure 5.22).

Analysis of data collected from both non-architects and architects on their intellectual wellbeing did not show any statically significant variance, not even at a trend level (Figure 5.24). The only variance was noted in participant responses to individual statements gauging intellectual wellness. In responding to intellectual wellness q1 ("I am intellectually stimulated by work and non-work") non-architects provided close to statistically higher feedback than architects at Phase II measurement (Figure 5.25).

Lastly, the occupational wellness data showed no variance from the perspective of the collective (Figure 5.28), but a statistically significant improvement in the occupational wellness self-assessment was noted among the participating architects at end of Phase II (Figure 5.29). Additionally the following changes were noted in participant responses to individual statements assessing occupational wellness:

- Occupational wellness q3 ("*I am developing skills to achieve my career goals*") – a close to statistically significant increase was noted in feedback from architects between initial measurement and that taken after Phase I (Figure 5.32).
- Occupational wellness q4 ("*I feel understood and appreciated by my co-workers*") – at final measurement, non-architects' feedback was close to statistically higher than architects' responses (Figure 5.33).
- Occupational wellness q5 ("*I balance work and play and other aspects of my life*") – architects noted a statistically significant downtrend from initial measurement to final measurement; meanwhile non-architects noted the reverse statistical trends both from initial measurement to Phase I measurement as well as from initial to Phase II measurement (Figure 5.34).

Interpretation of quantitative results on the impact of mindful meditation on overall innovative work behaviour

Given the fact that previous research has found that mindful meditation is beneficial to overall work engagement, including creativity and idea generation (for details of to-date studies see Chapter 3), the second research question seeks to validate whether mindful mediation has a positive impact on innovative work behavior. Conscious of the fact that innovative work behavior is an occupational capability of enterprise process architects (see Chapter 4), the second hypothesis seeks to validate whether the already developed occupational capability will be further supported by the practice of mindful meditation. Thus the second research question is:

> *Q2: Does the practice of mindful meditation have a positive impact on innovative work behavior?*

This research question is supported by two hypotheses:

> *H3: The assessment of innovative work behavior by long-term meditators will not change over the course of the study.*
>
> *H4: The assessment of innovative work behavior by to-date non-meditators will improve over the course of the study.*
>
> *H5: The assessment of innovative work behavior of architects will higher and will improve more than of non-architects over the course of the study.*

Before responding to Q2, the three hypotheses will be addressed.

Interpretation of quantitative results to validate hypotheses H3 and H4

An analysis of the entire population showed a statistical uptrend in overall innovative work behaviour between the final and initial measurement periods, both based on self-assessment data as well as peer-assessment (Figure 5.35).

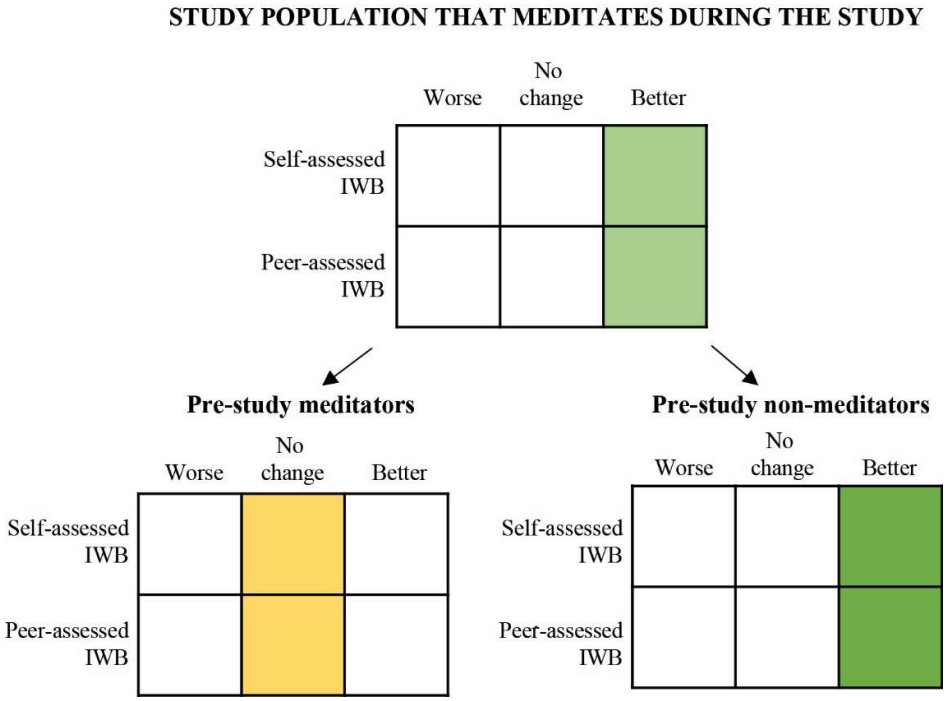

Figure 5.61. Summary of findings on impact of meditation on self- and peer-assessment of overall innovative work behaviour on pre-study meditators and pre-study non-meditators, who meditated during the study

Source: Own compilation based on study findings.

As visualized in Figure 5.61, when split by meditators and non-meditators, the overall IWB of meditators did not improve across the measurement periods, as assessed by the participants themselves (Figure 5.35) and as assessed by their assessors (Figure 5.36). This confirms hypothesis H3, i.e. the assessment of innovative work behaviour by meditators did not change over the course of the study.

Statistically significant increases were noted in self-assessment as well as peer-assessment of overall IWB of non-meditators, both between the first measurement and second measurement, and also between the first measurement and last measurement (Figures 5.35 and 5.35). This confirms hypothesis H4, i.e. the assessment of innovative work behaviour by non-meditators improved over the course of the study.

Interpretation of quantitative results to validate hypothesis H5

An analysis of the self-assessment of overall innovative work behavior by the combined population, a statistical uptrend was noted between the final and initial measurements (Figure 5.37). When the population was split by occupation, the self-

assessment of architects of their overall IWB showed statistically significant increases: the final measure was higher than the initial measure and the second measure. Additionally materially higher scores were observed among architects at the final measurement (Figure 5.38). Figure 5.62 summarizes the findings visually.

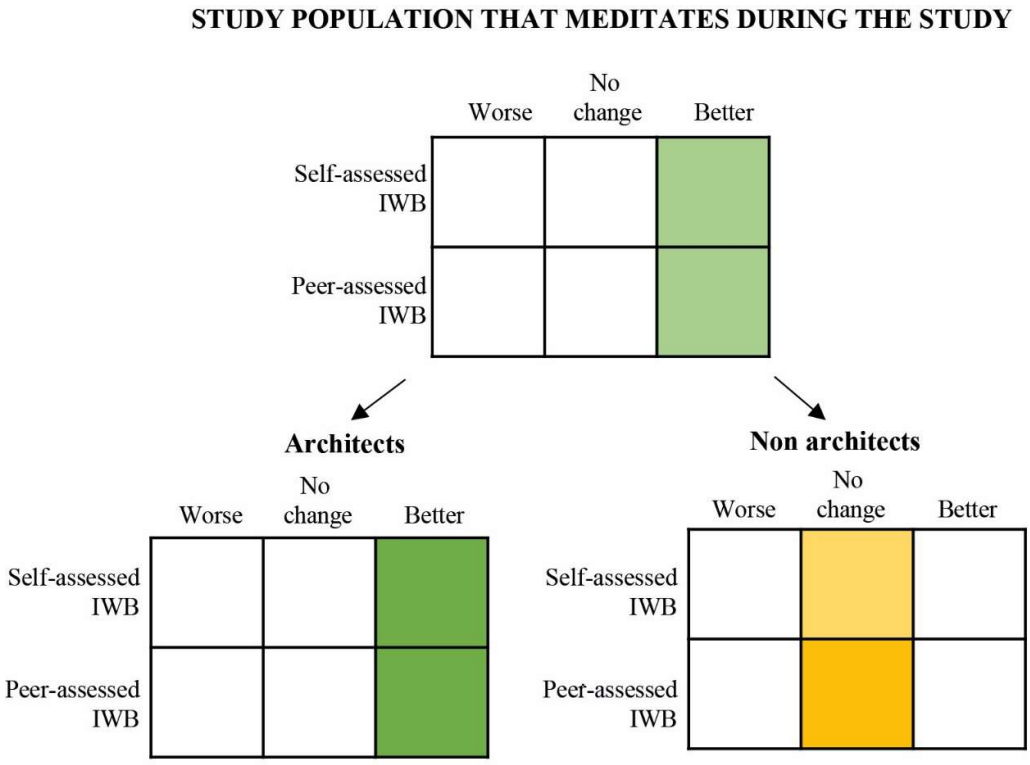

Figure 5.62. Summary of findings on impact of meditation on self- and peer-assessment of overall innovative work behaviour on non-architects and architects, who meditated during the study

Source: Own compilation based on study findings.

As visible in Figure 5.62, the analysis of peer-assessment of overall innovative work behavior for non-architects and architects echoed the earlier analysis of self-assessment of the same measure. In an analysis of the peer-assessment of overall innovative work behavior by the combined population, a statistical uptrend was noted between the final and initial measurement periods (Figure 5.38). When the population was split by occupation, the peer-assessment of architects of their overall IWB showed two statistical uptrends: the final measure and the second measure were both higher than the initial measure (Figure 5.40).

This confirms hypothesis H5, i.e. assessment of innovative work behaviour of architects was higher and improved more than of non-architects over the course of the study.

Interpretation of quantitative results to answer research question Q2

Given that all three hypotheses were confirmed by the quantitative results of the study, the response to Q2 is affirmative, i.e. the practice of meditation does have a positive impact on innovative work behaviour.

Table 5.54. Summary of answers to Question Q2 and Hypotheses H3, H4, H5

Research questions	**Hypotheses**	
	Long-term meditators	**To-date non-meditators**
Q2: Does the practice of mindful meditation have a positive impact on innovative work behavior?	H3: The assessment of innovative work behavior by long-term meditators will not change over the course of the study	H4: The assessment of innovative work behavior by to-date non-meditators will improve over the course of the study.
	YES	**YES**
	H5: The assessment of innovative work behavior of architects will be higher initially and improve more than of non-architects over the course of the study.	
YES	**YES**	

Source: Own compilation.

The findings on innovative work behaviour once again confirm that meditators were not additionally affected by participation in the study to any statistically significant extent. The research findings additionally show the positive impact of mindful meditation on innovative work behaviour of the study participants was recognized by both the participants and their assessors. The research findings also show that the positive impact of mindful meditation was greater on innovative work behaviour of architects.

Interpretation of quantitative results on the impact of mindful meditation on dimensions of innovative work behaviour

While no studies on the impact of mindfulness techniques on innovative work behavior have looked at the discrete dimensions of innovative work behavior beyond idea generation, since the bulk of research on the benefits of mindful mediation enumerates

benefits such as higher work engagement, concentration, resilience, and increased fluid intelligence (for detailed overview of to-date research, see Chapter 3), it is likely to have a positive impact on the two other dimensions of IWB, i.e. idea implementation and idea promotion. As in research question 2, conscious of the fact that innovative work behavior is an occupational capability of architects, the second hypothesis seeks to validate whether the already developed occupational capability will be further supported by the practice of mindful meditation. Thus the second research question is:

> *Q3: Does the practice of mindful meditation have a positive impact on all three facets of innovative work behavior, i.e. idea generation, idea implementation, and idea promotion?*

This research question is supported by three hypotheses:

> *H6: The assessment of all three dimensions of innovative work behavior by long-term meditators will not change over the course of the study.*
>
> *H7: The assessment of all three dimensions of innovative work behavior by to-date non-meditators who choose to meditate during the study will improve over the course of the study.*
>
> *H8: The assessment of all three dimensions of innovative work behavior of architects will improve more than of non-architects in the course of the study.*
>
> Before responding to Q3, the three hypotheses will be addressed.

Interpretation of quantitative results to validate hypotheses H6 and H7

There was no material variation in the self-assessment of any of the dimensions of innovative work behaviour by meditators (Figures 5.41, 5.42, 5.43). Furthermore, as visualized in the bottom half of Figure 5.56, there was also no material variation from measurement to measurement in the peer-assessment of meditators' idea generation, idea implementation and idea promotion (Figures 5.44, 5.45, 5.46). Left side of Figure 5.63 visualizes the findings.

This confirms hypothesis H6, i.e. the assessment of all three dimensions of innovative work behavior by long-term meditators will not change over the course of the study.

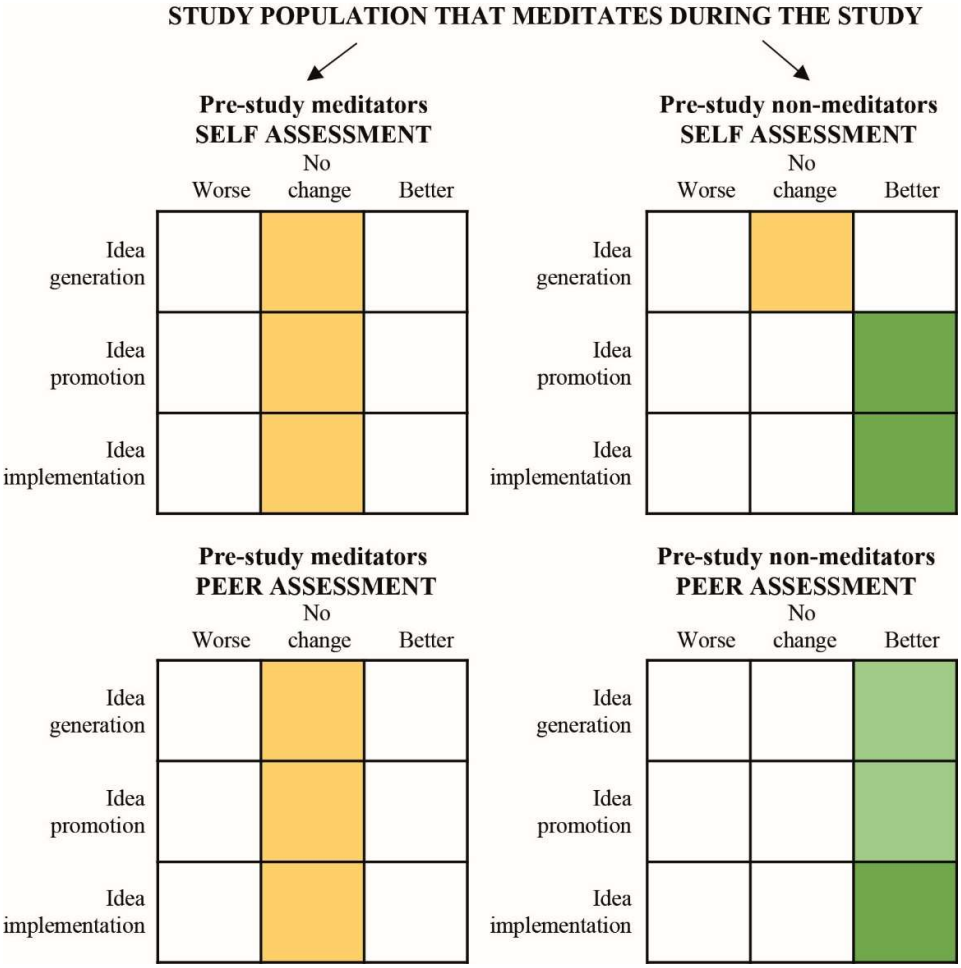

Figure 5.63. Summary of findings on impact of meditation on self- and peer-assessment of individual dimensions of innovative work behavior on pre-study meditators and pre-study non-meditators, who meditated during the study

Source: Own compilation based on study findings.

Meanwhile as visualised on the right side of Figure 5.63, in the case of non-meditators, analysis of data on self-assessment of idea promotion showed a couple of statistically significant increases: the self-assessment of idea promotion at the end as compared to the initial assessment as well as the self-assessment submitted at end of Phase I (Figure 5.42). The analysis of data on idea implementation of non-meditators showed one statistically significant difference, idea implementation was higher at end of Phase II than at initial measure (Figure 5.43). In the case of peer assessment, close to statistical

improvements were found both in idea generation (Figure 5.44) and idea promotion (Figure 5.45).

The peer-assessment of idea implementation yielded several statistically significant data points. Firstly, at the initial measurement, there was a statistically significant difference between the level of idea implementation of meditators and non-meditators, with meditators being significantly higher. Yet this statistically significant gap disappeared as both the peer-assessed measurements collated at end of Phase 1 and at end of Phase 2 were statistically higher than at the initial measurement period (Figure 5.46). The right side of Figure 5.63 visualizes the findings.

This confirms hypothesis H7, i.e. the assessment of all three dimensions of innovative work behaviour by to-date non-meditators who chose to meditate during the study improved over the course of the study

Interpretation of quantitative results to validate hypothesis H8

An analysis of combined self-assessment data showed, no statistically significant change in idea generation (Figure 5.41). Statistically significant increases were moderately large from period to period in the case of idea promotion (Figure 5.42) as well as idea implementation (Figure 5.43).

Similarly, an analysis of combined peer-assessment data showed statistical uptrends from initial to final measurement in the case of idea generation (Figure 5.44) and idea promotion, (Figure 5.45). The combined peer-assessment of idea implementation yielded two statistically significant differences, the end measurement was higher than both the initial measurement and the middle measurement; for the combined peer-assessment of idea promotion, a close to statistically significant trend was noted as well (Figure 5.46).

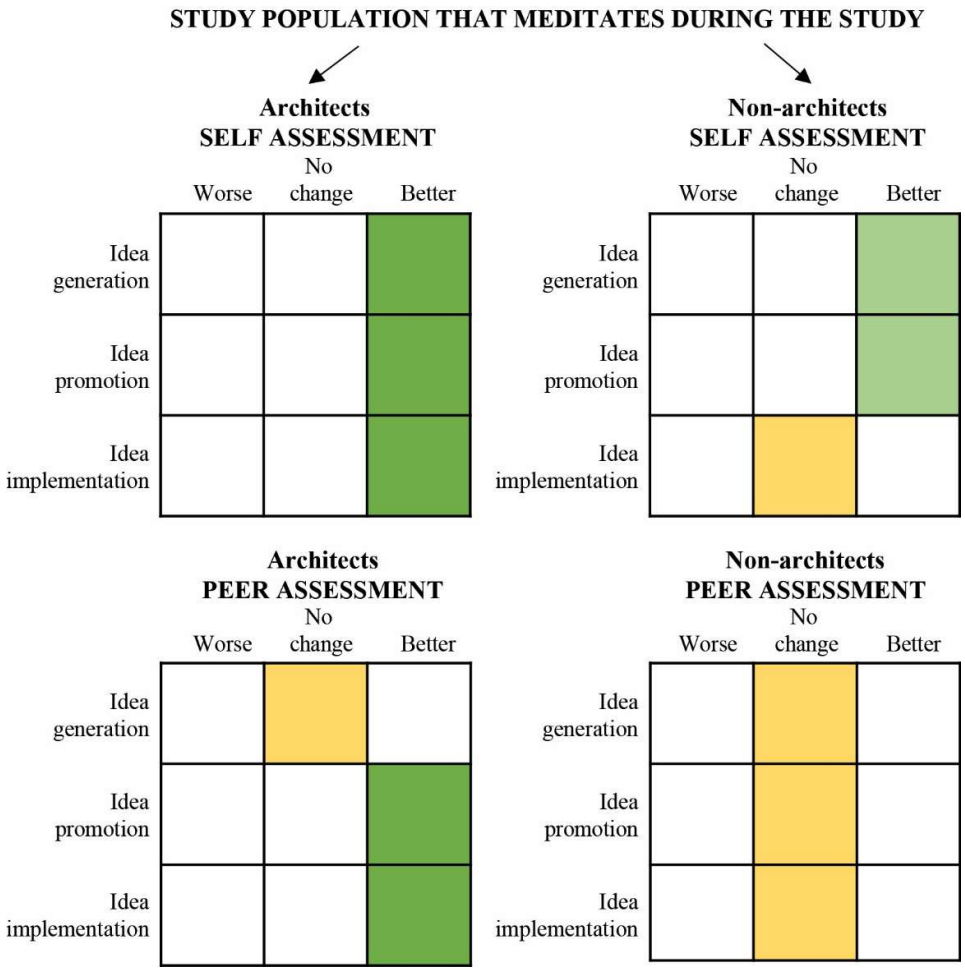

Figure 5.64. Summary of findings on impact of meditation on self- and peer-assessment of individual dimensions of innovative work behavior on non-architects and architects, who meditated during the study. The numbers in the boxes reference figures in Sub-Chapter 5.2

Source: Own compilation based on study findings.

Figure 5.64 provides a visualisation on the findings of self and peer-assessment of the impact of meditation on the three dimensions of innovative work behaviour in architects and non-architects. As can be seen in the visualisation, self-assessment of idea generation by architects was statistically higher both at the end of Phase 1 as well as Phase 2. The non-architects' self-assessment only saw a close to statistical uptrend. This resulted in a statistically significant difference between the level of idea generation of non-architects and architects at the end of Phase 2, with architects having statistically higher self-assessed idea generation (Figure 5.48). In peer-assessment, the analysis of data by professional group, did not unearth any trend, even close to statistically significant, in idea generation (Figure 5.55).

The analysis of data on self-assessment of idea promotion for architect yielded several significant variations. The self-assessments at end of Phase 1 and at end of Phase 2 were both statistically higher than at the initial measure. The Phase 2 self-assessment was also statistically higher than at end of Phase 1. The end measure of self-assessed idea promotion by architects was statistically higher than that of non-architects (Figure 5.50). In peer assessment, architects noted a statistically significant increase in the peer-assessment of idea promotion between initial and Phase I measure (Figure 5.56).

As in the case of idea promotion, the architects self-assessed themselves as better at idea implementation both at end of Phase 1 and at end of Phase 2, as compared to the initial measurement period, so that at end of Phase 2 there was a statistically significant difference between the level of idea implementation of architects and non-architects, with architects scoring higher. Unlike in idea generation, no close to statistically significant change was noted from measurement to measurement in the self-assessment of non-architects. Similarly, architects noted statistical increase in the peer-assessment of idea implementation at end of Phase 2 as compared both to the initial measurement and the one done at end of Phase I (Figure 5.58) while non-architect did not note any statistically significant changes.

The above analyses, visualized in Figure 5.64, confirm hypothesis H8, i.e. the assessment of all three dimensions of innovative work behaviour of architects improved more than of non-architects over the course of the study.

Additional findings on the impact of meditation on dimension of innovative work behaviour of non-architects

Section 5.2 outlines two instances of correlations noted in all the gathered and analyzed data. Both relate to non-architects, and the self and peer assessment of the individual facets of innovative work behaviour.

At first measurement, four negative correlations were noted:

- Statistically significant negative correlation between self-assessed idea promotion and peer-assessed idea promotion
- Statistically significant negative correlation between self-assessed idea promotion and peer-assessed idea overall innovative behaviour.

- At level of statistical trend, a negative correlation between self-assessed idea promotion and peer-assessed idea generation.
- At level of statistical trend, a negative correlation between self-assessed overall IWB and peer-assessed idea promotion.

Figure 5.65 visualizes these negative correlations.

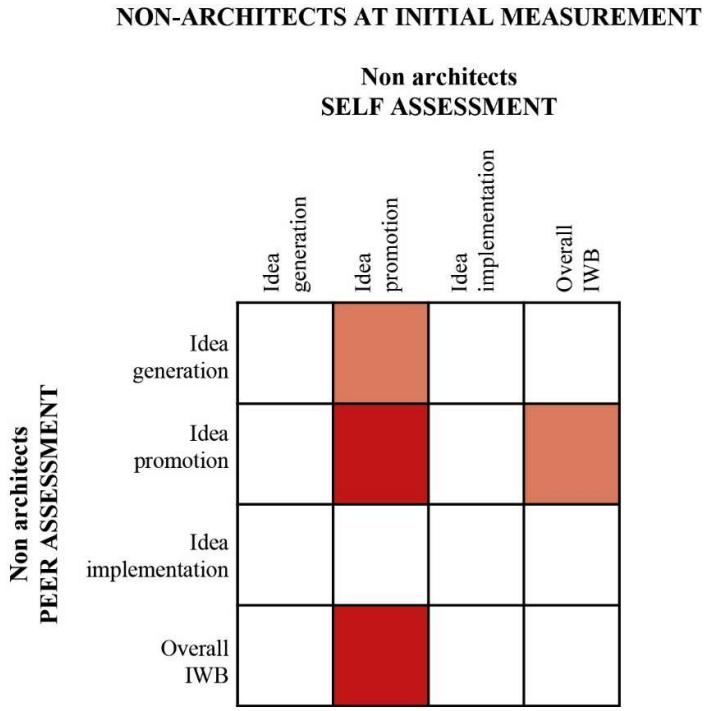

Figure 5.65. Summary of correlations identified between self- and peer-assessment of individual dimensions of innovative work behaviour of non- architects, at initial measurement. This figures aggregates data from Figures 5.42-5.47

Source: Own compilation based on study findings.

As can be seen from the above figure (Figure 5.65) the negative correlations were visible in particular around idea promotion, both based on self and peer assessment.

At second measurement, again four correlations were noted, yet these were positive:

- Statistically significant positive correlation between self-assessed idea generation and peer-assessed idea generation.
- At level of statistical trend, a positive correlation between self-assessed idea generation and peer-assessed idea implementation.

- At level of statistical trend, a positive correlation between self-assessed idea generation and peer-assessed overall IWB.
- At level of statistical trend, a positive correlation between self-assessed idea promotion and peer-assessed idea implementation.

Figure 5.66 visualizes these correlations.

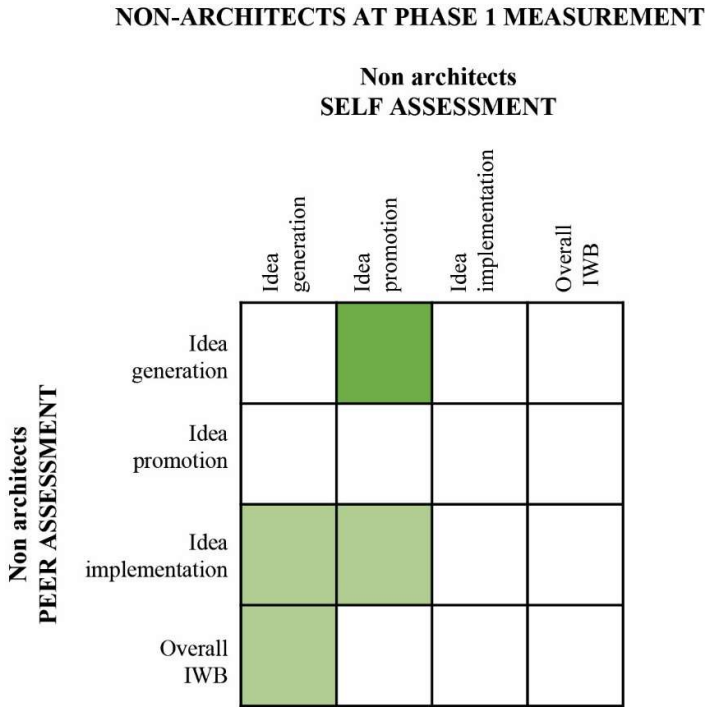

Figure 5.66. Summary of correlations identified between self- and peer-assessment of individual dimensions of innovative work behaviour of non-architects, at measurement after Phase 1. This figure aggregates data from Figures 5.42-5.47

Source: Own compilation based on study findings.

As can be observed in the above figure (Figure 5.66), after the first three months of participation the correlations shifted from negative to positive, and were more distributed, affecting not just idea promotion but also idea generation and implementation, and overall IWB to a lesser extent.

Interpretation of quantitative results to answer research question Q3

Given that all three hypotheses were confirmed by the quantitative results of the study, the response to Q3 is affirmative, i.e. the practice of mindful meditation has a positive

impact on all three facets of innovative work behaviour, i.e. idea generation, idea implementation, and idea promotion.

The findings on more detailed findings on the dimensions of innovative work behaviour once again confirm that meditators were not additionally affected by participation in the study to any statistically significant extent. Additionally, they showed that meditators had a statistically higher self-assessment of idea implementation than non-meditators, and that the practice of meditation allowed the non-meditators to close the gap, even after three months.

The findings show the positive impact of mindful meditation was greatest in the case of idea implementation and then idea promotion.

Table 5.55. Summary of answers to Question 3 and Hypotheses H6, H7 and H8

Research questions	**Hypotheses**	
	Long-term meditators	**To-date non-meditators**
Q3: Does the practice of mindful meditation have a positive impact on all three facets of innovative work behavior, i.e. idea generation, idea implementation, and idea promotion?	H6: The assessment of all three dimensions of innovative work behavior by long-term meditators will not change over the course of the study.	H7: The assessment of all three dimensions of innovative work by to-date non-meditators who choose to meditate during the study will improve over the course of the study.
	YES	**YES**
	H8: The assessment of all three dimensions of innovative work behavior of architects will improve more than of non-architects over the course of the study	
YES	**YES**	

Source: Own compilation.

Table 5.55 summarizes the answers to research question 3 as well as the related hypotheses based on the survey output data and its analyses.

CHAPTER 6.

THEORETICAL CONTRIBUTIONS AND PRACTICAL IMPLICATIONS OF OVERALL RESULTS

6.1 Theoretical contributions and practical implications for mindfulness as a lever for wellbeing

In line with the analysis and interpretation of the quantitative results of the study – presented in Chapter 5.2 and Chapter 5.3:

- Mindful meditation has an impact on the wellness of those who meditate, the most on their emotional wellness and the least on their intellectual wellness. These finding reflect to-date scientific evidence and understanding of the impact of mindful meditation.
- Mindful meditation has a positive impact on the wellness of architects.

A note on long-term meditators as a control group for the study

While the objective of the study was to gauge any step change in the wellness of participants who chose to engage in meditation, the study population included a cohort of persons who had meditated before the study. They were included as a control group, to validate whether continuing to meditate as part of the study would have some effect on their wellness. Based on the gathered feedback, continuing to meditate as they participated in the study had no statistically significant impact on the wellness of these long-term meditators (Figure 5.59). In fact, this control group did not report any change in any aspect of wellness across the duration of the study. This provides confidence in the findings of the study.

Review of impact of meditation on individual facets of wellness

The term employee wellbeing is defined as the overall quality of an employee's experience and functioning at work (Grant et al., 2007). It encompasses psychological, physical and behavioral elements (Good et al., 2016; Ryan & Deci, 2001). Employee wellbeing is associated with substantial benefits to organizational performance via its effects on employee physical and psychological health, as well as role performance (Danna&Griffin, 1999). The desktop research conducted for this study evidenced the positive effects of mindful meditation on those who practice it (see Table 3.2 for comprehensive list of benefits and the related academic sources), in particular on multiple

aspects of wellness, such as a remedy for stress and negative emotions (for example: Brown & Ryan, 2003; Coffey & Hartman, 2008; Liu, et al., 2020). According to Epstein (2007) meditation results in enhanced mental and physical wellbeing, augmented emotional resilience, and more effective coping strategies. It facilitates more effective coping with mental tension (Jankowski & Holas, 2009).

Mindfulness results in a reduction of emotional reactivity to stimuli (Brown et al, 2013; Desbordes et al, 2012; Taylor et al., 2011). The lower emotional reactivity allows individuals to perceive situations in a more objective manner, thereby facilitating more accurate decision-making (Dane & Brummel, 2014). In a challenging and complex environment with diverse tasks and interactions with peers of varying personalities and temperaments, employees who are able to maintain a non-judgmental attitude and perceive both challenging tasks and people as they are will be best placed to succeed. Such individuals are able to regulate their emotions when facing stressful events, work progressively and succeed at managing interpersonal relationships at the workplace (Feldman et al., 2007; Glomb et al., 2011). Greater levels of compassion and self-compassion lead to increased tolerance, cooperation and interpersonal skills in general (Baer et al., 2012; Campos et al., 2015; Shonin et al., 2013).

Table 6.1. Mapping of emotional wellness statements to personal characteristics of individual innovation capability and the related mindful meditation citations

Emotional wellness statement from wellness questionnaire	**Personal characteristic of individual innovation capability**	**# of academic citations of the personal characteristic being impacted by mindful meditation**
I am resilient and can bounce back after a disappointment or a problem	Self management	
	Self efficacy and control	
	Persistence and conscientiousness	
I am flexible and adapt to change in a positive way	Flexibility	
	Tolerating uncertainty	
I am able to recognize and manage things that cause me stress	Ability to perform well under pressure	

Source: Own compilation based on literature cited in this dissertation and study findings.

According to the findings of this study, when responses submitted by participants were analysed, mindful meditation had in particular a positive impact on emotional wellness (Figure 5.59). The fact that emotional wellness would be the facet of wellness that would be most sensitive to the effects of mindful meditation is not surprising given the abovementioned, to-date academic findings. In addition, the systematic literature review conducted as part of the desktop research conducted for this dissertation, in which skills and competences underlying individual innovation capability were mapped to the dimensions of innovative work behaviour (see Appendix 2 for detailed findings), anticipated the findings of the current study.

Table 6.2. Mapping of occupational wellness statements to personal characteristics of individual innovation capability and the related mindful meditation citations

Occupational wellness statement from wellness questionnaire	Personal characteristic or skill of individual innovative capability	# of academic citations of the personal characteristic being impacted by mindful meditation
My work is manageable	Self management	
	Ability to focus on tasks	
I find my work satisfying	Motivation	
	Engagement	
I am developing the necessary skills to achieve my career goals	Goal orientation and generation	
	Learning goal orientation	
	Achievement and value orientation	
I feel understood and appreciated : by my co-workers	Teamwork skills	
	Social astuteness and sensitivity	
	Interpersonal management	
	Interpersonal influence	
	Ability to build trust	
	Ability to create a partnership	
	Ability to make your meaning clear to other	
I balance work with play and other aspects of my life	Ability to use time efficiently	

Source: Own compilation based on literature cited in this dissertation and study findings.

The three tables, Table 6.1-6.3, map the statements which respondents were asked to rate to gauge their emotional, occupational and intellectual wellness, and the personal characteristics and skills underlying individual innovation capability. The tables also sum up the frequency that reviewed academic publications referred to a specific characteristic or skill as affected by mindful meditation. Please note the color coding is consistent with the one applied in Sub-Chapter 3.4, i.e. fields in grey relate to personal characteristics, fields in yellow to skills that comprise idea generation, blue – idea promotion, and green – idea implementation.

Table 6.3. Mapping of intellectual wellness statements to personal characteristics of individual innovation capability and the related mindful meditation citations

Intellectual wellness statement from wellness questionnaire	**Personal characteristic or skill of individual innovative capability**	**# of academic citations of the personal characteristic being impacted by mindful meditation**
I am intellectually stimulated by my work and non-work	Achievement and value orientation	
	Knowledge and cognitive skills	
I can critically consider the options and information presented by others and provide constructive feedback	Social astuteness and sensitivity	
	Ability to make your meaning clear to others	
	Active listening	
	Analytical skills	
	Skills in thinking	
	Willingness to question your own and others' ideas	
I am capable of making important decisions	Take initiative and responsibility	

Source: Own compilation based on literature cited in this dissertation and study findings.

As visible in the above three tables (Tables 6.1-6.3), in to-date research, scientists most often noted impact of mindful meditation on emotional wellness, followed by occupational wellness, with the least bearing on intellectual wellness. This is also reflected in the data collected during the research conducted for this dissertation, i.e. in a comparison of the effect of meditation on long-term meditators and those who chose to meditate only during the study, the only facet of wellness that shows sensitivity is emotional wellness. The

new meditators attest to an improvement in their emotional wellness. When the meditating respondents are split by occupation, emotional wellness shows even greater variance with architects noting an improvement and non-architects noting a downtrend (Figure 5.60). In addition, architects also disclosed statistically significant improvements in their overall wellness and occupational wellness (Figure 5.60). Neither analyses of the impact of meditation – on meditators versus non-meditators and on architects versus non-architects – showed any effect on intellectual wellness.

The above findings, in addition to reflecting the findings of the systematic literature review (presented in Sub-Chapter 3.2) also contribute additional evidence to findings on the impact of mindful meditation published to date, and laid out in Chapter 3.

A closer look at the change in meditators' perception of their wellness

When divided into meditators and non-meditators, study participants responded to statements to gauge their emotional, intellectual and occupational wellness. As evidenced in the preceding chapter, their responses to detailed questions on wellness noted several differences:

- Meditators noted a statistically significant decrease, from first to final measurement, to emotional wellness q1 ("*I am resilient and can bounce back after a disappointment*") (Figure 5.3) and two statistically significant increases: (1) from first to final measurement, to emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*") (Figure 5.5), (2) from initial to Phase 1 measurement, to occupational wellness q4 ("*I feel understood and appreciated by my co-workers*").
- Non-meditators noted a statistical downtrend, from first to final measurement, from initial to final measurement to emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*") (Figure 5.5).

As defined in Sub-Chapter 3.1, exercising mindfulness requires the participant to give full attention to the present as experienced internally and externally without judgement. It requires self-reflection. Non-judgmental awareness involves accepting experiences as they are, including those considered unpleasant. Being fully present with experiences and accepting them as they are enables people to become aware of their automatic habits and unhelpful reactions, and make more skillful choices (Kabat-Zinn, 1996). This quality of mindfulness was made more tangible for the study participants through the request to regularly complete the wellness questionnaire. In reflecting on their present experience

without judgement meditators recognized that they were affected by disappointments, yet they recognized their own agency, i.e. that they could manage what caused them to stress, and in looking at present moment internally and externally they also recognized that others experience the same – they empathized with others and felt a reciprocal empathy. This shift in feedback, thus perception of their own wellness, manifests maturity and resilience, showing that mindful meditation had endowed them with this personal resource.

The detailed feedback from to-date non-meditators shows that in mediating regularly for six months they are at the start of the self-reflection journey. By recognizing in the present moment that if they look with non-judgement at their present actions they are unable to manage the things that cause them stress. Given no improvement in the other aspects of wellness, this provides a negative self-reflection. It would be interesting to continue to monitor their responses to see whether with time their responses would echo those given by long-term meditators.

When divided into architects and non-architects, study participants responses were also used to gauge their emotional, intellectual and occupational wellness. The following changes were noted when respondents were split by profession:

Architects noted:

- a close to statistical downtrend, from measurement to measurement, to emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*") (Figure 5.22);
- a close to statistically significant increase, from initial to Phase 1 measurement, to occupational wellness q3 ("*I am developing skills to achieve my career goals*") (Figure 5.32);
- a statistically significant downtrend from, initial to final measurement, to occupational wellness q5 ("*I balance work and play and other aspects of my life*") (Figure 5.34).

Non-architects noted:

- a statistically significant higher feedback, from initial to final measurement, to emotional wellness q1 ("*I am resilient and can bounce back after a disappointment*") (Figure 5.20);
- a close to statistical downtrend, from measurement to measurement, to emotional wellness q3 ("*I am able to recognize and manage the things that cause me stress*") (Figure 5.22);
- close to statistically higher than architects at final measurement, to occupational wellness q4 ("*I feel understood and appreciated by my co-workers*") (Figure 5.33);

- a statistical uptrend, initial to Phase I measurement as well as from initial to Phase II measurement, to occupational wellness q5 ("*I balance work and play and other aspects of my life*") (Figure 5.34);
- a statistically higher feedback than architects, at Phase II measurement, to intellectual wellness q1 ("*I am intellectually stimulated by work and non-work*") (Figure 5.25).

Even though architects noted statistically significant improvements in both overall wellness and occupational wellness over the course of the six months of the study, they still at the discrete moments and in case of the individual facets of wellness, arrived at sobering reflections. Their assessment of their personal resilience and ability to bounce back was statistically lower than that of non-architects both at the start of the study and at its end. Akin to their non-architect colleagues, they felt less and less able to manage stress over the six months, coinciding also with their progressively more negative assessment of their ability to balance work and other aspects of their life. At end of the study period they felt significantly less understood by their peers and less intellectually stimulated than non-architects.

This feedback shows that architects took the opportunity to reflect on their wellness while they participated in the study, and their overall assessment, though at the general level it came up better, at the point of individual questions, showed a higher level of drain and stress and a lack of a positive outlook. This may suggest that as a professional group they may be subject to higher workload and stress as compared to their non-architect colleagues. Perhaps responding to the statements prompted architects to recognize potentially the challenges they had with personal resilience and coping with work-related disappointments.

To sum up, the study findings corroborate earlier scientific research on the impact of mindful meditation on wellness – that it is positive, in particular on emotional wellness. They also highlight the complexity of the impact of mindfulness on wellness, which led for example to the varied reflections of responders on their wellness prompted potentially by their professional workload. They reinforce the findings that meditation can be treated as a personal resource, in particular to those in demanding jobs, in order to enable them to self-reflect and also recognize their own agency, to activate them and engage them in their work. Thus the first practical implication, in line with earlier recommendations made about mindful meditation, it is beneficial for organizations to provide access to mindful meditation practices to its employees in order to enable the employees to equip themselves

with an effective personal resource to raise their awareness of their ability to cope with stress, work-life balance, and collaboration with others.

Workload is defined as the feeling of having excessive role demands given the time and resources available to address them (Byrne, 1994). Innovative work behavior, which involves a high level of cognitive and emotional resources, may be sensitive to workload. Amabile has found that work contexts involving chronically high workload pressures are particularly harmful to professional creativity (Amabile et al., 1996). Chronically high-workload pressures occur in work environments that routinely involve mindful and cognitively challenging tasks, have high-time pressures for completion of those tasks, include frequent interruptions as multiple tasks intrude on each other, and involve attenuated control over the timing, pacing, and quality of work output as supervisors attempt to manage time deficiencies by imposing deadlines or rearranging project schedules (Karasek, 1979; Karasek & Theorell 1990). To enhance creativity among chronically overworked professionals, workdays should be designed to alternate between bouts of cognitively challenging and high-pressure work and bouts of mindless work (Elsbach & Hargadon, 2006; Hackman et al., 1975).

The responses gathered from architects on the individual facets of wellness suggest that the workload of enterprise process architects of Capgemini may be excessive. Their reflections suggest that the workload is detrimental to their wellness, despite the fact that at the aggregate level the participating architects attested to positive overall, emotional and occupational wellness. It is important to note that while mindful meditation supports greater resilience and ability to cope with stress (reflecting the improvements in wellness, especially emotional wellness), it also helps practitioners to look at their present reality, internally and externally, and reflect on it. The self-reflection that is a consequence of meditation affords the individual a certain degree of control and choice over whether to allow automatic responses to occur or to consciously regulate their behavior in a manner that serves more adaptive outcome (Bargh & Chartrand, 1999; Good et al., 2016; Kabat-Zinn, 1994; Reb et al., 2015; Thompson & Waltz, 2007). It seems that meditation and related regular check-ins with questionnaires gave architects a chance to see that their wellness was being challenged by workload. This reassessment of their occupational wellbeing could lead architects to question their workload and work demands.

6.2 Theoretical contributions and practical implications for mindfulness as a lever for innovative work behaviour

In line with the analysis and interpretation of the quantitative results of the study – presented in Chapter 5.2 and Chapter 5.3:

- Mindful meditation has a positive impact on innovative work behavior of those who meditate, as assessed by the study participants and their assessors.
- Mindful meditation has a positive impact on innovative work behavior of mediating architects, as assessed by the study participants and their assessors. The positive impact, led architects who participate in the study to rank their innovative work behavior at end of the study as statistically higher than participating non-architects.

A note on two-pronged assessment of innovative work behaviour

In order to ensure reliability as well as robustness of the collected data, a two-pronged approach was taken to gathering feedback on the impact of meditation on the innovative work behavior of the study participants. The innovative work behavior of study participants was assessed by themselves (self-assessment) and by either their work supervisors or colleagues (peer assessment). This two-pronged approach was designed to minimize the potential bias of relying solely on participant self-reporting.

A note on the impact of meditation on IWB of the study control group

There was no change in innovative work behavior of members of the study control group, i.e. long-term meditators who chose to participate in the study, both according to self-assessment and peer assessment.

Theoretical contributions and practical implications of mindful meditation having an impact on the innovative work behaviour of those who meditate

The second research question triggered an investigation into whether mindful meditation had a positive impact on overall innovative work behavior. By looking at a professional group (enterprise process architects) whose occupational competence includes innovative work behavior, the study sought to also see whether there would be any variance in impact of mindful meditation on IWB of a professional group already trained in innovative

work behavior versus persons employed in the same corporation but not in the same professional capacity, for who IWB is not a core part of their role competences.

The analyzed data shows statistically significant improvements in innovative work behavior of – both as assessed by the study participants and their peers – to-date non-meditators. In fact, improvements were seen consistently measurement period on measurement period, meaning IWB improved over the duration of the study.

There were statistically significant improvements in IWB of architects from period to period, as assessed both by study participants and their assessors. Furthermore, by end of study, the collected data showed that architects saw themselves as exhibiting statistically higher innovative work behavior than non-architects.

Why was the impact of the mindfulness practice so much greater for architects, both as assessed by themselves and their peers? While additional research needs to be conducted, there are at least two potential reasons:

- Since IWB is part of the architects' competency model, they were better able to rally the additional personal resources provided through meditation to generate greater impact when engaging in innovative work behavior. Meanwhile the non-architects among them leveraged the additional personal resources to support their role-specific competences and tasks, that did not entail innovation and thus were not assessed in the study.
- Since IWB is part of the architects' competency model, they had more opportunity to engage in IWB and showcase any improvement, to thus encourage the related assessment by themselves and also by their colleagues and/or supervisors.

The latter reasons would more likely have affected more the peer assessment rather than the self-assessment over time. This means the former reason is the more likely one.

Given the above evidence together with the conclusions made in the preceding Sub-Chapter on the impact of mediation on occupational wellness (in particular engagement) it may be concluded that mindful meditation has a positive impact on employee engagement which in the case of architects is made manifest in their innovative work behavior. This means that mindful meditation may be employed by individuals as well as organizations who seek the benefits of innovative work behavior to enhance this behavior.

In this context, it must be noted that IWB is not only a highly valuable and necessary performance outcome in organizational settings, but also a paradoxical one (Martin-Hernandez et al., 2020). Although workers are required to be innovative at work, due to this innovation imperative, these requirements may create new demands (Messmann et al.,

2017). In addition, their jobs inherently involve high and diverse workload demands in terms of time and quality pressures (Dediu et al., 2018; Elsbach & Hargadon, 2006) or emotional and cognitive requirements (i.e., intense concentration), as well as less control and autonomy, mostly at lower organizational levels (Kossek, & Lautsch, 2018). These job demands may not only negatively impact workers well-being and performance outcomes, but they can also make it difficult for them to be innovative at work, especially if they are not provided with enough job control.

If organizations provide their workers with enough decision latitude at any moment in time, they will be more innovative in a more constant and sustained way. Although it may be difficult to increase job control, even though job redesign strategies such as job enrichment due to the nature of work, mindfulness interventions are parsimonious in benefitting the spectrum of individual workplace functioning (Good et al., 2016). Although interventions to enhance individual's mindfulness are increasingly more common in diverse contexts, including work (Hyland et al., 2015) and can lead to a wide array of key performance outcomes, most of these interventions are mainly concerned with strain reduction. Mindfulness workplace interventions could also provide workers with an important personal resource that enables them to see potential stressful conditions as challenges rather than hindrances, leading them to be more innovative at work. As a personal resource, positive changes in this personal disposition led workers who increased their mindful capability and worked under past situations of high demands to display higher levels of IWB, but job control did not. In this regard, Grover et al., (2017) suggested that, as a personal resource, mindfulness could even supplant the need for control in coping actively with high job demands. In sum, as in the case of the present study, Grover et al. (2017) concluded that mindfulness seems to make workers more aware of their own psychological reactions to their work environment and, therefore, more capable of monitoring them. Moreover, positive changes in mindfulness can improve behavioral self-regulation, favoring the choice of actions that are more authentic.

Highly demanding jobs that allow individuals enough discretion lead them to perform their jobs in a more innovative way (Hammond et al., 2011), through a changed motivation level, because control strengthens the positive relationship between job demands and IWB (De Spiegelaere et al., 2012). In this direction, Martín et al. (2007) found that in situations characterized by higher demands, workers who had high control were more innovative in their jobs. More recently, Dediu et al. (2018) obtained a similar effect in their

study: a small but significant and positive relationship existed between job demands, such as working at high speed, and job autonomy in the prediction of idea implementation.

6.3 Theoretical contributions and practical implications for mindfulness as a lever for three discrete dimensions of innovative work behaviour

In line with the analysis and interpretation of the quantitative results of the study – presented in Chapter 5.2 and Chapter 5.3:

- Mindful meditation has a varying impact on the three dimensions of innovative work behavior of those who meditate, as assessed by the study participants and their assessors.
- Mindful meditation has a significant impact on idea promotion and idea implementation abilities of architects, effecting a statistically higher abilities in both compared to non-architects within six months.
- Mindful meditation's positive impact on idea implementation exhibited by architects can be habituated within six months.

A note on the impact of meditation on the three dimensions of IWB of the study control group

There was no change in the three dimensions of innovative work behavior of members of the control group, i.e. long-term meditators who chose to participate in the study, both according to self-assessment and peer assessment.

Review of impact of meditation on idea generation

Idea generation appeared the least sensitive to stimulation through mindful meditation. In fact, the participants who chose to meditate during the study (were not meditators prior to it) did not see any change in their ability to generate ideas. The data gathered from peer assessors indicated only a close to statistically significant uptrend from initial to final measurement. Meanwhile, when participants were segregated by profession, their peers saw no improvement in idea generation of either architects and non-architects. On the contrary, participating architects attested to a statistically significant improvement in their ability to generate ideas from period to period, to by the final measurement note a statistically greater idea generation score than that resulting from the self-assessment of non-architects (who had only recognized a close to statistical uptrend in their idea generation ability).

The scientific evidence regarding the connection between meditation and creativity is inconclusive. While some studies have indicated a significant positive impact of meditation practice on creativity, others have reported only a weak association or no effect (Cowger, 1974; Domino, 1977). Colzato (2012) suggested that these inconsistencies reflect a failure to distinguish between different, non-associated processes, that underlie creativity. These include convergent and divergent thinking (Guilford, 1950). Mindfulness is a multifaceted construct, composed of different components and skills, including the ability to observe and attend to various stimuli (Observation) and the ability to focus attention with full awareness (Act of awareness); Baer et al., 2006; Grossman, 2008). Therefore, it is plausible that the relationship between mindfulness and creativity is not uniform but rather depends on the specific mindfulness component that is activated. Baas at al emphasized the importance of understanding the differential effects of the components of mindfulness on creativity (Baas et al., 2014). Regarding the particularly strong positive relation between observation and creativity, past work has shown that the ability to observe has been associated with increased cognitive flexibility (Chambers et al., 2009; Slagter et al., 2007), which is considered a key driver of creativity (De Dreu et al., 2008). Creative outcomes may result from different cognitive processes, some of which are harmed by broad attentional scope, mind wandering, and flexible thinking (Colzato et al., 2012; Mrazek et al., 2012). However, other cognitive processes underlying creativity, including increased working memory capacity and in-depth survey of only a few categories or perspectives (De Dreu et al., 2012).

Thus, the conflicting effect of the various aspects of meditation on idea generation may be the reason why the effect of meditation noted in the current study was low. It highlights the importance of looking at mindfulness as composite concept, whose outcomes differ. The impact on creativity of the discrete outcomes needs to be more carefully investigated.

There may also be another reason for the low impact of meditation on idea generation as noted in the current study; this reason could be workload. As already cited in the earlier sections discussing the impact of meditation on wellness, Amabile has found that work contexts involving chronically high workload pressures are particularly harmful to professional creativity (Amabile et al., 1996). Work environments that include frequent interruptions as multiple tasks intrude on each other, and involve attenuated control over the timing, pacing, and quality of work output as supervisors attempt to manage time

deficiencies by imposing deadlines or rearranging project schedules (Karasek, 1979; Karasek & Theorell 1990) lower creativity; as noted in the section on wellness, many of the detailed responses provided by both meditators and non-meditators as well as architects and non-architects, though architects in particular, suggested high workload and workload pressure. This thus may be another reason for a lower impact of mindfulness on the idea generation of the participants of the current study.

Review of impact of meditation on idea promotion

Idea promotion appeared more sensitive to stimulation through mindful meditation than idea generation. The idea promotion of meditators was assessed by themselves as statistically improved from period to period. Their assessors saw a close to statistically significant uptrend from initial to final measurement. When grouped by profession, both architects and their peers saw statistically significant improvements in their ability to promote ideas. Only non-architects themselves attested to an uptrend in their idea promotion activities, which however was not statistically significant; their assessors did not see meditation affecting the non-architect's idea promotion. At the final measurement, architects had assessed themselves statistically better in idea promotion than their non-architect peers.

Idea promotion means finding support and help to carry out the newly generated ideas (Andersson, 2014; Janssen, 2003). Promoting novel ideas includes seeking and gaining stakeholder approval and sponsorship for novel ideas from colleagues, supervisors and managers (Kanter, 1988). Idea promotion represents a defining characteristic of employees who are confident, who have high self-esteem and who are engaged employees, as it requires confidence in one's own ideas and a belief they can be of benefit and that the person is able to convince others (e.g. Johnson et al., 2021; McCarthy & Reiser, 2017; Mozani et al., 2021). It also implies that employee takes the decision to exert personal energy, focus and persistence in order to promote an idea (e.g. Hepburn & McMahon, 2017; McCarthy & Reister, 2017; Rupprecht, 2017). As stated by Schaufeli et al. (2006). engaged employees are distinguished by high levels of energy, enthusiasm, focus, inspiration, intensity, mental resilience, and persistence, which facilitate their innovative work behavior.

Employees who are willing to promote their ideas, who have the confidence to push these ideas in the belief they will usher in improvements, rather than continue their work as usual, are a significant resource for an organization. They have the potential to generate competitive advantage, they also promote active absorptive capacity – encouraging others

to agree to new ideas. The fact that meditation enhanced idea promotion across both architects and non-architects is also of importance as idea promotion is not limited to innovation but can be seen as a positive force for improvements, be they ones that represent an innovation, a reaction to change, or perhaps a reflection that a new process is not working and it would be beneficial to revert. Idea promotion means the externalization of the expertise intrinsic to employees. It means that employees are engaged and desire to suggest improvements. Thus the significance of the positive impact of mindful meditation on idea promotion is much broader than just on those in an organization that engage in innovation, it has a bearing on every role. Thus the benefits of mindful meditation can be harnessed in various roles not just in those concerned with innovative work behavior, though the benefits in roles that require IWB seems strongest. It is relevant here to remind of extensive research by Zhou and Shalley (2003), Shalley et al. (2004), and Egan (2005), who came to the general conclusion that work environments that enhance intrinsic motivation increase creative output, whereas those that hamper intrinsic motivation decrease creative output. Engaged employees are more committed to organizational success, which is exemplified in idea promotion. This is a well-established fact as evidence by findings of numerous studies (Bakker & Schaufeli, 2008; Ghadi et al, 2013; Malinowski & Lim, 2015; Rich et al., 2010).

Review of impact of meditation on idea implementation

Idea implementation appeared the most sensitive to stimulation through mindful meditation. Unlike in the case of the other dimensions, at the start of the study (pre-study) the to-date meditators were assessed by their peers as statistically better in idea implementation than non-meditators. By end of the study, this gap had disappeared, and to-date meditators and to-date non-mediators were assessed at comparable level of idea implementation. The to-date non-meditator's ability to implement ideas was seen as positively affected, with statistical significance, by both the study participants and their assessors. Meanwhile when split by profession, meditation again yielded statistically significant improvements in idea implementation exhibited by architects, as assessed by them and also by their assessors. Meanwhile, neither thru self-assessment nor peer-assessment did the non-architect see any change in their idea implementation skills. As in the case of the other two dimensions, at the final measurement, architects assessed themselves statistically better in idea implementation than their non-architect peers.

The fact that meditators had initially tested as statistically better at idea implementation, for the statistical gap to disappear within the six months as non-meditators regularly engaged in meditation is an important finding. It suggests that the benefits of mindful meditation can be realized within a relatively short period (in this study: six months) on this facet of innovative work behavior. This echoes earlier findings by Lutz et al. (2008). They observed that although the meditation-related activation pattern was generally stronger for long-term practitioners in comparison to novices, activity in a multitude of brain areas was still evident. The meditation data exhibited an inverted U-shape curve, which bears resemblance to the learning curve observed in the acquisition of other skills, such as language. Lutz et al. (2008) concluded that this provides evidence in support of the proposition that with regular meditation training, minimal effort is required to achieve benefits.

The study shows that the positive effects of meditation can be habituated within a relatively short time, i.e. within three to six months of regular mediation (minimum 20 minutes thrice a week). This reflects findings of earlier studies, which had found that the positive impact of meditation can be accumulated and perceived, after 45 to 60 days, if one meditates 3-4 times a week for a minimum of 20 minutes (among others: Monk-Turner, 2004; Ricard, 2010; Riordan et al., 2024; Sears et al, 2011; Stedlemeier et al., 2012) in line with the instructions provided to study participants.

In the 2021 work published by Hero, Pitkajarvi and Matinheikki-Kokko to define, develop and validate individual innovation competence, their validation study found that the domains of concretization and implementation and planning skills, and project management skills demonstrated the greatest responsiveness to change. They were the most elastic, and could benefit the most from interventions, such as educational interventions. Educational interventions had the least impact on personal characteristics as well as relative low impact on future orientation domain. It is likely that the elasticity noted by the above researchers, was evidenced in the current study in the stronger impact of mediation and mindfulness on idea implementation.

The variance in the impact of the practice on the individual facets of innovative work behavior highlights the substantial differences between the three dimensions of IWB. As discussed earlier, idea generation may not see such a strong benefit of mindfulness training due to the fact that mindfulness affects different facets, some conducive to meditation (divergent thinking) and some detrimental (focused attention and reduced mind wandering).

Idea promotion seems to benefit from mindfulness outcomes as greater self-confidence and self-management and a more positive interpersonal relations (Stedmeier at al., 2012) as well as stronger engagement and intrinsic motivation. The strong effect on idea implementation needs to be explored further, as the current study reflects what has been recently noted by Hero et al., i.e. high sensitivity of this dimension of IWB to interventions.

Our findings suggest that the impact of mindfulness techniques, including meditation, on innovation should be reviewed in greater detail, to identify which dimension of innovation is being analysed. It is clear that mindfulness encourages those who practice it to reframe their perception of job demands, leading to a more constructive evaluation of these demands as opportunities rather than obstacles, this outcome of mindfulness meditation is undoubtedly beneficial across all dimensions of IWB, and has been linked to enhanced innovative performance and a greater receptivity to new information and creative approaches (Bishop et al., 2004; Reb at al., 2015).

Review of impact of meditation on the three dimension of innovative work behavior of non-architect as revealed though correlations

As the final step of the analysis of collected data, the data was analysed for any correlations. Two instances of correlations were identified, both relating to the innovative work behavior of non-architects, from the perspective of their self-assessment and peer-assessment of the three dimensions of innovative work behavior at two separate points of measurement.

At the initial point of measurement four negative correlations were identified that is participants' self-reported higher propensity to enact a certain IWB dimension correlated to their peers' opposite assertion either for the same or other IWB dimension. These correlations related mainly to idea promotion, secondly to overall IWB, and lastly to idea generation. None related to idea implementation.

Three months later, at second measurement, four correlations were again noted, but this time they were positive. This means that feedback provided by participants and their assessors on the participants propensity to enact a certain IWB dimension were complementary and consistent. This in particular related to idea generation, followed by idea promotion and idea implementation.

No correlations were noted by the final measurement.

As already stated, mindful meditation requires its practitioner to reflect (or reperceive) and become more mindful and self-aware. This practice may mean that responses become increasingly more aligned with actual personal actions rather than what we hope to reflect our actions. Assessors providing feedback on innovative behavior of participants provided insights on what they saw. The initial negative correlation suggests that non-architects exhibited behavior not consistent with what their desired actions were. The positive correlations three months later suggest that non-architects adjusted they behavior to their aims, i.e. their intent was consistent with their actions, and this was recognized by their peer assessors. The suggested change that took place corroborates with to date findings on the impact of meditation.

The change that is evidenced by the two instances of correlations is a strong indicator of the material potential benefits of exercising meditation. Meditation provides greater self-awareness leading to more self-determined behavior and self-control (Brown & Ryan, 2003; Deci & Ryan, 1985; Glomb et al., 2011; Schmertz, Anderson & Roins, 2009; Tang & Posner, 2013). Consistency of beliefs with our enacted actions help employees be less stressed, more satisfied and more engaged in what they do at work – all a significant benefit to the employer organization. This highlights the strong benefit of organizational support of mindful meditation by employees.

6.3 Limitations and recommendations for future research

The practice of mindfulness meditation encompasses focusing attention on the experience of thoughts, emotions, and body sensations, simply by observing them as they arise and pass away (Kabat-Zinn, 1990). An array of distinct but interacting mechanisms are at play in producing the benefits of mindfulness meditation practice (Sedlemeier et al., 2012):

- Attention regulation
- Body awareness
- Emotion regulation, including: reframing, reappraisal and exposure, extinction, and reconsolidation
- Change in perspective on the self.

These components interact closely to constitute a process of enhanced self-regulation (Carver & Scheier, 2011; Vohs & Baumeister, 2004). The different components likely come into play to varying degrees within any specific moment during mindfulness meditation, and affect the meditator differently, in particular by their differing impact on his behaviour, also at work. For example, looking at reframing, it is clear that mindfulness encourages those who practice it to reframe their perception of job demands, leading to a more constructive evaluation of these demands as opportunities rather than obstacles, this outcome of mindfulness meditation is undoubtedly beneficial across all dimensions of IWB, and has been linked to enhanced innovative performance and a greater receptivity to new information and creative approaches (Bishop et al., 2004; Reb at al., 2015). But what is the impact of reframing, and emotion regulation, on the three different dimensions of innovative work behaviour, is it the same or different? What about the impact of the other components and of their interaction on the three IWB dimensions?

The present study noted significant variance in the impact of the practice on the individual facets of innovative work behavior. This highlights the fact that there are substantial differences between how the above components interact in the three dimensions of IWB. As discussed earlier, idea generation may not see such a strong benefit of mindfulness training due to the fact that mindfulness affects different facets, some conducive to meditation (reframing or change in perspective on the self) and some detrimental (attention regulation). Idea promotion seems to benefit from mindfulness outcomes as greater self-esteem (Brown & Ryan, 2003; Carson & Langer, 2006) and self-management (Brown & Ryan, 2003, Deci & Ryan, 1985; Glomb et al., 2011; Shapiro et al., 2006) and a more positive interpersonal relations (Feldman et al., 2007; Glomb et al., 2011; Stedlmeier at al., 2012) as well as stronger engagement (Bakker & Schaufeli, 2008; Brown & Ryan, 2003; Dane & Brummel, 2014, Malinowski & Lim, 2015) and intrinsic motivation (Jankowski & Holas, 2009). The strong effect on idea implementation needs to be investigated further, as the current study reflects what has been recently noted by Hero et al., i.e. high sensitivity of this dimension of IWB to interventions, yet it is not at all clear what underlying competences and skills are the ones that are highly sensitive, and which of the benefits of mindful meditation is most markedly manifested in its positive impact on idea implementation.

Many academics have noted a lack of a structured approach to the investigation into the impact of meditation, including mindfulness meditation, on personal characteristics and

competences (e.g. Hero et al., 2021; Dane & Brummel, 2014; Stedlemeier et al., 2012). In the course of the present research, the lack of this structured approach meant that it was difficult to ascertain whether certain characteristics or competences and skills were immune to mindful meditation or whether the effect of the practice on them had never been analysed. To-date research has been more prone to analyse the impact of mindful meditation on personal characteristics and softs skills, rather than, for example project management or selling skills. The current study and its conclusions would benefit from an availability of research that comprehensively tests the impact of meditation against all of the identified personal innovation capabilities and skills.

The current study monitored the impact of mindful meditation on participants for six months. From the perspective of studies on the impact of mindful meditation on innovative work behavior, this study is one of only a few that looked at the impact of mediation over a longer term. Yet six months is not that long. Interesting in this area were the present study's findings of the impact of meditation on idea implementation. Meditators initially tested as statistically better at idea implementation. The statistical gap disappeared within the six months of the study. This suggests that the benefits of mindful meditation can be realized within a relatively short period (in this study: six months) for at least one facet of IWB, namely idea implementation. Yet it would be beneficial to further investigate this, to see whether this benefit is sustained, whether the other dimensions of IWB would also see a similar benefit over time.

The present study noted much greater impact of the mindfulness practice architects, both as assessed by themselves and their peers, than on non-architects. As discussed in the preceding chapter, this is most likely because the study was designed to analyze the impact of meditation on innovative work behaviour, which is part of the role of enterprise process architects. Meanwhile, non-architects participating in the study did not have IWB as an integral part of their role, thus while meditation may have benefitted them in the performance of their roles, these benefits may have not been captured in the present study due to the design focused exclusively in the impact of mindful mediation on wellness and IWB dimensions. It would be insightful to design a study that would investigate the impact of meditation on in role performance of a variety of roles in a white collar setting of a services company, to see whether the effects noted in this study could be replicated for other organizations and also other professions.

Lastly, the current study looked at a small population. While the analysis of 102 studies on the impact of meditation (presented in Chapter 4 and detailed in Appendix 3) show that 54 is an acceptable study size for investigating the effects of mindful meditation, it would be good to understand whether the findings could be replicated on a larger population. A larger population could also be further subdivided in order to understand the impact, if any, on mindful meditation by, for example, by certification level of architects or by home location.

CONCLUSION

The quality of an employee's experience at work, encompassing psychological, physical, and behavioral dimensions (Ryan & Deci, 2001; Good et al., 2016), is integral to organizational success (Danna & Griffin, 1999). Enhanced employee wellbeing translates into better physical and mental health, increased engagement, and improved role performance, collectively benefiting organizational outcomes. Mindful meditation significantly enhances emotional wellness by promoting self-reflection, resilience, and empathy. Practicing mindfulness enables individuals to accept experiences without judgment, improving their ability to manage stress and understand others. Based on our present study, practicing mindful meditation also enhances innovative work behaviour.

Mindful meditation has an impact on the wellness of those who meditate, the most on their emotional wellness and the least on their intellectual wellness. These finding reflect to-date scientific evidence and understanding of the impact of mindful meditation. Participants reported enhanced self-reflection and awareness through mindfulness, which involves non-judgmental acceptance of experiences. Long-term meditators demonstrated resilience and empathy, recognizing their ability to manage stress and understand others. However, non-meditators experienced initial negative self-reflection, with potential for improvement over time.

Enterprise process architects, as a professional group, noted statistically significant improvements in overall and occupational wellness after six months of meditation. Yet, they also reported higher levels of stress and lower resilience compared to non-architects, likely reflecting the demanding nature of their profession. Despite the improvements, architects felt progressively less able to balance work and life, and less intellectually stimulated.

Mindful meditation fostered innovative work behavior (IWB), with architects demonstrating statistically higher IWB than non-architects by the study's end. Participants in meditation practices demonstrated improvements in idea promotion and implementation, with architects achieving statistically higher scores than non-architects in IWB by the study's conclusion, both in self-assessment and peer-assessment. Key dimensions of IWB revealed nuanced outcomes:

- Idea generation: Limited improvement over the course of the study, attributed to workload (Amabile et al., 1996) and the complex relationship between mindfulness and creativity (e.g. Colzato, 2012., corroborating earlier scientific findings).

- Idea promotion: Substantial gains, enhancing participants' ability to advocate for and garner support for ideas. Notably, the significance of the positive impact of mindful meditation on idea promotion is much broader for the organization than just on those that engage in innovation, it has a bearing on every role.
- Idea implementation: The most sensitive dimension, with measurable improvements within six months of consistent meditation practice. As with idea promotion, the finding on strong benefits has significance for many roles. The fact the benefits could be habituated within six months also allows to make predictions on the efficacy of mindfulness meditation.

The uncovered correlations in the impact of mediation on IWB dimensions of non-architects showed meditation's significant ability to foster self-awareness and alignment between employee intentions and actions. Initially, discrepancies between self-assessments and peer feedback transitioned to positive correlations over three months, suggesting meditation's contribution to behavioral consistency. Importantly, this alignment reduces stress, increases satisfaction and boosts engagement, demonstrating the value of meditation as an organizational resource that helps to nurture an engaged workforce.

Organizations can benefit by integrating mindfulness practices to bolster employee wellness, engagement, and innovative work behaviour. Regular meditation enhances stress management, work-life balance, and collaboration, with benefits evident within a few months of practice. It also supports the development of professional competences required for one's role, like innovative work behaviour required of enterprise process architects. This makes mindfulness a valuable organizational tool, particularly for roles demanding high levels of self-drive and resilience. Some positive effects of meditation can be realized within a short period, making it an effective strategy for fostering employee engagement and innovative behavior. By equipping employees with self-reflection tools and fostering alignment, organizations can unlock enhanced performance and sustained innovation in a rapidly evolving professional landscape.

BIBLIOGRAPHY

1. Abbey, A. & Dickson, J. W. (1983). R & D work climate and innovation in semiconductors. *Academy of Management Review*, *26*, 362-368.
2. Aboobaker, N., Zakkariva, K. A., & Edward, M. (2022), Workplace spirituality and employees' readiness for change as precursors to innovative work behavior: an empirical examination. *International Journal of Intelligent Enterprise*, *9*(1), 6-23.
3. Acar, S., & Runco, M. A. (2012). Creative Abilities. Divergent Thinking. In M. Mumford (Ed.), *Handbook of Organizational Creativity* (pp. 115-139). London: Elsevier.
4. Adele, M. H., & Feldman, G. (2004). Clarifying the construct of mindfulness in the context of emotion regulation and the process of change in therapy. *Clinical Psychology, 11,* 255-262. https://doi.org/10.1093/clipsy.bph080
5. Agars, M. D., Kaufman, J. C., Deane, A., & Smith, B. (2012). Fostering Individual Creativity Through Organizational Context: A review of recent research and recommendations for organizational leaders, *Handbook of Organizational Creativity* (pp. 271-291), https://doi.org/10.1016/B9780-12-3747714-3.00012-4
6. Agarwal, U. A. (2014), Linking justice, trust and innovative work behavior to work engagement. *Personnel Review, 43*(1), 41-73, https://doi.org/10.1108/PR-02-2012-0019
7. Agarwal, U. A., Datta, S., Blake-Beard, S., & Bhargava, S. (2012). Linking LMX, innovative work behavior and turnover intentions, *Career Development International, 17*(3), 208-230, https://doi.org/10.1108/13620431211241063
8. Aggeri, F., Elmquist, M., & Pohl, H. (2009). Managing learning in the automotive industry. The innovation race for electric vehicles. *International Journal of Automotive Technology and Management, 9*(2), 123-147.
9. Aish, S., Sengupta, S., Bajaj, B., & Sharma, S. (2020). Innovative work behavior driving Indian startups go global – the role of authentic leadership and readiness for change. *Journal of Organizational Change Management*, *36*(1), 162-179. https://doi.org/10.1108/jocm-05-2022-0156
10. Akin, A., & Akin, U. (2015). Self-compassion as a predictor of social safeness in Turkish university students. *Revista Latinoamericana de Psicología, 47*(1), 43–49. https://doi.org/10.1016/S0120-0534(15)30005-4
11. Al-Alawi, A. I., Al-Marzooqi, N. Y., & Mohammed, Y. F. (2007). Organizational culture and knowledge sharing: Critical success factors, *Journal of Knowledge Management, 11*(2), 22-42, https://doi.org/10.1108/13673270710738898
12. Alberts, H. J., Schneider, F., & Martijn, C. (2012). Dealing efficiently with emotions: Acceptance-based coping with negative emotions requires fewer resources than suppression. *Cognition & Emotion, 26*, pp. 863-870.
13. Alexander, C. N., & Langer, E. J. (Eds.). (1990). *Higher stages of human development: Perspectives on adult growth*. Oxford: Oxford University Press.
14. Allen, M., Dietz, M., Blair, K. S., van Beek, M., Rees, G., Vestergaard-Poulsen, P., Lutz, A., & Roepstorff, A. (2012). Cognitive-affective neural plasticity following active-controlled mindfulness intervention. *The Journal of Neuroscience, 32*, 15601-15610. https://doi.org/10.1523/JNEUROSCI.2957-12.2012

15. Amabile, T. M. (1988). A model of creativity and innovation. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior*, (Vol. 10, pp.123–167). Stamford: JAI Press.

16. Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview.

17. Amabile, T. M. (2012). Componential Theory of Creativity. In Kessler, E. H. (Ed.), *Encyclopaedia of Management Theory*, Thousand Oaks: Sage Publications.

18. Amabile, T. M., Schatzel, E. A., Moneta, G. B., & Kramer, S. J. (2004). Leader Behaviour and the Work Environment for Creativity: Perceived Leader Support. *The Leadership Quarterly*, *15*, pp. 5-32, http://dx.doi.org/10.1016/j.leaqua.2003.12.003

19. Anderson, N. R., De Dreu, C. K. W., & Nijstad, B. A. (2004) The routinization of innovation research: A constructively critical review of the state-of-the-science. *Journal of Organizational Behavior, 25*, pp. 147-173. https://doi.org/10.1002/job.236

20. Anderson, N., Potocnik, K., & Zhou, J. (2014). Innovation and creativity in organizing a state-of-the-art science review, prospective commentary, and guiding framework. *Journal of Management*, *40*, pp. 297-1333. https://doi.org/10.1177%2F0149206314527128

21. Anderson, N., Potocnik, K., Bledow, R., Hülsheger, U. & Rosing, K. (2018), Innovation and creativity in organizations. In Ones, D. S., Anderson, N., Viswesvaran, C. & Sinangil, K. (Eds), *Handbook of Industrial, Work & Organizational Psychology: Managerial Psychology and Organizational Approaches, 3*(8), 161-186.

22. Andersson, A. E., & Sahlin, N-E. (Eds.) (1997). *The Complexity of Creativity*. Dordrecht: Springer.

23. Anwar, C. M. (2020). Innovative Esteem: Antecedents and Relationship with Job Performance. *E&M Economics and Management, 23*(4), 137–151. https://doi.org/10.15240/tul/001/2020-4-009

24. Aragon-Correra, J. A., Garcia-Morales, V. J., & Cordon-Pozo, E. (2007). Leadership and organizational learning's role of innovation and performance: Lessons from Spain. *Industrial Marketing Management, 36*(3), 349-359.

25. Aramburu, N. & Sáenz, J. (2011). Structural capital, innovation capability, and size effect: An empirical study. *Journal of Management & Organization. 17*(03), 307-325.

26. Arch, J. J., & Craske, M. G. (2006). Mechanisms of mindfulness: Emotional regulation following a focused breathing induction. *Behavior Research and Therapy, 44*, pp. 1849-1858. https://doi.org/10.1016/j.brat.2005.12.007

27. Argote, L., Insko, C. A., Yovetich, N., & Romero, A. A. (1995). Group learning curves: The effects of turnover and task complexity on group performance. *Journal of Applied Social Psychology*, *25*, pp. 512–529. https://doi.org/10.1111/j.1559-1816.1995.tb01765.x

28. Argyriadis, A., Ioannidou, L., Dimitrakopoulos, I., Gourni, M., Ntimeri, G., Vlachou, C., & Argyriadi, A. (2023). Experimental mindfulness intervention in an emergency department for stress management and development of positive working environment, Healthcare, 11(6), https://doi.org/10.3390/healthcare11060879

29. Argyris, C. & Schön, D. A. (1978). *Organizational learning: a theory of action perspective*. Reading, MA: Addison-Wesley

30. Arvanitis. S., Stucki, T., (2012). What determines the innovation capability of firm founders? *Industrial and Corporate Change, 21*(4), 1049-1084. https://doi.org/10.1093/iee/dts003

31. Aryee, S, Walumbwa, F. O., & Hartnell, C. A. (2012). Transformational leadership, innovative behavior, and task performance: test of mediation and moderation processes. *Human Performance, 25*(1), 1–25. https://doi.org/10.1080/08959285.2011.631648

32. Assink, M. (2006). Inhibitors of disruptive innovation capability: A conceptual model. *European Journal of Innovation Management, 9*(2), 215-233.

33. August-Brady, M. (2000). Flexibility: A concept analysis. *Nursing Forum, 35*(2), 5-13. https://doi.org/10.1111/j.1744-6198.2000.tb)1171.x

34. Avvisati, F., Jacotin, G., & Vincent-Lancrin, S. (2013). Educating higher education students for innovative economies: What international data tells us. *Tuning Journal for Higher Education, i*(1), 223-240. https://doi.org/10.18543/the-1(1)-2013pp223-240

35. Axtell, C. M., Holman, D. J., Unsworth, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology, 73*(3), 265–285. https://doi.org/10.1348/096317900167029

36. Axtell, C. M., Holman, D. J., Unsworth,, K. L., Wall, T. D., Waterson, P. E., & Harrington, E. (2000). Shopfloor innovation: Facilitating the suggestion and implementation of ideas. *Journal of Occupational and Organizational Psychology, 73*, pp. 265-285. https://doi.org/10.1348/096317900167029

37. Baas, M., Nevicka, B., & Ten Velden, F. S. (2014). Specific mindfulness skills differentially predict creative performance. *Personality and Social Psychology Bulletin, 40*, pp. 1092-1106. https://doi.org/10.1177/0146167214535813

38. Baddeley, A. (1992). Working memory. *Science, 255*(5044), 556–559. https://doi.org/10.1126/science.1736359

39. Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, pp. 125-143. https://doi.org/10.1093/clipsy.bpg015

40. Baer, R. A., (2006). *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications*. San Diego, CA: Academic.

41. Baer, R. A., Carmody, J., & Hunsinger, M. (2012). Weekly change in mindfulness and perceived stress in a mindfulness-based stress reduction program. *Journal of Clinical Psychology, 68*(7), 755-65. https://doi.org/10.1002/jclp.21865

42. Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment, 11*, pp. 191-206. https://doi.org/10.1177/1073191104268029.

43. Baird, B., Smallwood, J., Mrazek, M.D., Kam, J.W., Franklin, M.S., & Schooler, J.W. (2012). Inspired by distraction: mind wandering facilitates creative incubation. *Psychology Science; 23*(10), 1117-1122. https://doi.org/10.1177/0956797612446024

44. Bakker, A. B., & Schaufeli, W. B. (2008). Positive organizational behavior: Engaged employees in flourishing organizations [Editorial]. *Journal of Organizational Behavior, 29*(2), 147-154. https://doi.org/10.1002/job.515

45. Bakker, A. B., Demerouti, E. & Ten Brummelhuis, L. L. (2012). Work engagement, performance, and active listening: The role of conscientiousness. *Journal of Vocational Behavior, 80*(2), 555-564, https://doi.org/10.1016/jvb.2011.08.008

46. Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*, pp. 1175-1204. https://doi.org/10.1037/003-066X.44.9.1175

47. Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist, 54*, pp. 462-479. https://doi.org/10.1037/0003-066X.54.7.462

48. Barnes, S., Brown, K., Krusemark, E., Campbell, W. K., & Rogge, R. D. (2007). The role of mindfulness in romantic relationship satisfaction and responses to relationship stress. *Journal of Marital and Family Therapy, 33*, pp. 482-500, https://doi.org/10.1111/j.1752-0606.2007.00033x

49. Barry, B., & Stewart, G. (1997). Composition, process, and performance in self-managed groups: The role of personality. *Journal of Applied Psychology, 82*, pp. 62–78. https://doi.org/10.1037/0021-9010.82.1.62

50. Basu, R. (1991). *An empirical examination of leader-member exchange and transformational leadership as predictors of innovative behavior*. (Doctoral dissertation). Retrieved from Purdue University ProQuest Dissertations & Theses database (Publication No. 1991.9201299).

51. Bateman, A., & Fonagy, P. (2004). Mentalization-based treatment of bpd. *Journal of Personality Disorders, 18*, pp. 36-51. https://doi.org/10.1521/pedi.18.1.36.32772

52. Baumeister, R. F., Bratslavsky, B., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology, 74*, pp. 1252-1265, https://doi.org/10.1037/0022-3514.74.5.1252

53. Bazerman, M. H., & Watkins, M. D. (2004). *Predicable surprises: The disasters you should have seen coming, and how to prevent them*. Boston: Harvard Business School Press.

54. Bear, M. & Frese, M. (2003). Innovation is not enough: Climates for initiative and psychological safety, process innovations, and firm performance, *Journal of Organizational Behavior, 24*(1), 45-68, https://doi.org/10.1002/job.179

55. Benjamin, J. (1990). An outline of intersubjectivity: The development of recognition. *Psychoanalytic Psychology, 7*, pp. 22-46. https://doi.org/10.1037/h0085258

56. Bessant, J., Alexander, A., Tsekouras, G., Rush, H., & Lamming, R. (2012). Developing innovation capability through learning networks. *Journal of Economic Geography, 12*(5), 232-258, https://doi.org/10.1108/14601061211220995

57. Bindl, U. K., Parker, S. K., Totterdell, P., & Hagger-Johnson, G. (2012). Fuel of the self-starter: How mood relates to proactive goal regulation. *Journal of Applied Psychology, 97*, pp. 134-150. https://doi.org/10.1037/a0024368

58. Birtwell, K., Williams, K., van Marwijk, H., Armitage, C. J., Sheffield, D., (2019). An Exploration of Formal and Informal Mindfulness Practice and Associations of Wellbeing, *Mindfulness*, *10*, pp. 89-99.

59. Bishop, S. R., Lau, M., Shapiro S., Carlson. L., Anderson, N. D., & Carmody, J. (2004). Mindfulness: a proposed operational definition, *Clinical Psychology: Science and Practice, 11*, pp. 230-241. https://doi.org/10.1093/clipsy.bph077

60. Björkdahl, J., & Börjesson, S. (2012). Assessing firm capabilities for innovation. *International Journal of Knowledge Management Studies, 5*(1-2), 171-184, https://doi.org/10.1504/IJKMS.2012.051970.

61. Bjornali, E. S., & Storen, L. A. (2012). Examining competence factors that encourage innovative behavior by European higher education graduate professionals. *Journal of Small Business and Enterprise Development, 19*(3), 402-423. https://doi.org/10.1108/14626001211250135

62. Bledow. R, Frese, M., Anderson, N. R., & Erez, M. (2009). A Dialectic Perspective on Innovation: Conflicting Demands, Multiple Pathways, and Ambidexterity, *Industrial and Organizational Psychology, 2*(3), 305-337, https://10.1111/j.1754-9434.2009.01154.x

63. Bloch, P.H. (1995). Seeking the ideal form: Product design and consumer response, *Journal of Marketing, 59*, pp. 16-29, https://doi.org/10.1177/002224299505900302

64. Bocken, N. M. P, Rana, P., & Short, S. (2015). Value mapping for sustainable business thinking. *Journal of Industrial and Production Engineering, 32*, pp. 67-81. https://doi.org/10.1080/21681015.2014.1000399

65. Boden, M. A. (2004). *The Creative Mind: Myths and Mechanisms*, (2nd Ed), London: Routledge.

66. Boden, M. A., (1990) *The Creative Mind: Myths and Mechanisms*, London: Basic Books.

67. Boden, Margaret (2010), *Creativity and Art: Three Roads to Surprise*

68. Bodhi, B. (2000). *A comprehensive manual of Adhidhamma*. Seattle: BPS Pariyatti.

69. Boeddrich, H. M. (2004). Ideas in the workplace: A new approach towards organizing the fuzzy front end of the innovation process. *Creativity and Innovation Management, 13*(4), 274-285.

70. Bono, J. E., & Judge, T. (2003). Self-concordance at work: Towards understanding motivational effects of transformational leaders. *Academy of Management Journal, 46*, pp. 554-571m https://doi.org/10.2307/30040649

71. Börjesson, S. & Elmquist, M. (2012). Aiming at innovation: A case study of innovation capabilities in the Swedish defense industry, *International Journal of Business Innovation and Research, 6*(2), 188-201.

72. Borjesson, S. (2011). Collaborative research for sustainable learning: The case of developing innovation capabilities at Volvo Cars. *Action Learning: Research and Practice, 8*(3), 187-209. https://doi.org/10.1080/14767333.2011.603407

73. Börjesson, S., & Löfsten, H.(2012). Capabilities for innovation in small firms – A study of 131 high-tech firms and their relation to performance. *International Journal of Business Innovation and Research, 6*(2), 149-176.

74. Bos-Nehles, A., Renekema, M., & Janssen, M. (2017). HRM and innovative work behavior: a systematic literature review, *Personnel Review 46*(7), 1228-1253, https://doi.org/10.1108/PR-09-2016-0257

75. Brandstaetter, H., & Farthofer, A. (1997). Personality in social influence across tasks and groups. *Small Group Research, 28*, pp. 46–163.

76. Brem, A., & Voigt, K-I. (2007). Innovation Management in Emerging Technology Ventures - The Concept of an Integrated Idea Management, *International Journal of Technology Policy and Management, 7*(3), https://doi.org/10.1504/IJTPM.2007.015113

77. Brewer, J.A., Worhunsky, P. D., Gray, J. R., Tang, Y. Y., Weber, J., & Kober, H. (2011). Meditation experience is associated with differences in default mode network activity and connectivity. *Proceedings of the National Academy of Sciences of the United States of America, 108*(50), 20254-20259. https://doi.org/10.1073/pnas.1112029108.

78. Broderick, P. C. (2005). Mindfulness and coping with dysphoric mood: Contrasts with rumination and distraction. *Cognitive Therapy and Research, 29*, pp. 501-510, https://doi.org/10.1007/s10608-005-3888-0

79. Brown, D., Forte, M., & Dysart, M. (1984). Visual sensitivity and mindfulness meditation, *Perceptual and Motor Skills, 58*, pp. 775-784.

80. Brown, J. S., & Duguid, P. (1991). Organizational learning and communities of practice: Toward a unified view of working, learning and innovation. *Organizational Science, 1*, pp. 40-57.

81. Brown, K. W., & Ryan, R. M., (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84,* pp. 822-848. https://doi.org/10.1037/0022-3514.84.4.822

82. Brown, K. W., Goodman, R. J., & Inzlicht, M. (2013). Dispositional mindfulness and the attenuation of neural responses to emotional stimuli. *Social Cognitive and Affective Neuroscience, 8*(1), 93-99. https://doi.org/10.1093/scan/nss004

83. Brown, K. W., Weinstein, N., & Creswell, J. D. (2012). Trait mindfulness modulates neuroendocrine and affective responses to social evaluative threat. *Psychoneuroendocrinology, 37*(12), 2037-41. https://doi.org/10.1016/j.psyneuen.2012.04.003

84. Brown, K.W., Ryan, R.M., Creswell, J.D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211-237. https://doi.org/10.1080/10478400701598298

85. Brown, V. R., & Paulus, P. B. (2002). Making group brainstorming more effective: Recommendations from an associative memory perspective. *Current Directions in Psychological Science, 11*(6), 208–212. https://doi.org/10.1111/1467-8721.00202

86. Bruton, D., (2011). Learning creativity and design for innovation. *International Journal of Technology and Design Education, 21*(3), 321-333, https://doi.org//10.1007/s10798-010-9122-8

87. Bunce, D., & West, M. A. (1994). Changing work environments . Innovative coping responses to occupational stress. *Work and Stress, 8*, pp. 319-331.

88. Byrne, Zinta S. (2022). *Understanding Employee Engagement: Theory, Research, and Practice*, New York: Routledge.

89. Cacioppe, R.L. (2017). Integral mindflow: A process of mindfulness-in-flow to enhance individual and organization learning. *The Learning Organization, 24*(2), 408-417. https://doi.org/10.1108/TLO-06-2017-0063

90. Cahn, B. R., & Polich, J. (2006). Meditation states and traits: eeg, erp, and neuroimaging studies. *Psychological Bulletin, 132*, pp. 180-211. https://doi.org/10.1037/0033-2909.132.2.180

91. Cahn, B. R., Delorme, A., & Polich, J. (2012). Event-related delta, theta, alpha and gamma correlates to auditory oddball processing during Vipassana meditation. *Social Cognitive and Affective Neuroscience, 8*(1), 100-11. https://doi.org/10.1093/scan/nss060

92. Çakar, N. D., & Ertürk, A. (2010). Comparing innovation capability of small and medium-sized enterprises: Examining the effects of organizational culture and empowerment. *Journal of Small Business Management, 48*(3), 325-359.

93. Calantone, R. J., Cavusgil, S.T, & Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management, 31*(6), 515-524, https://doi.org/10.1016/S0019-8501(01)00203-6

94. Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In Dunette, M. D. & Hough, L. M. (Eds.), *Handbook of Industrial and Organizational Psychology*, (Vol. 1, 2nd ed.), pp. 687-7632, Palo Alto: Consulting Psychologists Press.

95. Campos, D., Cebolla, A., Quero, S., Bretón-López, J., Botella, C., & Soler, J. (2015). Meditation and happiness: Mindfulness and Self-Compassion May Mediate the Meditation, *Happiness Relationship. Personality and Individual Differences, 93*, pp. 80-85, https://doi.org/10.1016/j.paid.2015.08.040

96. Capgemini (2016). *Architects Career Framework, Global Edition*. Paris.

97. Carlson, L. E. , & Brown, K. W. (2005). Validation of the Mindful Attention Awareness Scale in a cancer population. *Journal of Psychosomatic Research, 58*(1), 29-33. https://doi.org/10.1016/j.jpsychores.2004.04.366

98. Carmody, J., & Baer, R. A. (2008) Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioural Medicine, 31*, pp. 23-33, https://doi.org/10.1007/s10865-007-9130-7

99. Carnevale, P. J., & Probst, T. M. (1998). Social values and social conflict in creative problem solving and categorization. *Journal of Personality & Social Psychology, 74*, pp. 1300–1309. https://doi.org/10.1037/0022-3514.74.5.1300

100. Carson, S., & Langer, E. (2006). Mindfulness and self-acceptance, *Journal of Rational-Emotive&Cognitive Behavior Therapy, 24*(1), 29-43, https://doi.org/10.1007/s10942-006-0022-5

101. Cash, T. V., Ekouevi, V. S., Kilbourn, C., & Lageman, S. K. (2015). Pilot study of a mindfulness-based group intervention for individuals with Parkinson's disease and their caregivers. *Mindfulness, 7*, pp. 361–371, https://doi.org/10.1007/s12671-015-0452-1.

102. Casimir, G., Lee, K. & Loon, M. (2012). Knowledge sharing: influences of trust, commitment and cost, *Journal of Knowledge Management*, *16*(5), 740-753. https://doi.org/10.1108/13673271211262781

103. Celik, K. (2013). The relationship between individual innovativeness and self-efficacy levels of student teachers. *International Journal of Scientific Research in Education, 6*(1), 56-67.

104. Cerinšek, G., Dolinšek, S. (2009). Identifying employees' innovation competency in organizations. *International Journal of Innovation and Learning, 6*(2), 164-177. https://doi.org/10.1504/IJIL.2009.022811

105. Chambers, R., Gullone, E. & Allen, N. B. (2009). Mindful emotion regulation. An integrative review. *Clinical Psychology Review, 29*, pp. 560-572, https://doi.org/10.1016/j.cpr.2009.06.005

106. Charters, S., (2006). Aesthetic products and aesthetic consumption: A review, *Consumption Markets & Culture, 9*, pp. 235-255, https://doi.org/10.1080/10253860600772255

107. Chaternier, E. D., Verstegen, J. M., Biemans, H. A., Mulder, M., & Omta, P. F. (2010). Identification of competencies for professionals n open innovation teams. *R&D Management, 40*(3), 271-280. https://doi.org/10.1111/j.1467-9310/.2010.00590.x

108. Chell, E., & Athayde, R. (2011). Planning for uncertainty: Soft skills, hard skills and innovation. *Reflective Practice, 12*(5), 615-628, https://doi.org/10.1080/14623943.2011.601561

109. Chen, M. H., Chang, Y. C., & Hung, S. C. (2010). Social Capital and Creativity in R&D Project Teams. *R&D Management, 38*, pp. 21-34, https:/doi.org/10.1111j.1467-9310.2007.00494.x

110. Chen, Y., Yang, Z., Shu, F., Hu, Z., Meyer, M., & Bhattacharya, S. (2009). A patent based evaluation of technological innovation capability in eight economic regions in PR China. *World Patent Information, 32*(2), 104-110. https://doi.org/10.1016/j.spi.2008.06.010

111. Cheng, Y.-T., & Van de Ven, A. H. (1996). Learning the innovation journey: Order out of chaos? *Organization Science, 7*(6), 593–614. https://doi.org/10.1287/orsc.7.6.593

112. Chermahini, S.A., & Hommel, B. (2010). The (b)link between creativity and dopamine: spontaneous eye blink rates predict and dissociate divergent and convergent thinking. *Cognition. 115*(3), 458-65, https://doi.org/10.1016/j.cognition.2010.03.007

113. Chien, Y., Tsai-Fang, Y., & Chin-Cheh, Y. (2013). Knowledge Sharing Organizational Climate, and Innovative Behavior: A Cross-level Analysis of Effects, *Social Behaviour and Personality: An International Journal*, *41(1)*, 143-156. https://doi.org/10.2224/sbp.2013.41.1.143

114. Chiesa, A. Calati, R., & Serretti, A. (2011). Does mindfulness training improve cognitive abilities? A systematic review of neuropsychological findings. *Clinical Psychology Review, 31*, pp. 449-464, https://doi.org/10.1016/j.crp.2010.11.003

115. Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: A quantitative review and test of its relations with task and contextual performance, *Personnel Psychology, 64*(1), 89-136, https://org.doi/10.1111/j.1744-6570.2010.01203.x

116. Cobo, C. (2013). Mechanism to identify and study the demand for innovation skills in world-renowned organizations. *On the Horizon, 21*(2), 96-106, https://doi.org/10.1108/10748121311322996

117. Coffey, K. A., & Hartman, M. (2008). Mechanisms of action in the inverse relationship between mindfulness and psychological distress. *Complementary Health Practice Review, 13*, pp. 79-91, https://doi.org/10.1177/1533210108316307

118. Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*(1), 128–152. https://doi.org/10.2307/2393553

119. Collier, W. G., & Shi, X. (2017). Mindfulness, meditation, and belief in free will/determinism, *Psychological Reports, 123*(5), 1724-1752, https://doi.org/10.1177/0033294119892884

120. Colzato, L. S., Ozturk, A., & Hommel, B., (2012). Meditate to Create: the impact of focused-attention and open-monitoring training on convergent and divergent thinking, *Frontiers in Psychology*, *3*, pp. 116-125. https://doi.org/10.3389/fpsyg.2012.00116

121. Contreras, F., Juarez, F., Cuero Acosta, Y. A., Dornberger, U., Soria-Barreto, K., Corrales-Estrada, M., … Foroudi, P. (2020). Critical factors for innovative work behaviour in Latin American firms: Test of an exploratory model. *Cogent Business & Management, 7*(1). https://doi.org/10.1080/23311975.2020.1812926

122. Conze, E. (1956). *Buddhist meditation*. London: Allen&Unwin.

123. Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: W. H. Freeman and Company.

124. Crane, C., & Williams, J. M. G. (2010). Factors associated with attrition from mindfulness-based cognitive therapy in patients with a history of suicidal depression. *Mindfulness, 1*, pp. 10–20. https://doi.org/10.1007/s12671-010-0003-8.

125. Cresswell, J. D., Taren, A. A., Lindsay, E. K., Greco, C. M., Gianaros, P. J., Fairgrieve, A., & Ferris, J. L. (2016). Alterations in resting-state functional connectivity link mindfulness meditation with reduced interleukin-6: A randomized controlled trial. *Biological Psychiatry, 18(1)*, 53-61. https://doi.org/10.1016/j.biopsych.2016.01.008.

126. Creswell, J. D. , Lindsay, E. K., Villalba, D. K., & Chin, B. (2019). Mindfulness Training and Physical Health: Mechanisms and Outcomes. *Psychosomatic Medicine 81*(3), 224-232. https://doi.org/10.1097/PSY.0000000000000675

127. Creswell, J. D., Pacillio, L. E., Lindsay, E. K., & Brown, K. W. (2014). Brief mindfulness meditation training alters psychological and neuroendocrine responses to social evaluative stress. *Psychoneuroendocrinology, 44*, pp. 1-12, https://doi.org/10.1016/j.psyneuen.2014.02.007

128. Creswell, J. D., Way, B. M., Eisenberger, N. L. & Lieberman, M. D. (2007). Neural correlates of dispositional mindfulness during affect labelling, *Psychosomatic Medicine, 69*, pp. 560-565.

129. Csikszentmihalyi, M. (1988). Society, culture, and person: A systems view of creativity. In Sternberg, R. J. (ed.), *The nature of creativity: Contemporary psychological perspective*, (pp. 325-339), New York: Cambridge University Press.

130. Cullen, M. (2011). Mindfulness-Based Interventions: An Emerging Phenomenon, *Mindfulness, 2*(3), 186-193. https://doi.org/10.1007/s12671-011-0058-1

131. Curtis, A.M., Dennis, A.R., & McNamara, K.O. (2017). From monologue to dialogue: performative objects to promote collective mindfulness in computer-mediated team discussions. *MIS Quarterly, 41*(2), 559-581. https://doi.org/10.25300/MISQ/2017/41.2.10

132. Damanpour, F. (1991). Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators. *The Academy of Management Journal*, *34*(3), 555–590. https://doi.org/10.2307/256406

133. Dane, E, & Brummel, B. J. (2014). Examining workplace mindfulness and its relations to job performance and turnover intention. *Human Relations, 67*, pp. 105-128. https://doi.org/10.1177/0018726713487753

134. Dane, E. (2011). Paying attention to mindfulness and its effects on task performance in the workplace. *Journal of Management, 37*(4), 997-1018. https://doi.org/10.1177/0149206310367948

135. Dane, E., & Pratt, M. G., (2009). Exploring intuition and its role in managerial decision making. *Academy of Management Review, 32*, pp. 33-54.

136. Daniel, J. L., Chatelain-Jardon, R., & Zhang, Z., (2020). Does stress lead to creativity? The relationship between occupational stress and individual innovative behaviour, Studies in Business and Economics, 15(1), 21-30. https://doi.org/10.2478/sbe-2020-0003

137. Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management, 25*(3), 357–384. https://doi.org/10.1177/014920639902500305

138. Daronco, E. L., Silva, D. S., Seibel, M. K., & Cortimiglia, M. N. (2023). A new framework of firm-level innovation capability: A propensity–ability perspective. *European Management Journal*, *41*(2), 236-250, https://doi.org/10.1016/j.emj.2022.02.002

139. Davidson, R. J. (2010). Empirical exploration of mindfulness: Conceptual and methodological conundrums. *Emotion, 16*, pp. 3-11, https://doi.org/10.1037/a0018480

140. Davidson, R. J., & Schuyler, B.S. (2015). Neuroscience of Happiness. In: Helliwell, J.F., Laryard, R., & Sachs, J.,(Eds.), *World Happiness Report 2015, Sustainable Development Solutions Network* (pp. 82-105). http://unsdsn.org/wp-content/uploads/2015/04/WHR15.pdf

141. Davis, D.M., Hayes, J.A. (2011). What Are the Benefits of Mindfulness? A Practice Review of Psychotherapy-Related Research. *Psychotherapy, 48*(2), 198-208. https://doi.org/10.1037/a0022062

142. De Dreu, C. & Nijstad, B. & Knippenberg, D. (2008). Motivated Information Processing in Group Judgment and Decision-Making. *Personality and Social Psychology Review, 12*, pp. 22-49. https://doi.org/10.1177/1088868307304092.

143. De Dreu, C. K. W, Baas, M, & Nijstad, B. A. (2012). The Emotive Roots of Creativity: Basic and Applied Issues on Affect and Motivation, In Mumford, M. D. (Ed.), *Handbook of Organizational Creativity*, New York: Academic Press (pp. 217-240).

144. De Silva, N., & Davis, A. (2011). Absorptive capacity at the individual level: Linking creativity to innovation in academia. The Review of Higher Education, 34(3), 355-379. https://doi.org/10.1353/rhe.2011.0007

145. De Spiegelaere, S., Van Gyes, G., De Witte, H., Niesen, W. & Van Hootegem, G. (2014). On the relation of job insecurity, job autonomy, innovative work behavior and the mediating effect of work engagement. *Creativity and Innovation Management, 23*(3), 318-330, https://doi.org/10.1111/caim.12079

146. Dean, J. W., Jr., & Sharfman, M. P. (1996). Does decision process matter? A study of strategic decision-making effectiveness. *Academy of Management Journal, 39*(2), 368–396. https://doi.org/10.2307/256784

147. Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self determination in human behaviour*, New York: Plenum Press.

148. Dediu, V., Leka, S., & Jau, A. (2018). Job demands, job resources and innovative work behaviour: A European Union Study, *European Journal of Work and Organizational Psychology*, *27,* pp. 310-323. https://psycnet.apa.org/doi/10.1080/1359432X.2018.1444604

149. Deichmann, D. (2012). *Idea Management: Perspectives from Leadership, Learning and Network Theory*. PhD Dissertation Thesis, Erasmus University Rotterdam.

150. Deichmann, D., & van den Ende, J. (2014). A radical approach to radical innovation. *ORSM Discovery, 18,* pp. 12-13.

151. DeKeyser, M., Raes, F., Leijssen, M., Leysen, S., & Dewulf, D. (2008). Mindfulness skills and interpersonal behaviour. *Personality and Individual Differences, 44*(5), 1235–1245. https://doi.org/10.1016/j.paid.2007.11.018

152. Desbordes, G., Gard, T., Hoge, E. A., Hölzel, B. K., Kerr, C., Lazar, S. W., Olendzki, A., & Vago, D.R. (2014). Moving beyond Mindfulness: Defining Equanimity as an Outcome Measure in Meditation and Contemplative Research. *Mindfulness*, pp. 356-372. https://doi.org/10.1007/s12671-013-0269-8.

153. Desbordes, G., Negi, L. T., Pace, T. W., Wallace, B. A., Raison, C. L., & Schwartz, E. L. (2012). Effects of mindful-attention and compassion meditation training on amygdala response to emotional stimuli in an ordinary, non-meditative state. Frontiers in Human Neuroscience, 1(6), p. 292. https://doi.org/10.3389/fnhum.2012.00292.

154. Detert, J. R., & Burris, E. R. (2007). Leadership behavior and employee voice: Is the door really open? *Academy of Management Journal, 50*(4), 869–884. https://doi.org/10.5465/AMJ.2007.26279183

155. Ding, X, Tang, Y-Y, Deng, Y., Tank, R. & Posner, M. I. (2015). Mood and personality predict improvement in creativity due to meditation training, *Learning and Individual differences, 37*, pp. 217-221, htttp://doi.org/10.1016/j.lindif.2014.11.019

156. Domino, G. (1977). Transcendental meditation and creativity: an empirical investigation. *Journal of Applied Psychology*, *62,* pp. 358-362. https://psycnet.apa.org/doi/10.1037/0021-9010.62.3.358

157. Drazin, R., Glynn, M. A., & Kazanjian, R. K. (1999). Multilevel Theorizing about Creativity in Organizations: A Sensemaking Perspective. *The Academy of Management Review*, *24*(2), 286-307. https://doi.org/10.2307/259083

158. Drucker, P., (1985). *Innovation and Entrepreneurship*. New York: Harper

159. Edmondson A. C. (2013). *Teaming to innovate*. San Francisco, Ca: Jossey-Bass.

160. Edwards-Schachter, M., Garc-a-Granero, A., Sanchez-Barrioluengo, M., Quesada-Pineda, H., & Amara, N. (2015). Disentangling competences: Interrelationships on creativity, innovation and entrepreneurship. *Thinking Skills and Creativity, 16*(0), 27-39. https://doi.org/10.1016/j.tsc.2014.11.006

161. Elsbach, K. D., & Hargadon, A. B. (2006). Enhancing creativity through "mindless" work: A framework of workday design. *Organization Science, 17*, pp. 470-483. https://doi.org/10.1287/orsc.1060.0193

162. Elwafi, H. M., Witkiewitz, K., Mallik, S., Thornhill, T.A., & Brewer, J. A. (2013) Mindfulness training for smoking cessation: moderation of the relationship between craving and cigarette use. Drug Alcohol Dependency 1(1-3), 222-229. https://doi.org/10.1016/j.drugalcdep.2012.11.015.

163. Emavardhana, T., & Tori, C. D. (1997). Changes in self-concept, ego defense mechanisms, and religiosity following seven-day Vipassana meditation retreats. *Journal for the Scientific Study of Religion, 36*(2), 194–206. https://doi.org/10.2307/1387552

164. Endsley, M. R. (1995). Toward a theory of situation awareness in dynamic systems. *Human Factors, 37*(1), https://doi.org/10.1518/001872095779049543

165. Epstein, M. (1995). *Thoughts without a thinker: Buddhism and psychoanalysis*. New York. Basic Books.

166. Epstein, M. (2007). *Psychotherapy without the self: Buddhist perspective*. New Haven: Yale University Press.

167. Erkutlu, H., & Chafra, J. B. (2015). The effects of empowerment role identity and creative role identity on servant leadership and employees' innovation implementation behavior, *Procedia – Social and Behavioral Sciences, 181*, https://doi.org/10.1016/j.sbspro.2015.04.860.

168. Fagerberg, J. (2009), A Guide to Schumpeter, in Østreng, W. (Ed): *Confluence. Interdisciplinary Communications 2007/2008*, (pp. 20-22). Oslo: Centre for Advanced Study.

169. Fagerberg, J., Mowery D.C., & Nelson, R. R. (eds.) (2005). *The Oxford Book of Innovation*, Oxford: Oxford University Press

170. Fan, E. T., & Gruenfeld, D. H. (1998). When needs outweigh desires: The effects of resource interdependence and reward interdependence on group problem solving. *Basic and Applied Social Psychology*, *20*, pp. 45–56. https://doi.org/10.1207/s15324834basp2001_5

171. Fang Liu, F., Chow, I. H-S., Zhang, J-C., & Huang, M. (2017), Organizational innovation climate and individual innovative behavior: exploring the moderating effects of psychological ownership and psychological empowerment, *Review of Managerial Science, 13*(4), 771-789, https://doi.org/10.1007/s11846-017-0263-y

172. Farb, N. A. S., Segal, Z. C., Mayberg, H., Bean, J., McKeon, D., Fatima, Z., & Anderson, A. K. (2007) Attending to the present – Mindfulness meditation reveals

distinct neural modes of self-reference. *Social Cognitive and Affective Neuroscience, 2*, pp. 313-322, https://doi.org/10.1093/scan/nsm030

173. Feldman, G., Hayes, A., Kumar, S., Greeson, J. & Laurenceau, J. P. (2007). Mindfulness and emotion regulation. The development and initial validation of the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment, 29*, pp. 177-190, https://doi.org/10.1007/s10862-006-9035-8

174. Flook, L., Goldberg, S. B., Pinger, L., Bonus, K., Davidson, R. J. (2013). Mindfulness for teachers: A pilot study to assess effects on stress, burnout and teaching efficacy. *Mind Brain Education, 7*(3). https://doi.org/10.1111/mbe.12026.

175. Ford, C., & Sullivan, D. M. (2004). A time for everything: How the timing of novel contributions influences project team outcomes, Journal of Organizational Behavior, 25(2), 279-292.

176. Foss, N. J., & Laursen, K. (2003). New Human Resource Management Practices, Complementarities and the Impact of Innovation Performance, *Cambridge Journal of Economics, 27*(2), 243-263, https://doi.org/10.1093/cje/27.2.243

177. Friedman, R. S., Fishbach, A., Forster, J., & Werth, L. (2003). Attentional priming effects on creativity. *Creativity Research Journal*, *15,* 277-286. https://psycnet.apa.org/doi/10.1207/S15326934CRJ152&3_18

178. Frijda, N. H. (1988). The laws of emotion. *American Psychologist, 43*(5), 349–358. https://doi.org/10.1037/0003-066X.43.5.349

179. Frishammar, J., Kurkkio, M., Abrahamsson, L., & Lichtenthaler, U. (2012). Antecedents and consequences of firms' process innovation capability: A literature review and a conceptual framework, *Engineering Management, 59*(4), 519-529.

180. Fulton, P. R. (2005). *Mindfulness as clinical training*. In Germer, C. K., Siegel, R. D. & Fulton, P.R. (Eds.) *Mindfulness and psychotherapy* (pp. 55-72). New York: Guilford Press.

181. Gajda, D. (2017). Talent management in the context of mindful organizing and organizational mindfulness. *Journal of Positive Management, 8*, pp. 42-57. https://doi.org/10.12775/JPM.2017.124

182. Gard, T., Taquet, M., Dixit, R., Hölzel, B. K., de Montjoye, Y.-A., Brach, N., Salat, D. H., Dickerson, B. C., Gray, J. R., & Lazar, S. W. (2014). Fluid intelligence and brain functional organization in aging yoga and meditation practitioners. *Frontiers in Aging Neuroscience, 6(*76). https://doi.org/10.3389/fnagi.2014.00076

183. Garland, E. L., Farb, N. A., Goldin, P. R., & Fredrickson, B. L. (2015). The mindfulness-to-meaning theory: Extensions, applications, and challenges at the attention–appraisal–emotion interface. *Psychological Inquiry, 26*(4), 377–387. https://doi.org/10.1080/1047840X.2015.1092493

184. George, D., & Mallery, P. (2016). *IBM SPSS Statistics 23 Step by Step: A Simple Guide and Reference* (14th ed.). New York: Routledge. https://doi.org/10.4324/9781315545899

185. George, J. M., & Jones, G. R. (1996). The experience of work and turnover intentions: interactive effects of value attainment, job satisfaction, and positive mood. *Journal of Applied Psychology, 31*, pp. 318-325, https://doi.org/10.1037/0021-9010.81.3.318

186. Germer, C. K., Siegel, R. D. & Fulton, P.R. (2005). *Mindfulness and psychotherapy*. New York: Guilford Press.

187. Gersick, C. J. (1989). Marking time: Predictable transitions in task groups. *Academy of Management Journal, 32*, 274–309. https://doi.org/10.2307/256363

188. Ghadi, M. Y., Fernando, M., & Caputi, P. (2013). Transformational leadership and work engagement: The mediating effect of meaning in work, *Leadership & Organization Development Journal, 34*(6), https://doi.org/10.1108/LODJ-10-2011-0110

189. Gigerenzer, G. (2007). *Gut feelings: the intelligence of the unconscious*. New York: Penguin Books.

190. Giluk, T.L. (2009). Mindfulness, Big Five personality, and affect: A meta-analysis, *Personality and Individual Differences, 47(8)*, 805-811. https://doi.org/10.1016/j.paid.2009.06.026

191. Glomb, T.M., Duffy, M.K., Bono, J.E., & Yang, T. (2011). Mindfulness at work. In Josh, W: a., Liao, H., & Martocchio, J. (Eds.) *Research in Personnel and Human Resources Management* (pp. 115-157). Bingley: Emerald Group Publishing Limited. https://doi.org/10.1108/S0742-7301(2011)0000030005

192. Glynn, M. A. (1996). Innovative genius: A framework for relating individual intelligences to innovation. *The Academy of Management Review, 21*(4), 1081-1111. https://doi.org/10.2307/259165

193. Gold A. H. & Arvind Malhotra, A. H. S. (2001). Knowledge management: An organizational capabilities perspective, *Journal of Management Information Systems, 18*(1), 185-214.

194. Goldin, P. R., & Gross, J. J. (2010). Effects of mindfulness-based stress reduction (MBSR) on emotion regulation in social anxiety disorder. *Emotion, 10*(1), 83-91. https://doi.org/10.1037/a0018441

195. Goldsmith, R. E., & Matherly, T. A. (1987). Adaption-Innovation and self-esteem. *The Journal of Social Psychology, 127*(3), 351-352. https://doi.org/10.1080/00224545.1987.9713704

196. Goleman, D. (1998). *Working with Emotional Intelligence*. London: Bloomsbury.

197. Good, D.J., Lyddy, Ch. J., Bono, J.E., Duffy, M.K., Baer, R.A., Brewer, J.A., & Lazar, S.W. (2016). Contemplating Mindfulness at Work: An Integrative Review. *Journal of Management, 42(1),* 114-142 https://doi.org/10.1177/0149206315617003

198. Grant, A. M., Christianson, M. K., & Price, R. H. (2007). Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs. *The Academy of Management Perspectives, 21*(3), 51–63.

199. Gray, L., Font, S., Unaru, Y, & Davidson, A. (2018). The Effectiveness of a Brief Mindfulness-Based Intervention on College Freshmen Who have Aged out of Foster Care. *Innovative Higher Education, 43*, pp. 339-352.

200. Greenberg, J., Reiner, K., Meiran, N. (2012) "Mind the trap": mindfulness practice reduces cognitive rigidity. *PLoS One. 7*(5) https://doi.org//10.1371/journal.pone.0036206.

201. Greeson, J. M., Juberg, M. K., Maytan, M., James, K., & Rogers, H. (2014). A randomized controlled trial of Koru: A mindfulness program for college students and other emerging adults, *Journal of American College Health, 62*, pp. 222-233. https://doi.org/10.1080/07448481.2014.887571

202. Grégoire, S., & Lachance, L. (2015). Evaluation of a brief mindfulness-based intervention to reduce psychological distress in the workplace. *Mindfulness, 6*(4), 836-847. https://doi.org/10.1007/s12671-014-0328-9

203. Grossman, P. (2008). On measuring mindfulness in psychosomatic and psychological research. *Journal of Psychosomatic Research, 64*(4), 405-408. https://doi.org/10.1016/j.jpsychores.2008.02.001

204. Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research, 57*, 35-43. https://doi.org/10.1016/S0022-3999(03)00573-7

205. Grover, S. L, Teo, S. T., Pick, D., & Roche, M. (2017). Mindfulness as a personal resource to reduce work stress in the job demands-resources model. *Stress and Health*, *33,* 426-436. https://doi.org/10.3389/fpsyg.2020.01453

206. Guilford, J. P. (1950). Creativity, *American Psychology*, *5,* pp. 444-454. https://psycnet.apa.org/doi/10.1037/h0063487

207. Guilford, J. P. (1967). *The Nature of Human Intelligence*. New York: McGraw-Hill. https://doi.org/10.3102%2F00028312005002249

208. Guilford, J. P. (1973). *Characteristics of Creativity*. Springfield: Department for Exceptional Children.

209. Gunaratana, H. (2002). *Mindfulness in Plain English*. Somerville: Wisdom Publications.

210. Gunasekara, A., & Zheng, C.S.M. (2019). Examining the effect of different facets of mindfulness on work engagement. *Employee Relations, 41*(1), 193-208. https://doi.org/10.1108/ER-09-2017-0220

211. Haar, P. T. (2018). Measuring innovation: A state of the science review of existing approaches. *Intangible Capital*, *14*(3), 409-428, https://doi.org/10.3926/ic.1254.

212. Haas, A. S., & Langer, E. (2014). Mindful attraction and synchronization: Mindfulness and regulation of interpersonal synchronicity, Neuorquantology, https://doi.org/10.14704/NQ.2014.12.1.728

213. Halbesleben, J. R. (2010). A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences. Work engagement: A Handbook of Essential Theory and Research, 8(1), 102-117

214. Hambrick, D. C., Cho, T. S., & Chen, M.-J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly, 41*, 659–684. Retrieved from https://www.jstor.org/stable/2393871

215. Hanh, T. H. (1976). *The Miracle of Mindfulness*. Boston: Beacon Press.

216. Hanif, A., & Bukhari, I. (2015). Relationship between innovative work behavior and job involvement among the employees of telecom sector. *Pakistan Journal of Social and Clinical Psychology, 25*(4), 495-511.

217. Hanley, A.W., Warner, A. R., Dehili, V. M., Canto, A. I., & Garland, E. L. (2015). Washing dishes to wash the dishes: brief instruction in an informal mindfulness practice. *Mindfulness, 6*, pp. 1095-1103. https://doi.org/10.1007/s12671-014-0360-9.

218. Hansen, J. O., Jensen, A., & Nguyen, N. (2020), The responsible learning organization: Can Senge (1990) teach organizations how to become responsible innovators? The Learning Organization, 27(1), 65-74. https://doi.org/10.1108/TLO-11-2019-0164

219. Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T. (2002). Time, Teams, and Task Performance: Changing Effects of Surface- and Deep-Level Diversity on Group Functioning. *The Academy of Management Journal*, *45*(5), 1029-1045. https://doi.org/10.2307/3069328

220. Harvey, P. (2000). *An introduction to Buddhist ethics: Foundations, values and issues*. Cambridge UK: Cambridge University Press.

221. Hasenkamp, W., Wilson-Mendenhall, C. D., Duncan, E. & Barsalou, L. W. (2012). Mind wandering and attention during focused meditation: a fine-grained temporal analysis of fluctuating cognitive states. *Neuroimage, 59*, pp. 750-760, https://doi.org/10.3389/fnhum.2012.00038

222. Hattie, J. A., Myers, J. E., & Sweeney, T. J. (2004). A factor structure of wellness: Theory, assessment, analysis, and practice. *Journal of Counseling and Development, 82*(3), 354-365. https://doi.org/10.1002/j.1556-6678.2004.tb00321.x

223. Hawley, L. L., Schwartz, D., Bieling, P. J., Irving, J., Corcoran, K., & Farb, N. S. (2014). Mindfulness practice, rumination and clinical outcome in mindfulness-based treatment. *Cognitive Therapy and Research, 38*(1), 1-9. https://doi.org/10.1007/s10608-013-9586-4.

224. Hayes, S. C., & Plumb, J. C. (2007). Mindfulness from the Bottom Up: Providing an Inductive Framework for Understanding Mindfulness Processes and their Application to Human Suffering. *Psychological Inquiry, 18*(4), 242–248. https://doi.org/10.1080/10478400701598314:

225. Henriksen, D., Creely, E., & Henderson, M. (2022). Creativity and technology in teaching and learning: a literature review of the uneasy space of implementation, *Educational Technology Research and Development*, https://10.1007/s11423-020-09912-z

226. Hepburn, S-J., & McMahon, M. (2017). Pranayama Mediation (Yoga Breathing) for stress relief: is it beneficial for teachers? *Australian Journal of Teacher Education, 42*(9), https://files.eric.ed.gov/fulltext/EJ1157091.pdf

227. Herndon, F. (2008). Testing mindfulness with perceptual and cognitive factors. External vs internal encoding and the cognitive failures questionnaire. *Personality and Individual Differences, 44*, pp. 32-41. https://doi.org/10.1016/j.paid.2007.07.002

228. Hero, L. M. (2017). Innovation tournament as an activity system to promote the development of innovation competence. *Journal of Professional and Vocational Education, 19*(4), 8-31.

229. Hero, L. M. (2019). *Learning to develop innovations: individual competence, multidisciplinary activity systems and student experience*. Doctoral Dissertation, Annales unive999rsitatis Turkuensis 475, University of Turku, Finland.

230. Hero, L. M., & Lindfors, E. (2019). Students' learning experience in a multidisciplinary innovation project. *Education + Training 61*(4), 500-522. https://doi.org/10.1108/et-06-2018-0138

231. Hero, L. M., Lindfors, E., & Taatila, V. (2017). Individual Innovation Competence: A Systematic Review and Future Research Agenda. *International Journal of Higher Education, 6*(50), 103-121. https://doi.org/10.5430/ijhe.v6n5p103

232. Hero, L-M., Pitkajarvi, M., Matinheikki-Kokko, K., (2021). Validating an individual innovation competence assessment tool for university-industry collaboration, *Industry and Higher Education Vol 35*(4), 485-496. https://doi.org/10.1177/09504222211017447

233. Hettler, B. (1984). Wellness: Encouraging a lifetime pursuit of excellence. *Health Values: Achieving High-Level Wellness, 8*(4), 13–17.

234. Hill, C. E., & Castonguay, L. G. (Eds.) (2007) *Insight in psychotherapy*. Washington, DC: American Psychological Association.

235. Hindman, R. K., Glass, C. R., Arnkoff, D. B., & Maron, D. D. (2015). A comparison of formal and informal mindfulness programs for stress reduction in university students. *Mindfulness, 6*(4), 873–884. https://doi.org/10.1007/s12671-014-0331-1.

236. Hirsch, R. D, Kearney, C. (2014), *Managing Innovation and Entrepreneurship*, Thousand Oaks, CA: SAGE Publications.

237. Hitt, M. (1975). The Creative Organization: Tomorrow's Survivor, *The Journal of Creative Behaviour, 9*(4), 283-290, https://doi.org/10.1002/j.2162-6057.1975.5b00578.x

238. Ho, L-A. (2011). Mediation, learning, organizational innovation and performance, Industrial Management & Data Systems, 111(1), https://doi.org/10.1108/02635571111099758

239. Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*(4), 307-324. https://doi.org/10.1037/1089-2680.6.4.307

240. Hodgins, H. S., & Adair, K. C. (2010). Attentional processes and meditation. *Consciousness and Cognition, 19,* 872-878. https://doi.org/10.1016/j.concog.2010.04.002

241. Hoegg, J., Alba, J.W., & Dahl, D. W. (2010). The good, the bad, and the ugly: Influence of aesthetics on product feature judgements, *Journal of Consumer Psychology, 20*, pp. 419-430, https://doi.org/10.1016/j.jcps.2010.07.002

242. Hoff, E. V., Carlsson, I. M., & Smith, G. J.W. (2012) Personality in Mumford, M.D. (Ed.) *Handbook of Organizational Creativity* (pp. 241-270), New York: Academic Press, https://doi.org/10.1016/B978-0-12-374714-3.00011-2.

243. Hogarth, R. M. (2001). *Educating intuition*. Chicago: University of Chicago Press.

244. Hoge, E. A., Bui, E., Marques, L., Metcalf, C. A., Morris, L. K., & Robinaugh, D. J., (2013). Randomized controlled trial of mindfulness meditation for generalized anxiety

disorder: effects on anxiety and stress reactivity. Journal of Clinical Psychiatry, 74(8), 786–792. https://doi.org/10.4088/JCP.12m08083.

245. Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and Individual Differences, 50*(2), 222-227. https://doi.org/10.1016/j.paid.2010.09.033

246. Hölzel, B. K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S. M., Gard, T., & Lazar, S. W. (2011). Mindfulness practice leads to increases in regional gray matter density, *Psychiatry Research, 191*(1), 36-43.

247. Hölzel, B. K., Lazar, S. W., Gard, T., & Schuman-Olivier, Z. (2011). How does mindfulness meditation work? Proposing mechanisms of action from a conceptual and neural perspective, *Perspectives on Psychological Science, 6*, pp. 537-559, https://doi.org/10.1177/1745691611419671

248. Hommel, B. (2012). Convergent and divergent operations in cognitive search. *Cognitive Search: Evolution, Algorithms, and the Brain, Strungmann Forum Reports*, *9,* pp. 215-230.

249. Hong, K., & Kim, B. (2020). Open Innovation Competency of Design Enterprises To Outsourcing Service, *Journal of Open Innovation: Technology, Market, and Complexity, 6*(2), https://doi.org/10.3390/joitmc6020036

250. Hsu, M.-H., & Chang, C.-M. (2014). Examining interpersonal trust as a facilitator and uncertainty as an inhibitor of intra-organizational knowledge sharing. *Information Systems Journal, 24*(2), 119-142. https://doi.org/10.1111/isj.12000

251. https://doi.org/10.1016/B978-0-12-374714-3.00010-0.

252. Hülsheger, U. R., Anderson, N. R., & Salgado, J. F. (2009). Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research, *Journal of Applied Psychology, 94*(5), 1128-45, https://doi.org/10.1037/a0015978

253. Hülsheger, U.R., Alberts, H.J., Feinholdt, A., & Lang, J.W. (2013). Benefits of mindfulness at work: the role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology, 98(2)*, 310-325, https://doi.org/10.1037/a0031313

254. Hunter, S. T., Bedell, K. E., & Mumford, M. D. (2007). Climate for Creativity: A Quantitative Review. *Creativity Research Journal*, *19*(1), 69-90. https://doi.org/10.1080/10400410709336883

255. Hyland, P. K., Lee, R. A., & Mills, M. J. (2015). Mindfulness at work: a new approach to improving individual and organizational performance. *Industrial and Organizational Psychology, 8*, pp. 576-602. https://doi.org/10.1017/jop.2015.41

256. Ibrahim, M., & Al Falasi, S. (2014). Employee loyalty and engagement in UAE public sector. *Employee Relations, 36*(5), https://doi.org/10.1108/ER-07-2013-0098

257. Iddris, F. (2016). Innovation Capability: A Systematic Review and Research Agenda, *Interdisciplinary Journal of Information, Knowledge, and Management, 1*, pp. 235-260.

258. Jain, A. (2013). Learning by doing and the locus of innovative capability in biotechnology research, *Organization Science, 24*(6), 1683-1700.

259. Jain, S., Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J., & Bell, I. (2007) A randomized controlled trial of mindfulness meditation versus relaxation training: effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioral Medicine, 33*, pp. 11-21.

260. James, K., & Drown, D. (2012). *Organizations and Creativity: Trends in Research, Status of Education and Practice, Agenda for the Future*. https://doi.org/10.1016/B978-0-12-374714-3.00002-1

261. James, L., Hartman, E., Stebbins, M., & Jones, A. (1977). An examination of the relationship between psychological climate and a VIE model for work motivation. *Personnel Psychology, 30*, pp. 229-254. https://doi.org/10.1111/j.1744-6570.1977.tb02091.x

262. James, L., James, L. A., & Ashe, D. K. (1990). The meaning of organizations: The role of cognition and values. In Schneider, B. (Ed.), *Organizational climate and culture* (pp. 41-84). San Francisco, CA: Jossey-Bass.

263. Jankowski, T., & Holas, P. (2009). Poznawcze mechanizmy uważności i jej zastosowanie w psychoterapii. *Studia Psychologiczne, 47*(4), 59-79.

264. Janssen, O. (2000). Job demands, perceptions of effort-rewards fairness, and innovative work behavior. *Journal of Occupational and Organizational Psychology, 73*, pp. 287-302. https://doi.org/10.1348/096317900167038

265. Janssen, O. (2003). Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers, *Journal of Occupational and Organizational Psychology*, *76,* pp. 347-364. https://doi/10.1348/096317903769647210

266. Janssen, O. (2004). How fairness perceptions make innovation behavior more or less stressful. *Journal of Organizational Behavior, 25*, pp. 201-215, https://doi.org/10.1002/job.23

267. Jaussi, K. S., & Dionne, S. D. (2003). Leading for creativity: The role of unconventional leader behavior. *The Leadership Quarterly, 14*(4-5), 475–498. https://doi.org/10.1016/S1048-9843(03)00048-1

268. Jaussi, K. S., Randel, A. E., & Dionne, S. D. (2007). I am, I think I can, and I do: The role of personal identity, self-efficacy and cross-application of experiences in creativity at work. *Creativity Research Journal, 19*(2-3), 247-258. https://doi.org/10.1080/10400410701397339

269. Jha, A. P., Morrison, A. B., Dainer-Best, J., Parker, S., Rostrup, N., & Stanley, E.A. (2015) Minds "at attention": mindfulness training curbs attentional lapses in military cohorts. *PLoS One. 10*(2): https://doi.org/10.1371/journal.pone.0116889.

270. Jha, A. P., Stanley, E. A., Kiyonaga, A., Wong, I. & Gelfand, L. (2010). Examining the protective effects of mindfulness training on working memory capacity and affective experience. *Emotion, 10*, pp. 54-64, https://doi.org/10.1037/a0018438

271. Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research, 64*(4), 408-417. https://doi.org/10.1016/j.jbusres.2010.09.010

272. Johnson, D. A., & Walsh, Adriana (2021). Associations between specific mindfulness practices and in-session relational factors, *Journal of Counselling & Development, 99*(4), 372-383, https://doi.org/10.1002/jcad.12390

273. John-Steiner, V. (2000). *Creative collaboration*. Oxford: Oxford University Press.

274. Jones, G. (1995). More than Just a Game: Research Developments and Issues in Competitive Anxiety in Sport. *British Journal of Psychology, 4*, pp. 449-478. http://dx.doi.org/10.1111/j.2044-8295.1995.tb02565.x

275. Judge, T. A., Bono, J. E., Erez, A. & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 83*, pp. 17-34, https://doi.org/10.1037/0021-9010.90.2.257

276. Kabat-Zinn, J. (1990). *Full Catastrophe Living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Dell.

277. Kabat-Zinn, J. (1994). *Where you go, there you are*. New York: Hyperion Books

278. Kabat-Zinn, J. (2003). Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology Science and Practice, 10*(2), 144-156, https://doi.org/10.1093/clipsy.bpg016

279. Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal, 33*(4), 692-724.

280. Kane, M. J., & Engle, R. W. (2002). The role of prefrontal cortex in working-memory capacity, executive attention, and general fluid intelligence: An individual-differences perspective. *Psychonomic Bulletin & Review, 9,* pp. 637-671. https://doi.org/10.3758/BF03196323

281. Kanter, R. (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organizations, *Research in Organizational Behaviour*, *10,* pp. 169-211.

282. Kanter, R. M. (2003). Leadership and the Psychology of Turnarounds. *Harvard Business Review, 81*, pp. 58-67.

283. Kasule, G. W., Wesselink, R., Noroozi, O., & Mulder, M. (2015). The current status of teaching staff innovation competence in Ugandan universities: Perceptions of managers, teachers, and students. *Journal of Higher Education Policy and Management, 37*(3), 330-343. https://doi.org/10.1080/1360080X.2015.1034425

284. Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity. *Review of General Psychology, 13*(1), 1-12. https://doi.org/10.1037/a0013688

285. Kearney, E., & Gebert, D. (2009). Managing diversity and enhancing team outcomes: The promise of transformational leadership. *Journal of Applied Psychology, 94*(1), 77–89. https://doi.org/10.1037/a0013077

286. Keevers, L., & Treleaven, L. (2011). Organizing practices of reflection: A practice-based study. *Management Learning, 42*(5), 505-520. https://doi.org/10.1177/1350507610391592

287. Keller, R. T. (2012). Predicting the performance and innovativeness of scientists and engineers. *The Journal of Applied Psychology, 97*(1), 225-233. https://doi.org/10.1037/a0025332

288. Keng, S.-L., Robins, C. J., Smoski, M. J., Dagenbach, J., & Leary, M. R. (2013). Reappraisal and mindfulness: A comparison of subjective effects and cognitive costs. *Behaviour Research and Therapy, 51*(12), 899-904. https://doi.org/10.1016/j.brat.2013.10.006

289. Kerr, S. P., Kerr, W. R., & Xu, T. (2018). Personality traits of entrepreneurs: A review of recent literature, *Foundations and Trends in Entrepreneurship, 14*(30), 279-356, https://doi.org/10.1561.030000080

290. Khan, K. B. (2018). Understanding Innovation, *Business Horizons*, *61,* pp. 453-460.

291. Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., Chapleau, M. A., Paquin, K., & Hofmann, S. G. (2013) Mindfulness-based therapy: a comprehensive meta-analysis. *Clinical Psychology Review. 33*(6), 763-71. https://doi.org/10.1016/j.cpr.2013.05.005.

292. Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science, 330*, p. 932. https://doi.org/10.1126/science.1192439

293. Kim, W., & Park, J. (2017). Examining structural relationships between work engagement, organizational procedural justice, knowledge sharing, and innovative work behavior for sustainable organizations. *Sustainability(Switzerland), 9*, pp. 1-16, https://doi.org/10.3390.su11041050

294. King, N., Anderson, N., & West, M. A. (1991). Organizational innovation in the UK: A case study of perceptions and processes. *Work & Stress, 5*(4), 331-339. https://doi.org/10.1080/02678379108257031

295. Kirton, M. (1989). *Adaptors and innovators: Styles of creativity and problem-solving*. New York: Routledge.

296. Klooster-Slagter, G.G. (2017). *Improving employees' innovative experience*. PhD dissertation. Open University Netherlands.

297. Kmieciak, R. (2021). Trust, knowledge sharing, and innovative work behavior: empirical evidence from Poland, *European Journal of Innovation Management, 24*(5), 1832-1859.

298. Knight, C., Patterson, M., & Dawson, J. (2019). Work engagement interventions can be effective: A systematic review. *European Journal of Work and Organizational Psychology, 28*(3), 348–372. https://doi.org/10.1080/1359432X.2019.1588887

299. Kogut, B., & Zander, U. (1992). Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science, 3*(3), 383-397.

300. Kostanski, M., & Hassed, C. (2008). Mindfulness as a concept and a process. *Australian Psychologist, 43*, pp. 15-21. https://doi.org/10.1080/00050060701593942

301. Kozasa, E. H., Sato, J. R., Lacerda, S. S., Barreiros, M. A. M., Radvany, J., & Russel, T. A. (2012). Meditation training increases brain efficiency in an attention task. *Neuroimage, 59*(1), 745-749. https://doi.org/10.1060/j.neuroimage.2011.06.088

302. Krasner, M. S., Epstein, R. M., Beckman, H., Suchman, A. L., Chapman, B., Mooney, C. J., & Quill, T. E. (2009). Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. *Journal of the American Medical Association, 302*, pp. 1284-1393, https://doi.org/10.1001/jama.2009.1384

303. Kraśnicka, T., & Wronka-Pośpiech, M. (2014). *Stymulowanie Zachowań Innowacyjnych Pracowników w Korporacjach. In Innowacyjność przedsiębiorstw – koncepcje, uwarunkowania i pomiar*, Katowice: UE.

304. Krawczyk-Bryłka, B. (2015). Intuition Behaviour in Entrepreneurs' Practice. *Przedsiębiorczość i Zarządzanie*, *11*, pp. 131-144.

305. Krishnakumar, S., & Robinson, M.D. (2015). Maintaining an even keel: An affect-mediated model of mindfulness and hostile work behavior. *Emotion, 15*(5), 579-589. https://doi.org/10.1037/emo0000060

306. Kroon, B., Menting, C., & Van Woerkom, M. (2015). Why Mindfulness Sustains Performance: The Role of Personal and Job Resources, *Industrial and Organizational Psychology, 8*(4), 638-641, https://doi.org/10.1017/iop.2015.92

307. Kurtzberg, T. R., & Amabile, T. M. (2001). From Guilford to Creative Synergy: Opening the Black Box of Team-Level Creativity. *Creativity Research Journal*, *13,* pp. 285-294 https://doi.org/10.1207/S15326934CRJ1334_06

308. Kurtzbertg, T. R. (2005). Feeling creative, being creative: an empirical study of diversity and creativity in teams. *Creativity Research Journal, 17*, pp. 51-65.

309. Kuvaas, B., Buch, R., Weibel, A., Dysvik, A., & Nerstad, C. G. L. (2017). Do intrinsic and extrinsic motivation relate differently to employee outcomes? *Journal of Economic Psychology, 61,* pp. 244-258. https://doi.org/10.1016/j.joep.2017.05.004

310. Kwasniewska, J. (2004). The role of gender in creativity. In Fryer, M. (Ed.) *Creativity and cultural diversity* (pp. 109-122), Leeds: The Creativity Centre Educational Trust.

311. Langer, E. J. (1989). *Mindfulness*. Reading, MA: Addison-Wesley.

312. Langer, E. J., & Moldoveanu, M. (2000). The construct of mindfulness. *Journal of Social Issues, 56*, pp. 1-9.

313. Lau, M. A., Bishop, S. R., Zindel, S., Buis, T., Anderson, N. D., Carlson, L., & Devins, G. (2006). The Toronto Mindfulness Scale: Development and validation. *Journal of Clinical Psychology, 62*, pp. 1445-1467, https://doi.org/10.1002/jclp.20326

314. Lawson, B., & Samson, D. (2001). Developing innovation capability in organizations. A dynamic capabilities approach. *International Journal of Innovation Management, 5*(03), 377-400.

315. Lazarus, R. S. & Folkman, S., (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

316. Leary, M. R., & Tate, E. B. (2007). The multi-faceted nature of mindfulness. *Psychological Inquiry, 18*, pp. 251-255. https://doi.org/10.1080/10478400701598355

317. Lebuda, I., Zabelina, D. L., & Karwowski, M. (2015), Mind full of idea: A meta-analysis of the mindfulness-creativity link, Personality and Individual Differences, https://dx.doi.org/10.1016/j.paid.2015.09.040

318. Leroy, H., Anseel, F., Dimitrova, N. G., & Sels, L. (2013). Mindfulness, authentic functioning, and work engagement: A growth modeling approach. *Journal of Vocational Behavior, 82*, pp. 238-247. https://doi.org/10.1016/j.jvb.2013.01.012

319. Levett, K.M., Coughlan, S., Longridge, S., Roumeliotis, V., & Adams, J. (2019). Be well: A systems-based wellness intervention using mindfulness in the workplace – A case study. *Journal of Management & Organization, 25*, pp. 613-634.

320. Levinthal, D., & Rerup, C. (2006). Crossing an apparent chasm: Bridging mindful and less-mindful perspectives on organizational learning. *Organization Science, 17*, pp. 502-513.

321. Lin, H. F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower, 28*(3/4), 315-332.

322. Lindfors, E., & Hilmola, A. (2015). Innovation learning in comprehensive education? *International Journal of Technology and Design Education, 3,* pp. 373-38 . https://doi.org/10.1007/s10798-015-9311-6

323. Lindsay, E. K., & Creswell, J. D. (2017). Mechanisms of mindfulness training: Monitor and Acceptance Theory (MAT). *Clinical Psychology Review, 51*, pp. 8-59. https://doi.org/10.1016/j.cpr.2016.10.011.

324. Lippelt, D. P., Hommel, B., & Colzato, L. S., (2014). Focused attention, open monitoring and loving kindness meditation: effects on attention, conflict monitoring, and creativity – A review", *Frontiers in Psychology*, *5*(1083), 1-5. https://doi.org/10.3389/fpsyg.2014.01083

325. Lipych, L., Volynets, I., Khilukha, O., Matviichuk, I., & Semchuk, Z. (2018). Model of management of the employees' innovative behavior at the industrial enterprises. *Problems and Perspectives in Management, 16*(3), 197-206. https://doi.org/10.21511/ppm.16(3).2018.16

326. Liu, S-M, Xin, H-H. Shen, L., He, J-J. & Liu, J-F.(2020). The Influence of Individual and Team Mindfulness on Work Engagement, https://doi.org/10.3389/fpsyg.2019.02928

327. Liu, Y., & Phillips, J. (2011). Examining the antecedents of knowledge sharing in facilitating team innovativeness from a multilevel perspective, *International Journal of Information Management, 31*(1), 44-52, https://doi.org/10.1016/j.ijinformgt.2010.05.002

328. Liu, Y-J, Xu, S-Y., & Zhang, B. (2019). Thriving at Work: How a Paradox Mindset Influences Innovative Work Behavior, *Journal of Applied Behavioral Science, 56*(3) 347– 366

329. Locke, E.A., & Kirkpatrick, S.A. (1995). Promoting Creativity in Organizations. https://doi.org/10.4135/9781452243535.N13

330. Loewenberger, P. (2013). The role of HRD in simulating, supporting and sustaining creativity and innovation. *Human Resource Development Review, 12*(4), 422-455.

331. Lomas, T., Medina, J. C., Ivtzan, I., Rupprecht, S., Hart, R. & Eiroa-Orosa, F. J. (2017). The impact of mindfulness on well-being and performance in the workplace: An inclusive systematic review of empirical literature, *European Journal of Work and Organizational Psychology, 26,* pp.492-513. https://doi/10.1080/1359432X.2017.1308924

332. Lundvall, B.A. (1992). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter Publishers.

333. Lutz A., Slagter, H. A., Rawlings, N. B., Francis, A. D, Greischar, L. L., & Davidson, R. J. (2009). Mental training enhances attentional stability: Neural and behavioural evidence. *The Journal of Neuroscience, 29*, pp. 13418-13427. https://doi.org/10.1523/JNEUROSCI.1614-09.2009

334. Lutz, A., Dunne., J. D., & Davidson, R. J. (2007). Meditation and the neuroscience of consciousness. An Introduction. In Zelazo, P. D., Moscovitch, M., Thompson, E. (Eds.), *The Cambridge Handbook of Consciousness* (pp. 499-551). New York: Cambridge University Press.

335. Lutz, A., Slagter, H. A., Dunne, J. D., & Davidson, R. J. (2008). Attention regulation and monitoring in meditation, *Trends in Cognitive Sciences*, *12,* pp. 163-169. https://doi.org/10.1016/j.tics.2008.01.005

336. Machnowska, A. (2012). *Uważność w pracy*. Retrieved from http://www.businessandbeauty.pl/uwaznosc-w-pracy/?quick_view=1/ 1.10.2017

337. MacLean, K. A., Ferrer, E., Aichele , S. R., Bridwell, D. A., Zanesco, A.P., Jacobs, T.L., King, B. G., Rosenberg, E.L., Sahdra, B.K., Shaver, P.R., Wallace, B.A., Mangun, G.R., & Saron, C.D. (2010) Intensive meditation training improves perceptual discrimination and sustained attention. *Psychological Science, 21*(6), 829-39. https://doi.org/10.1177/0956797610371339.

338. Maden, D., & Koker, N. E., (2013). An Empirical Research on Consumer Innovativeness in Relation to Hedonic Consumption, Social Identity and Self-Esteem, *Journal of Educational and Social Research, 3*(7), https://doi.org/10.5901/jesr.2013.v3n7p569

339. Madjar, N. (2008). Emotional and informational support from different sources and employee creativity. *Journal of Occupational and Organizational Psychology, 81*(1), 83–100. https://doi.org/10.1348/096317907X202464

340. Madjar, N., Greenberg, E. & Chen, Z. (2011). Factors for radical creativity, incremental creativity, and routine, noncreative performance, *Journal of Applied Psychology, 96*(4), 730-43, https://doi.org/10.1037/a0022416

341. Madjar, N., Oldham, G. R., & Pratt, M. G. (2002). There's no place like home?: The contributions of work and non-work sources of creativity support to employees' creative performance. *Academy of Management Journal, 45*(4), 757-767.

342. Madrid, H. P., Patterson, M. G., Kamal, S. B., Pedro, I. L, & Kausel, E. E. (2014). The role of weekly high-activated positive mood, context, and personality in innovative work behavior: A multilevel and interactional model, *Journal of Organizational Behavior, 25*(2), 234-256, https://doi.org/10.1002/job.1867

343. Malinowski, P., & Lim, H. J. (2015). Mindfulness at work: Positive affect, hope, and optimism mediate the relationship between dispositional mindfulness, work

engagement, and well-being. *Mindfulness, 6*(6), 1250–1262. https://doi.org/10.1007/s12671-015-0388-5

344. Malow, M. S., & Austin, V. L., (2016). Mindfulness for students classified with emotional/behavioral disorder, *Insights into Learning Disabilities, 13*(1) 81-94, 2016

345. Martin, J. R. (1997). Mindfulness. A proposed common factor. *Journal of Psychotherapy Integration, 7*, pp. 291-312. https://doi.org/10.1023/B:JOPI.0000010885.18025.bc

346. Martin-Hernandez, P., Gil-Lacruz, M., Tesan-Tesan, A. C., Perez-Nebra, A. R., Zakue-Beteta, J. L., & Rodrigo-Estevan, M. L. (2022). The Moderating Role of Teamwork Engagement and Teambuilding on the Effect of Teamwork Competence as a Predictor of Innovation Behaviours among University Students, *International Journal of Environmental Research & Public Health, 19*(19), 12047-12063, htttps://doi.org/10.3390/ijerph191912047.

347. Martin-Hernandez, P., Ramos, J., Zornoza, A., Lira, E. M.; & Peiro., J. M., (2020). Mindfulness and job control as moderators of the relationship between demands and innovative work behaviours, *Journal of Work and Organizational Psychology*, *36,* pp. 95-101. https://doi.org/10.5093/jwop2020a9

348. Martins, E. C., & Terblanche, F. (2003). Building Organizational Culture that Stimulates Creativity and Innovation. *European Journal of Innovation Management*, *6*, pp. 6-74. https://doi.org/10.1108/14601060310456337

349. Masicampo, E. J., & Baumeister, R. F. (2007). Relating mindfulness and self-regulatory processes. *Psychological Inquiry, 18*, pp. 255-258. https://doi.org/10.1080/10478400701598363

350. Mason, O., & Hargreaves, I. (2001). A qualitative study of mindfulness-based cognitive therapy for depression, *British Journal of Medical Psychology, 74*(2), 197-212, https://doi.org/10.1348/000711201160911

351. Mathiesen, G. E., Martinsen, O., & Einarsen, S. (2008). The relationship between creative personality composition, innovative team climate, and team innovativeness: An input-process-output perspective. *Journal of Creative Behaviour, 42*(1), 13-31, https://doi.org/10.1007/s10798-009-9107-7

352. Maynard, B. R, Solis, M., & Miller, V. L. (2017). Mindfulness-based interventions for improving cognition, academic achievement, behavior, and socioemotional functioning of primary and secondary school students, *Campbell Systematic Reviews*, https://doi.org/10.4073/csr.2017.5

353. Mazerant, M. (2021). Creativity is important, but…there is something more important. In Bieńkowska, J. (Ed.) *Creativity in Business*, Lódź: WUŁ.

354. Mazetti, G., Schaufeli, W. B., & Guglielmi, D. (2018). Are workaholism and work engagement in the eye of the beholder? A multi-rater perspective on different forms of working hard. *European Journal of Psychological Assessment, 34*, pp. 30-40. https://doi.org/10.1027/1015-5759/a000318

355. McClelland, D. C. (1978). *Guide to behavioral event interviewing*. Boston: McBer.

356. McFall, R. M., (1982). A review and reformulation of the concept of social skills. *Behavioral Assessment, 4*(1), 1-33, https://doi.org/10.1007/BF01321377

357. Mesmer-Magnus, J., Manapragada, A., Viswesvaran, C., & Allen, J. W. (2017). Trait mindfulness at work: A meta-analysis of the personal and professional correlates of trait mindfulness, *Human Performance*, *30,* pp. 79-98. https://doi.org/10.1080/08959285.2017.1307842

358. Michel, A., Bosch, Ch., & Rexroth, M. (2014). Mindfulness as a cognitive-emotional segmentation strategy: An intervention promoting work-life balance. *Journal of Occupational and Organizational Psychology, 87*(4), 733-754. https://doi.org/10.1111/joop.12072

359. Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). Organizational Strategy, Structure, and Process. *The Academy of Management Review*, *3*(3), 546–562. https://doi.org/10.2307/257544

360. Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review, 21*, 402–433.

361. Miron-Spektor, E., & Erez, M., (2017). Looking at creativity through a paradox lens: Deeper understanding of new insights, In Lewis, M., Smith, W. K., Jarzabkowski, P., Langley, A. (Eds.). *Handbook of Organizational Paradox: Approaches to Plurality, Tensions and Contradictions*, Publisher: Oxford University Press.

362. Miron-Spektor, E., Erez, M., & Naveh, E. (2011). The effect of conformist and attentive-to-detail members on team innovation: Reconciling the innovation paradox. *Academy of Management Journal, 54*(4), 740–760. https://doi.org/10.5465/AMJ.2011.64870100

363. Mirowski, P. (1983). An Evolutionary Theory of Economics Change: A Review Article. *Journal of Economic Issues*, *17*(3), 757-768.

364. Mirzaee, S., & Ghaffari, A. (2018). Investigating the impact of information systems on knowledge sharing, *Journal of Knowledge Management, 22*(5), https://doi.org/10.1108/JKM-09-2017-0371.

365. Mohannak, K. (2007). Innovation Networks and Capability Building in the Australian High-Technology SMEs. *European Journal of Innovation Management, 10*, pp. 236-251. https://doi.org/10.1108/14601060710745279

366. Monk-Turner, E. (2003). The benefits of meditation: experimental findings, *The Social Science Journal, 40*(3), 465-470. https://doi.org/10.1016/S0362-3319(03)00043-0.

367. Montani, M., Odoardi, C., & Battistelli, A. (2014). Individual and contextual determinants of innovative work behavior: proactive goal generation matters. *Journal of Occupational and Organizational Psychology, 87*, pp. 645-670. https://doi.org/10.1111.joop.12066

368. Montani, M., Vandenberghe, C., Khedhaouria, A., & Courcy, F. (2020). Examining the inverted U-shaped relationship between workload and innovative work behavior: The role of work engagement and mindfulness, *Human Relations, 73*(1), 59-93 https://doi.org/10.1177/0018726718819055

369. Monzani, L., Escartin, J., Ceja, L, Bakker, A. B. (2021). Blending mindfulness practices and character strengths increases employee well-being: A second-order meta-analysis and a follow-up field experiment. *Human Resource Management Journal, 31*, pp. 1025-1062, https://doi.org/10.1111/1748-8583.12360

370. Morgan, W. D., & Morgan, S. T. (2005). Cultivating attention and empathy. In Germer, C. K., Siegel, R. D., & Fulton, P. R. (Eds.), *Mindfulness and Psychotherapy* (pp. 73-90), New York: Guilford Press.

371. Morse , J. M., Barrett, M., Mayan, M., & Olson, K. L. (2007). Verification strategies for establishing reliability and validity in qualitative research, *International Journal of Qualitative Methods, 1*(2), 1-19.

372. Mosini, A. C., Saad, M., Casaletti Braghetta, C., de Medeiros, R., Peres, M. F. P., & Leao, F. C., (2019). Neurophysiological, cognitive-based behavioral and neurochemical effects in practitioners of transcendental meditation – A literature review, *Revista da Associacao Medica Brasileira*, *65*, 706-713. https://doi.org/10.1590/1806-9282.65.5.706

373. Mowery, D. & Rosenberg, N. (1979). The influence of market demand upon innovation: a critical review of some recent empirical studies, *Research Policy, 8*(2), 102-153, https://doi.org/10.1016/0048-7333(79)90019-2

374. Mrazek, M. D., Smallwood, J., & Schooler, J. W. (2012). Mindfulness and mind-wandering: Finding convergence through opposing constructs. *Emotion, 12*, pp. 442-448. https://doi.org/10.1037/a0026678

375. Mudrack, P. E., & Farrell, G. M. (1995). An examination of functional role behavior and its consequences for individuals in group settings. *Small Group Research*, *26*, 542–571. https://doi.org/10.1177/1046496495264005

376. Mueller, J. S. (2012). Why individuals in larger teams perform worse. *Organizational Behavior and Human Decision Processes, 117*(1), 111–124. https://doi.org/10.1016/j.obhdp.2011.08.004

377. Mulder, M. & Gulikers, J. (2011) Workplace learning in East Africa: a case study. In: Malloch, M., Cairns, L., Evans, K. & O'Connor, B. (Eds). *The SAGE Handbook of Workplace Learnings* (pp. 307-318). London: SAGE.

378. Mulder, M. (2012). Competence-based education and training. *The Journal of Agricultural Education and Extension 18*(3), 305-314, https://doi.org/10.4135/9781446200940.n22

379. Mumford, M. D. (Ed.) (2012) *Handbook of Organization Creativity*, London: Elsevier.

380. Mumford, M. D., Hester, K., & Robledo, I., (2012) Methods in Creativity Research: Multiple Approaches, Multiple Levels, In Mumford, M. D. (Ed.) *Handbook of Organizational Creativity* (pp. 39-65), London: Elsevier.

381. Mumford, M. D., Scott, G. M., Gaddis, B. H., & Strange, J. M. (2002). Leading creative people: orchestrating expertise and relationships, *The Leadership Quarterly, 13*(6), 705-750, https://doi.org/10.1016/S1048-9843(02)00158-3

382. Nadkarni, S. & Barr, P. S. (2008). Environmental context, managerial cognition and strategic action: An integrated view. *Strategic Management Journal, 29*, pp. 1395-1427.

383. Nandan, M., & London, M. (2013) Interdisciplinary professional education: training college students for collaborative social change. *Education+Training, 55*(8/9), 815-835.

384. Narayanan, J. & Moynihan, L. (2006). Mindfulness at work: The beneficial effects on job burnout in call centers. *Academy of Management Proceedings*, H1-H6. https://doi.org/10.5465/AMBPP.2006.22898626.

385. Ness, I. J., & Riese, H. (2015). Openness, curiosity and respect: Underlying conditions for developing innovative knowledge and ideas between disciplines, *Learning, Culture and Social Interaction, 6*, pp. 29-39, https://doi.org/10.1016/j.lcsi.2015.03.001

386. Neubauer, A. C., & Fink, A. (2009). Intelligence and neural efficiency: Measures of brain activation versus measures of functional connectivity in the brain. *Intelligence, 37*(2), 223–229. https://doi.org/10.1016/j.intell.2008.10.008

387. Newton, S. K., Blanton, J. E., & Will, R. (2008). Innovative work and citizenship behaviors from information technology professionals: Effects of they psychological contract. *Information Resources Management Journal, 21*(4), 27-48. https://doi.org/10.4018/irmjl2008100102

388. Nielsen, J. A. (2015). Assessment of innovation competency: A thematic analysis of upper secondary school teachers' talk. *Journal of Educational Research, 108*(4), 318-330. http://dx.doi.org/10.1080/00220671.2014.886178

389. Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*(1), 14–37. https://doi.org/10.1287/orsc.5.1.14

390. Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-creating Company*. New York: Oxford University Press.

391. Norins, H. (1990). *The Young & Rubicam Traveling Creative Workshop*. Englewood Cliffs: Prentice Hall.

392. Nurmi, J. E. (1991). How do adolescent see their future? A review of the development of future orientation and planning. *Developmental Review, 11*, pp. 1-59. https://doi.org/10.1016/0273-2297(91)90002-6

393. Nyanponika, T. (1972). *The Power of Mindfulness*. San Francisco: Unity Press.

394. Nystrom, P. C., Ramamurthy, K. & Wilson, A. L. (2002). Organizational Context, Climate and Innovativeness: Adoption of Imaging Technology, *Journal of Engineering and Technology Management, 19*(3-4), 221-247, https://doi.org/10.1016/S0923-4748(02)00019-X

395. O'Reilly, C., Williams, K., & Barsade, S. (1998). Group demography and innovation: Does diversity help? In Gruenfeld, D. H. (Ed.), *Composition: Research on managing groups and teams,* (Vol. 1, pp. 183–207).

396. Ocasio, W. (2011). Attention to attention. *Organization Science, 22*(5), 1286–1296. https://doi.org/10.1287/orsc.1100.0602

397. Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal, 39*(3), 60-634.

398. Olendzki, A. (2005). The roots of mindfulness. In Germer, C. K., Siegel, R. D., & Fulton, P. R. (Eds.), *Mindfulness and psychotherapy* (pp. 241-261), New York: Guilford.

399. Orne-Johnson, D. W., Farrow, J. T. (Eds.) (1977) *Scientific Research on Maharishi's Transcendental Meditation and TM-Sidhi Program*, New York: MERU Press.

400. Osborn, A. (1953). *Applied Imagination*, New York: Scribner's.

401. Ostafin, B. D., & Kassman, K. T., (2012). Stepping out of history: mindfulness improves insight problem solving, *Conscious Cognition*, *21,* pp. 1031-1036. https://doi.org/10.1016/j.concog.2012.02.014

402. Pagnoni, G. (2012). Dynamical properties of BOLD activity from the ventral posteromedical cortex associated with meditation and attentional skills, *Journal of Neuroscience, 32*(15), 5242-5249, https://doi.org/10.1523/JNEUROSCI.4135-11.2012

403. Paroutis, S., & Al Saleh, A. (2009). Determinants of knowledge sharing using Web 2.0 technologies, *Journal of Knowledge Management, 13*(4), 52-63, https://doi.org/10.1108/13673270910971824

404. Parry, S.R. (1996) The quest for competencies, *Training, 33,* pp. 48-56

405. Paulus, P. (2000). Teams and Creativity: The Creative Potential of Idea-generating Groups, *Applied Psychology, 49*, pp. 237-262. https://doi.org/10.1111/1464-0597.00013

406. Pavitt, K. (2006). *Innovation Processes*, https://doi.org/10.1093/oxfordhb/9780199286805.003.0004

407. Pekkola, S., Saunila, M., Sillanpaa, V., Ukko, J., Parjanen, S., Slminen, J., & Rantala, T. (2014). Value creation through measurement of innovation capability. An intellectual capital management perspective. *International Journal of Intelligent Enterprise, 2*(2-3), 196-212.

408. Peralta, C. F., & Saldanha, M. F. (2014). Knowledge-centered culture and knowledge sharing: The moderator role of trust propensity, *Journal of Knowledge Management, 18*(3), 538-550, https://doi.org/10.1108/JKM-12-2013-0494

409. Perry-Smith, J. E., & Shalley, C. E. (2003). The social side of creativity: A static and dynamic social network perspective. *The Academy of Management Review, 28*(1), 89-106. https://doi.org/10.2307/30040691

410. Peschl, M. F., Bottaro, G., Hartner-Tiefenthaler, M., & Rozer, K. (2014). Learning how to innovate as a social-epistemological process of coo-creation. Towards a constructivist teaching strategy for innovation. *Constructivist Foundations, 9*(3), 421-422.

411. Petchsawang, P., & McLean, G. N. (2017). Workplace spirituality, mindfulness meditation, and work engagement. *Journal of Management, Spirituality & Religion, 14*(3), 216–244. https://doi.org/10.1080/14766086.2017.1291360

412. Piagatti, Mary. (2021). How to take care of Employees' Mental Health and Wellbeing, *eMindful*.

413. Piórkowska, K. (2016). Behavioural Strategy: The Context of Mindfulness. *Przegląd Organizacji, 4*, pp. 60-67.

414. Pittaway, L., Robertson, M, Munir, K., & Denyer, D. (2004). Networking and innovation: a systematic review of the evidence, *International Journal of Management Reviews, 5*(3-4), 137-168, https://doi.org/10.1111/j.1460-8545.2004.00101.x

415. Plucker, J. A., & Renzulli, J. S. (1999). Psychometric Approaches to the Study of Human Creativity. In R. J. Sternberg (Ed.), *Handbook of Creativity* (pp. 35-61). New York: Cambridge University Press.

416. Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, *41*(1), 116-145, https://doi.org/10.2307/2393988

417. Pradhan, S., & Lalatendu Kesari, J. (2019) Does Meaningful Work Explain the Relationship Between Transformational Leadership and Innovative Work Behaviour, *VIKALPA The Journal for Decision Makers, 44*(1), 30–40

418. Prajogo, D. I., & Ahmed, P. K. (2006). Relationships between innovation stimulus, innovation capacity, and innovation performance, *R&D Management, 36*(5), 499-515, https://doi.org/10.1111/j.1467-9310.2006.00450.x

419. Quintane, E., Casselman, M., & Reiche, B. S.(2011) Innovation as a knowledge-based outcome. *Journal of Knowledge Management, 15*(6), 928-947.

420. Radaelli, G., Lettieri, E., Mura, M., & Spiller, N. (2014). Knowledge sharing and innovative work behavriour in healthcare: a micro-level investigation of direct and indirect effects*, Creativity and Innovation Management, 23*(4), 400-414 https://doi.org/10.1111/caim.12084

421. Radoń, S. (2017). *Kognitywistyczny paradygmat ekspercki w kontekście neurologicznych badań nad uważnością oraz w świetle teorii sieci i grafów*. Retrieved from https://www.researchgate.net/profile/Stanislaw_Radon/publication/

422. Rasulzada, F., & Dackert, I. (2009). Organizational creativity and innovation in relation to psychological well-being and organizational factors. *Creativity Research Journal, 21*(2-3), 191-198. https://doi.org/10.1080/10400410902855283

423. Ray, J. L., Baker, L. T., & Plowman, D. A. (2011). Organizational Mindfulness in Business Schools. *Academy of Management Learning & Education*, *10*(2), 188–203.

424. Rayton, B. A., & Yalabik, Z. Y. (2014). Work engagement, psychological contract breach and job satisfaction. *The International Journal of Human Resource Management, 25*(17), 2382-2400. https://doi.org/10.1080/09585192.2013.876440

425. Razmerita, L., Kirchner, K. and Nielsen, P. (2016), What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication, *Journal of Knowledge Management, 20*(6), 1225-1246. https://doi.org/10.1108/JKM-03-2016-0112

426. Reb, J., Narayanan, J., & Ho, Z. W. (2015). Mindfulness at work: Antecedents and consequences of employee awareness and absent-mindedness. *Mindfulness, 6*(1), 111–122. https://doi.org/10.1007/s12671-013-0236-4

427. Redmond, M. R., Mumford, M. D., & Teach, R. (1993). Putting creativity to work: Effects of leader behavior on subordinate creativity. *Organizational Behvior and Human Decision Processes, 55*(2), 120-151.

428. Reiken, B., Shapiro, S., Cilmartin, S., & Sheppard, S. D. (2019). How Mindfulness Can Help Engineers Solve Problems. *Harvard Business Review*. Retrieved from https://hbr.org/2019/01/how-mindfulness-can-help-engineers-solve-problems

429. Reiser, J. E., & McCarthy, C. J. (2017). Preliminary Investigation of a Stress Prevention and Mindfulness Group for Teachers. *The Journal for Specialists in Group Work*, *43*(1), 2–34. https://doi.org/10.1080/01933922.2017.1338811

430. Renzl, B. (2008). Trust in management and knowledge sharing: The mediating effects of fear and knowledge documentation, *Omega, 36*(2), 206-220, https://doi.org/10.1016/j.omega.2006.06.005

431. Rerup, C. (2005). Learning from Past Experience: Footnotes on Mindfulness and Habitual Entrepreneurship, *Scandinavian Journal of Management, 21*(4), 451-472.

432. Reuveni, Y., & Vashdi, D. R. (2015). Innovation in multidisciplinary teams: The moderating role of transformational leadership in the relationship between professional heterogeneity and shared mental models. *European Journal of Work and Organizational Psychology, 24*(5), 678–692. https://doi.org/10.1080/1359432X.2014.1001377

433. Ricard, M. (2010), *The Art of Meditation*, Atlantic Books

434. Rich, B. L., LePine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effects on job performance. *Academy of Management Journal, 53*(3), 617–635. https://doi.org/10.5465/AMJ.2010.51468988

435. Rieken, F., Boehm, T., Heinzen, M., & Meboldt, M. (2019). Corporate marketspaces as innovation driver in companies: a literature review-based framework, *Journal of Manufacturing Technology Management, 31*(1), 91-123, https://doi.org/10.1108/JMTM-03-2019-0098

436. Rietzschel, E. F., & Ritter, S. M. (2018). Moving from Creativity to Innovation. In R. Reiter-Palmon, V. L. Kennel, & J. C. Kaufman (Eds.), *Individual Creativity in the Workplace* (pp. 3-34). https://doi.org/10.1016/B978-0-12-813238-8.00001-2

437. Riggio, R. E. (1986). Assessment of basic social skills. *Journal of Personality and Social Psychology, 51*(3), 649-660. https://doi.org/10.1037/0022-3514.51.3.649

438. Riordan, K. M., Simonsson, O., Frye, C., Vack, N. J., Sachs, J., Fitch, D., Goldman, R. I., Chiang, E. S., Dahl, C. J., Davidson, R. J., & Goldberg, S. B. (2024). How often should I meditate? A randomized trial examining the role of meditation frequency when total amount of meditation is held constant. *Journal of Counselling Psychology, 71*(2), 104–114. https://doi.org/10.1037/cou0000725

439. Roche, M., Haar, J. M., & Luthans, F. (2014). The role of mindfulness and psychological capital on the well-being of leaders. *Journal of Occupational Health Psychology, 19*(4), 476–489. https://doi.org/10.1037/a0037183

440. Rodrigues, M. F., Nardi, A. E., & Levitan, M. (2017). Mindfulness in mood and anxiety disorders: A review of the literature. *Trends in Psychiatry and Psychotherapy, 39*(3), 207–215. https://doi.org/10.1590/2237-6089-2016-0051

441. Roeser, R. W., Schonert-Reichl, K. A., Jha, A., Cullen, M., Wallace, L., Wilensky, R., Oberle, E., Thomson, K., Taylor, C., & Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology, 105*(3), 787–804. https://doi.org/10.1037/a0032093

442. Romanelli, E., & Tushman, M. L. (1994). Organizational Transformation as Punctuated Equilibrium: An Empirical Test. *The Academy of Management Journal*, *37*(5), 1141–1166. https://doi.org/10.2307/256669

443. Rosch, E. (2007). More than mindfulness: when you have a tiger by the tail, let it eat you. *Psychological Inquiry, 18*, pp. 258-264.

444. Rosenberg, M. (1965). *Society and the adolescent self image*. Princeton: Princeton University Press.

445. Roussin, C. J. (2008). Increasing trust, psychological safety, and team performance through dyadic leadership discovery. *Small Group Research, 39*(2), 224–248. https://doi.org/10.1177/1046496408315988

446. Routhier-Martin, K., Roberts, S. K., & Blanch, N. (2017). Exploring Mindfulness and Meditation for the Elementary Classroom: Intersections Across Current Multidisciplinary Research. *Childhood Education, 93*(2), 168–175. https://doi.org/10.1080/00094056.2017.1300496;

447. Ruedy, N. E., & Schweitzer, M. E. (2010). In the moment: The effect of mindfulness on ethical decision making. *Journal of Business Ethics, 95*(Suppl 1), pp. 73–87. https://doi.org/10.1007/s10551-011-0796-y

448. Runco, M. A. (2007). *Creativity: Theories and themes: Research, development, and practice.* Cambridge, MA: Elsevier Academic Press.

449. Ruocco, A. C., & Direkoglu, E. (2013). Delineating the contributions of sustained attention and working memory to individual differences in mindfulness. *Personality and Individual Differences, 54*(2), 226–230. https://doi.org/10.1016/j.paid.2012.08.037

450. Rupprecht, S., Lomas, T., Medina, J. C., Ivtzan, I., Hart, R., & Eiroa-Orosa, F. J. (2017). The impact of mindfulness on well-being and performance in the workplace: An inclusive systematic review of the empirical literature. *European Journal of Work and Organizational Psychology, 26*(4), 492–513. https://doi.org/10.1080/1359432X.2017.1308924

451. Rutten, W. Blaas-Franken, J., & Martin, H. (2016), The impact of (low) trust on knowledge sharing, *Journal of Knowledge Management, 20*(2), 199-214. https://doi.org/10.1108/JKM-10-2015-0391

452. Ryan R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudemonic wellbeing, *Annual Review of Psychology, 52*(1), 141-166.

453. Sadler-Smith, E. (2008) *Inside intuition*. New York. Routledge.

454. Sáenz, M. J., Revilla, E., & Knoppen, D. (2014). Absorptive capacity in buyer-supplier relationships: Empirical evidence of its mediating role. *Journal of Supply Chain Management, 50*(2), 18-40.

455. Saether, E. A. (2019). Motivational antecedents to high-tech R&D employees' innovative work behavior: Self-determined motivation, person-organization fit, organization support of creativity, and pay justice, *Journal of High Technology Management Research*, 30(2) https://doi.org/10.1016/j.hitech.2019.100350

456. Safran, J. D., & Segal, Z. V. (1990). *Interpersonal process in cognitive therapy.* Lanham, MA: Jason Aronson.

457. Salanova, M. (2017). Mindfulness Can Make You Happy-and-Productive: A Mindfulness Controlled Trial and Its Effects on Happiness, Work Engagement and Performance, *Journal of Happiness Studies, 19*, pp. 1691-1711 https://doi.org/10.1007/s10902-017-9892-8

458. Salas, E., Rosen, M. A., & Diaz Granados, D. (2019) Expertise-based intuition and decision making in organizations. Journal of Management, 36(4), 941-973, https:doi.org/10.1177/0149206309350084

459. Samson, D. & Gloet, M. (2014). Innovation capability in Australian manufacturing organizations: An exploratory study. *International Journal of Business Innovation and Research, 8*(1), 20-35.

460. Santandreau-Masearell, C., Garzon, D., & Knorr, H. (2013). Entrepreneurial and innovative competences are they the same? *Management Decisions, 51*(5), 1084-1095. https://doi.org/10.1108/MD-11-2012-0792

461. Saunila, M. & Ukko, J. (2012). A conceptual framework for the measurement of innovation capability and its effects. *Baltic Journal of Management, 7*(4), 355-375. https://doi.org/10.1108/17465261211272139

462. Saunila, M., Mäkimattila, M., & Salminen, J. (2014). Matrix structure for supporting organizational innovation capability. International Journal of Business Innovation and Research, 8(1), 20-35.

463. Saunila, M., Pekkola, S., & Ukko, J. (2014). The relationship between innovation capability and performance: The moderating effect of measurement. *International Journal of Productivity and Performance Management, 63*(2), 234-249, https://doi.org/10.1108/IJPPM-04-2013-0065

464. Sawyer, R. K. (2003). *Group creativity: The science of human innovation* (2nd ed.). New York: Oxford University Press.

465. Sawyer, R. K. (2006). Educating for innovation. *Thinking Skills and Creativity, 1*(1), 41-48, https://doi.org/10.1016/j.tsc.2005.08.001.

466. Sawyer, R. K. (2009). The collaborative nature of innovation. *Journal of Law and Policy, 30*, pp. 293-324.

467. Schaltegger, S., Ludeke-Freund, F., & Hansen, E. G. (2012). Business cases for sustainability: The role of business model innovation for corporate sustainability," *International Journal of Innovation and Sustainable Development*, *6,* 95-119.

468. Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: a cross-national study. *Educational and Psychological Measurement, 66*, pp. 701-716.

469. Schaufeli, W. B., Salanova, M., Gonzales-Roma, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies: An Indisciplinary Forum on Subjective Well-Being, 3*(1), 71-92. https://doi.org/10.1023/A:1015630930326

470. Schaufenbuel, K. (2014). *Bringing Mindfulness to the Workplace.* Retrieved from https://csi.boisestate.edu/ipbn/files/2018/01/unc-white-paper-bringing-mindfulness-to-the-workplace_final.pdf

471. Schemer, C., Matthes, J., Wirth, W., & Textor, S. (2008). Does "Passing the Courvoisier" Always Pay off? Positive and Negative Evaluative Conditioning Effects of Brand Placements in Rap Videos. *Psychology & Marketing, 25*(10), 923-943. https://doi.org/10.1002/mar.20246

472. Schiba, K., Nishimoto, M., Sugimoto, M., & Ishikawa, Y. (2015). The Association between meditation practice and job performance: a cross-sectional study. *PLOS One, 10*(5), 1-13. https://doi.org/10.1371/journal.pone.0128287

473. Schmertz, S. K., Anderson, P. L., & Robins, D. L. (2009). The relation between self-report mindfulness and performance on tasks of sustained attention. *Journal of Psychopathology and Behavioral Assessment, 31*(1), 60–66. https://doi.org/10.1007/s10862-008-9086-0

474. Schneider, B. (1975). Organizational climate: Individual preferences and organizational realities revisited. *Journal of Applied Psychology, 60*(4), 459-465. https://doi.org/10.1037/h0076919

475. Schootstra, E., Deichmann, D., Dolgova, J. (2017) Can 10 minute meditation make you more creative? *Harvard Business Review*. Retrieved from https://hbr.org/2017/08/can-10-minutes-of-meditation-make-you-more-creative#:~:text=Ten%20to%2012%20minutes%20are,Erasmus%20University%20in%20Rotterdam%2C%20Netherlands.

476. Schultz, P.P., Ryan, R.M., Niemiec, C.P., Legate, N., & Williams, G.C. (2015). Mindfulness, work climate, and psychological need satisfaction in employee well-being. *Mindfulness, 6*(5), 971-985. http://dx.doi.org/10.1007/s12671-014-0338-7

477. Schumpeter, J. A. (1939) *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process.* Retrieved from https://discoversocialsciences.com/wp-content/uploads/2018/03/schumpeter_businesscycles_fels.pdf

478. Schumpeter, J. A., (1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.

479. Scott, S. G., & Bruce, R. A. (1994). Determinants of Innovative Behaviour: A Path Model of Individual Innovation in the Workplace. *Academy of Management Journal*, *37*(3), 580-607. https://doi.org/10.2307/256701

480. Sears, S.R., Kraus, S., Carlough, K. *et al.* Perceived Benefits and Doubts of Participants in a Weekly Meditation Study. *Mindfulness* 2, 167–174 (2011). https://doi.org/10.1007/s12671-011-0055-4

481. Sedlmeier, P., Eberth, J., Schwartz, M., Zimmermann, D., Haarig, F., Jaeger, S., & Kunze, S. (2012). The psychological effects of meditation: A meta analysis. *Psychological Bulletin, 138*, pp. 1139-1171, https://doi.org/10.1037/a0028168

482. Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2013), *Mindfulness-based cognitive therapy for depression* (2nd ed.), New York: Guilford Press.

483. Seginer, R. (2009). *Future orientation: Developmental and ecological perspectives.* Springer Science + Business Media. https://doi.org/10.1007/b106810

484. Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5–14. https://doi.org/10.1037/0003-066X.55.1.5

485. Shalley, C. E., Zhou, J., & Oldham, G. R., (2004). The effects of personal and contextual characteristics on creativity: where should we go from here? *Journal of Management, 30,* pp. 933-958

486. Shanker, R., Bhanugopan, R., Van der Heijden, B. I. J. M., & Farrell, M. (2017). Organizational climate for innovation and organizational performance: The medicating effect of innovative work behavior, Journal of *Vocational Behavior, 100*, pp. 67-77. https://doi.org/10.1016/j.jvb.2017.02.004

487. Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of Clinical Psychology, 62*, pp. 373-386. https://doi.org/10.1002/jclp.20237

488. Shapiro, S.L, Wang, M.C., & Peltason, E.H. (2015). What is mindfulness, and why should organizations care about it? In Reb, J., Atkins, P. W. B. (Eds.), *Mindfulness in organizations. Foundations, Research, and Applications* (pp. 17-41). Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781107587793

489. Shepherd, D. A., & Cardon, M. S. (2009). Negative emotional reactions to project failure and the self-compassion to learn from experience. *Journal of Management Studies, 46*, pp.923-949. https://doi.org/10.1111/j.1467-6486.2009.00821.x

490. Shiba, K., Nishimoto, M., Sugimoto, M., Ishikawa, Y. (2015). The Association between Meditation Practice and Job Performance: A Cross Sectional Study. *PLoS ONE, 10*(5) https://doi.org/10.1371/journal.pone.0128287

491. Shin, S. J., Yuan, F., & Zhou, J. (2017). When perceived innovation job requirement increases employee innovation behaviour. A sensemaking perspective. *Journal of Organizational Behaviour, 38*, pp. 68-86. https://doi.org/10.1002/job.2111

492. Shipton, H., West, M. A., Dawson, J., Birdi, K., & Patterson, M. (2006). HRM as a predictor of innovation, *Human Resource Management Journal, 16*(1), 3-27, https://doi.org/10.1111/j.1748-8583.2006.00002.x

493. Shonin, E., Van Gordon, W., & Griffiths, M. D. (2013) Mindfulness-based interventions: towards mindful clinical integration. *Frontier Psychology, 4*(194), https://doi.org/10.3389/fpsyg.2013.00194

494. Siegel, D.J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being*. New York: W.W. Norton&Company.

495. Sio, U. N., Ormerod, T. C. (2009). Does incubation enhance problem solving? A meta-analytic review. Psychology Bulletin, 135(1) 94-120. http:/doi.org/10.1037/a0014212.

496. Slagter, H. A., Lutz, A., Greischar, L. L., Francis, A. D., Nieuwenhuis, S., & Davis, J. M. (2007). Mental training affects distribution of limited brain resources. *PloS Biology, 5*, pp. 1228-1235.

497. Slagter, H.A., Davidson, R.J., & Lutz, A. (2011). Mental Training as a Tool in the Neuroscientific Study of Brain and Cognitive Plasticity. *Frontiers of Human Neuroscience, 5*(17), 1-12. https://doi.org/10.3389/fnhum.2011.00017

498. Sleilaty, J. (2022). The Impact of a Regular Mindfulness Practice on Teachers: A Critical Review. *Emerging Perspectives: Interdisciplinary Graduate Research in Education and Psychology*, *6*(1), 33–49.

499. Smallwood, J., & Schooler, J. W. (2015). The science of mind wandering: Empirically navigating the stream of consciousness. *Annual Review of Psychology*, 66, pp. 487-518. https://doi.org/10.1146/annurev-psych-010814-015331

500. Smeekens, B. A., & Kane, M. J. (2016). Working memory capacity, mind wandering, and creative cognition: An individual-differences investigation into the benefits of controlled versus spontaneous thought. *Psychology of Aesthetics. Creativity, and the Arts, 10*, pp. 389-415, https://doi.org/10.1037/aca0000046

501. Soltanifar, M., Hughes, M., O'Connor, G., Covin, J. G., & Roijakkers, N. (2023). Unlocking the potential of non-managerial employees in corporate entrepreneurship: a systematic review and research agenda. *International Journal of Entrepreneurial Behavior & Research*, *29*(11), 206-240.

502. Soosay, C. A., Hyland, P. W., & Ferrer, M. (2008). Supply chain collaboration: Capabilities for continuous innovation. *Supply Chain Management: An International Journal, 32*(3), 552-566.

503. Sosik, J. J., Avolio, B. J., & Kahai, S. S. (1997). Effects of leadership style and anonymity on group potency and effectiveness in a group decision support system environment. *Journal of Applied Psychology, 82*(1), 89–103. https://doi.org/10.1037/0021-9010.82.1.89

504. Stanton, N. A., Chambers, P. R. G., & Piggott, J. (2001). Situational awareness and safety. *Safety Science, 39*, pp. 189-204.

505. Staples, D. S., & Webster, J. (2008). Exploring the effects of trust, task interdependence and virtualness on knowledge sharing in teams. *Information Systems Journal, 18*(6), 617–640. https://doi.org/10.1111/j.1365-2575.2007.00244.x

506. Steel, D., Rinne, T., & Fairweather, J. (2012). Personality, nations, and innovation: Relationships between personality traits and national innovation scores, *Cross Cultural Research*, *46,* pp. 3-30. https://doi.org/10.1177%2F1069397111409124

507. Stern, D. M. (2004). *The present moment in psychotherapy and everyday life*. New Your: W.W. Norton&Company.

508. Sternberg, R. J., & Lubart, T. I. (1996). Investing in creativity. *American Psychologist, 51*(7), 677–688. https://doi.org/10.1037/0003-066X.51.7.677

509. Sturing, L., Biemans, H. J. A., Mulder, M., & De Bruijn, E. (2011). The nature of study programmes in vocational education: Evaluation of the model for comprehensive competence-based vocation education in the Netherlands. *Vocations and Learnings, 4*(3), 191-210. https://doi.org/10.1007/s12186-011-9059-4

510. Sulphey, M. M. (2014), Construction & Validation of Employee Wellness Questionnaire. *Indian Journal of Industrial Relations, 49(4)*, 690-700.

511. Suppiah, V. N., & Singh Sandhu, M. (2011). Organizational culture's influence on tacit knowledge sharing behavior. *Journal of Knowledge Management, 15*(3), 462-477, https://doi.org/10.1108/13673271111137439

512. Surrey, J. L. (2005). Relational psychotherapy, relational mindfulness. In Germer, C. K., Siegel, R. D., & Fulton, P. R. (Eds.) *Mindfulness and psychotherapy* (pp. 91-110). New York: Guilford Press.

513. Sutcliffe, K. M., Vogus, T. J., & Dane, E. (2016). Mindfulness in organizations: A cross-level review, *Annual Review of Organizational Psychology and Organizational Behavior, 3*, pp. 55-81, https://doi.org/10.1146/annurev-orgpsych-041015-062531

514. Swink, M. (2006). Building collaborative innovation capability. *Research-technology Management, 49*(2), 37-47.

515. Syper-Jędrzejak, M. & Bednarska-Wnuk, I., (2019). Znaczenie mindfulness w miejscu pracy – mozliwosci pobudania uwaznosci pracownikow*, e-mentor, 2*, pp. 61-67, https://doi.org/10.15219/3m79.1413

516. Syper-Jędrzejak, M., Bednarska-Wnuk, I. (2019). Znaczenie Mindfulness w miejscu pracy – możliwość pobudzania uważności pracowników. *e-mentor*, *2(79)*, 61-67. https://doi.org/10.15219/em79.1413

517. Taggar, S., Sulsky, L, & MacDonald, H. (2008). Subsystem configuration: A model of strategy, context and human resources management alignment, *Research in multi-level issues, 7*(7), 317-376, https://doi.org/10.1016/S1475-9144(07)00013-6

518. Takhdat, K., Lamtali, S., El Adib, A.R. (2021) The effects of mindfulness on health profession students' simulation training outcomes: An integrative review. Nurse Education Today., 106(105082). https://doi.org/10.1016/j.nedt.2021.105082.

519. Tamer Cavusgil, S., Calantone, R. J., & Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of Business & Industrial Marketing, 18*(1), 6-21.

520. Tan, K. H., Zhan, Y. Z., Ji, G. J., Ye, F., & Chang, C. (2015). Harvesting big data to enhance supply chain innovation capabilities: An analytic infrastructure based on deduction graph. *International Journal of Production Economics, 165*, pp. 223-233. https://doi.org/10.1016/j.ipe.2014.12.034.

521. Tanantpapat, T., Thongbor A., Kaewrujee, N., Tunchaiyaphum, S., & Peechapol, C. (2023). The effect of meditation on learning performance: A review. *Humanities and Social Sciences Journal Southeast Asia University, 7*(1), 13–33.

522. Tang, Y.-Y., & Posner, M. I. (2013). Tools of the trade: Theory and method in mindfulness neuroscience. *Social Cognitive and Affective Neuroscience, 8*(1), 118–120. https://doi.org/10.1093/scan/nss112

523. Tang, Y.-Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience, 16*(4), 213–225. https://doi.org/10.1038/nrn3916

524. Tang, Y.-Y., Ma, Y., Wang, J., Fan, Y., Feng, S., Lu, Q., Yu, Q., Sui, D., Rothbart, M. K., Fan, M., & Posner, M. I. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences, 104,* pp. 17152-17156. Https://doi.org/10.1073/pnas.0707678104

525. Taylor, L. S., Fiore, A. T., Mendelsohn, G. A., & Cheshire, C. (2011). "Out of my league": A real-world test of the matching hypothesis. *Personality and Social Psychology Bulletin, 37*(7), 942–954. https://doi.org/10.1177/0146167211409947

526. Teasdale, J. D. (1999). Metacognition, mindfulness and modification of mood disorders, *Clinical Psychology & Psychotherapy, 6*(2), 146-155, https://doi.org/10.1002/(SICI)1099-0879(199905)6:2<146::AID-CPP195>3.0.CO;2-E

527. Tesluk, P. E., Farr, J. L., & Klein, S. R. (1997). Influences of organizational culture and climate on individual creativity. *The Journal of Creative Behavior, 31*(1), 27–41. https://doi.org/10.1002/j.2162-6057.1997.tb00779.x

528. Thakrar, M. (2017). *How To Create Mindful Leadership*. Retrieved from https://www.forbes.com/sites/forbescoachescouncil/2017/06/28/how-to-create-mindful-leadership/#4ed5cdd342a7.

529. Thau, S., Aquino, K., & Poortvliet, P. M. (2007). Self-defeating behaviors in organizations: The relationship between thwarted belonging and interpersonal work behaviors. *Journal of Applied Psychology, 92*(3), 840–847. https://doi.org/10.1037/0021-9010.92.3.840

530. Thompson, B. L., & Waltz, J. (2007). Everyday mindfulness and mindfulness meditation: Overlapping constructs or not? *Personality and Individual Differences, 43*(7), 1875–1885. https://doi.org/10.1016/j.paid.2007.06.017

531. Thompson, E. (2001). Empathy and consciousness. In Thompson, E. (Ed.) *Between ourselves: Second-person issues in the study of consciousness* (pp. 1-32). Thorverton, UK: Imprint Academic.

532. Thondup, T. (1996). *The healing power of the mind*. London, UK: Penguin.

533. Thornhill, S. (2006). Knowledge, Innovation and Firm Performance in High-and Low-Technology Regimes. *Journal of Business Venturing, 21*, pp. 687-703. https://doi.org/10.1016/j.jbusvent.2005.06.001

534. Tidd, J., & Pavitt, K. (2001). *Managing innovation: integrating technological, market and organizational change*

535. Timmons, J. A. (1989). *The Entrepreneurial Mind*. London, UK: Brick House Publishing Company

536. Titi Amayah, A. (2013). Determinants of knowledge sharing in a public sector organization. *Journal of Knowledge Management, 17*, pp. 454-471. https://doi.org/10.1108/JKM-11-2012-0369

537. Tjosvold, D., Tang, M. M. L., & West, M. (2004). Reflexivity for team innovation in China: The contribution of goal interdependence. *Group & Organization Management, 29*(5), 540–559. https://doi.org/10.1177/1059601103254911

538. Tloczynski, J., & Tantriells, M. (1998). A comparison of the effects of Zen breath meditation or relaxation on college adjustment. *Psychologia, 41*, pp. 32– 43.

539. Topolinski, S., & Strack, F. (2009). The architecture of intuition: Fluency and affect determine intuitive judgements of semantic and visual coherence and judgements of grammaticality in artificial grammar learning. *Journal of Experimental Psychology. 138*, pp. 39-63.

540. Tops, M., Boksem, M. A., Quirin, M., IJzerman, H., & Koole, S. L. (2014). Internally-directed cognition and mindfulness: an integrative perspective derived from reactive versus predictive control systems theory, *Frontiers in Psychology*, *5,* p. 429.

541. Treffinger, D. J., Young, G. C., Selby, E. C., & Shepardson, C. (2002). Assessing creativity: a guide for educators, http://files.eric.ed.gov/fulltext/ED505548.pdf

542. Tsai, M. T., Chin, C. W., & Chen, C. C. (2010). The Effect of Trust Belief and Salesperson's Expertise on Consumer's Intention to Purchase Nutraceuticals: Applying the Theory of Reasoned Action. *Social Behavior and Personality: An International Journal, 38*, pp. 273-287. https://doi.org/10.2224/sbp.2010.38.2.273

543. Tushman, M. L, O'Reilly, C. A., Ambidextrous Organizations: managing evolutionary and revolutionary change, *California Management Review, 38*(4), https://doi.org/10.2307/41165852

544. Valentine, E. R., & Sweet, P. L., (1999). Meditation and attention: a comparison of the effects of concentrative and mindfulness meditation on sustained attention, *Mental Health, Religion and Culture*, *2,* pp. 59-70. https://doi.org/10.1080/13674679908406332

545. Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality, 60*(3), 599–620. https://doi.org/10.1111/j.1467-6494.1992.tb00922.x

546. Van de Ven, A. H. & Dooley, K. J. (1999). Explaining complex organizational dynamics, *Organization Science, 10*(3), 358-372, https://doi.org/10.1287/orcs.10.3.358

547. Van de Ven, A. H. (1986). Central problems in the management of innovation. *Management Science, 32*, pp. 590-607. https://doi.org/10.1287/mnsc.32.5.590

548. van den Hooff, B., & de Ridder, J. A. (2004). Knowledge sharing in context: The influence of organizational commitment, communication climate and CMC use on knowledge sharing. *Journal of Knowledge Management, 8*(6), 117–130. https://doi.org/10.1108/13673270410567675

549. Van Der Vegt, G., & Bunderson, J. (2005). Learning and performance in multidisciplinary teams: the importance of collective team identification. *Academy of Management Journal 48*(3), 532-547.

550. Van der Vegt, G., & Janssen, O. (2003). Joint impact of interdependence and group diversity on innovation. *Journal of Management, 29*, pp.729-751.

551. van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work Group Diversity and Group Performance: An Integrative Model and Research Agenda. *Journal of Applied Psychology, 89*(6), 1008–1022. https://doi.org/10.1037/0021-9010.89.6.1008

552. Van Winkelen, C., & Tovstiga, G. (2009). Understanding an organization's knowledge-enabled innovation capability. *International Journal of Knowledge Management Studies, 3*(1-2), 97-115.

553. van Zyl, L. E., van Oort, A., Rispens, S., & Olckers, C. (2019). Work engagement and task performance within a global Dutch ICT-consulting firm: The mediating role of innovative behaviour. *Current Psychology, 40,* pp. 4012-4023, https://doi.org/10.1007/s12144-019-00339-1

554. Vega-Jurado, J., Gutiérrez-Gracia, A., & Fernández de Lucio, I. (2009) Does external knowledge sourcing matter for innovation? Evidence from the Spanish manufacturing industry. *Industrial and Corporate Change, 18*(4), 637-670.

555. Vicente, M., Abrantes, J. L., & Teixeira, M. S. (2015). Measuring innovation capability by exporting firms: *The Innovscale, International Marketing Review, 32*(1), 29-51.

556. Vila, L. E., Perez, P J., & Coll-Serrano, V. (2014). Innovation at the workplace: Do professional competencies matter? *Journal of Business Research, 67*(5), 752-757. https://doi.org/10.1016/j.jbusres.2013.11.039

557. Vila, L. E., Perez, P. J., & Morillas, F. G. (2012). Higher education and the development of competencies for innovation in the workplace. *Management Decision, 50*(9), 1634-1648, https://doi.org/10.1108/00251741211266723

558. Vogus, T. J., & Sutcliffe, K. M. (2012). Organizational Mindfulness and Mindful Organizing: A Reconciliation and Path Forward. *Academy of Management Learning & Education, 11*, pp. 722-735. https://doi.org/10.5465/amle.2011.0002c

559. Wadlinger, H. A., & Isaacowitz, D. M. (2011). Fixing our focus: Training attention to regulate emotion. *Personality and Social Psychology Review, 15*, pp. 75-102. https://doi.org/10.1177/1088868310365565

560. Walach, H., Buchheld, N, Buttenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness: The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences, 40*, pp. 1543-1555. https://doi.org/10.1016/j.paid.2005.11.025

561. Walach, H., Buchheld, N., Buttenhuller, V., Kleinknechit, N. & Schmidt, S. (2006). "Measuring mindfulness – the Freiburg Mindfulness Inventory (FMI)", *Personality and Individual Differences, 40*, pp. 1543-1555.

562. Wallace, B. A. (2001) Intersubjectivity in Indo-Tibetan Buddhism. *Journal of Consciousness Studies, 8*, 209-230.

563. Wallin, D. J. (2007). *Attachment in psychotherapy*. New York: Guilford Press.

564. Walsh, J. P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science, 6*, pp. 280-321.

565. Walsh, R., & Shapiro, S. L. (2006). The meeting of meditative disciplines and western psychology: A mutually enriching dialogue. *American Psychologist, 61*, 227-239. https://doi.org/10.1037/0003-066X.61.3.227

566. Wang, C. L., & Ahmed, P. K. (2004). The development and validation of the organizational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management, 7*(4), 303-313.

567. Wang, D., & Shuai,C. (2013). Does intellectual capital matter? High-performance work systems and bilateral innovative capabilities. *International Journal of Manpower, 34*(8), 861-879. https://doi.org/10.1108/IJM-07-2013-0167

568. Watson, W. E., Johnson, L. & Merritt, D. (1998). Team orientation, self-orientation, and diversity in task groups: Their connection to team performance over time. *Group and Organization Management*, *23,* pp. 161–188. https://doi.org/10.1177/1059601198232005

569. Waychal, P., Mohanty, R., & Verma, A. (2011). Determinants of innovation as a competence: An empirical study. *International Journal of Business Innovation and Research, 5*(2), 1992-211. https://doi.org/10.1504/IJBIR.2011.038781

570. Weick, K. W. (1993). The collapse of sensemaking in organizations: The Mannn Gulch disaster. *Administrative Science Quarterly, 38*, pp. 628-652.

571. Weick, K. W., & Putnam, T. (2006). Organizing for mindfulness: Eastern wisdom and Western knowledge. Journal of Management Inquiry, 15, 275-287.

572. Weick, K. W., & Sutcliffe, K. M. (2006). Mindfulness and the quality of organizational attention. *Organization Science, 17*, pp. 514-524.

573. Weinstein, N., Brown, K. W., & Ryan, R. M. (2009). A multi-method examination of the effects of mindfulness on stress attribution, coping and emotional well-being, *Journal of Research in Personality, 43*, pp. 374-385, https://doi.org/10.1016/j.jrp.2008.12.008.

574. Weisberg, R. W. (2006). *Creativity: Understanding innovation in problem solving, science, invention, and the arts.* London: John Wiley & Sons, Inc.

575. West, M. A. (1989). Innovation amongst healthcare professionals. *Social Behavior, 4,* 173-184.

576. West, M. A. (1990) The social psychology of innovation in groups. In M. A. West & J. L. Farr (eds.), *Innovation and creativity at work: Psychological and organizational strategies* (pp. 309-333), Chichester, UK: Wiley.

577. West, M. A., & Anderson, N. R. (1996). Innovation in top management teams. *Journal of Applied Psychology, 81*(6), 680–693. https://doi.org/10.1037/0021-9010.81.6.680

578. West, M. A., & Farr, J. L. (1989). Innovation at work: Psychological perspectives. *Social Behavior, 4*, pp. 15-30.

579. West, M.A. and Richter, A.W. (2008). Climates and Cultures for Innovation and Creativity at Work. In: Zhou, J. and Shalley, C.E. (Eds.), *Handbook of Organizational Creativity* (pp 211-236), New York: Taylor & Francis Group.

580. Westbrook, C., Creswell, J. D., Tabibnia, G., Julson, E., Kober, H., & Tindle, H. A. (2003) Mindful attention reduces neural and self-reported cue-induced craving in smokers, *Social Cognitive and Affective Neuroscience*, 8(1), 73-84, https://doi.org/10.1093/scan/nsr076

581. Whittington, J. L., Goodwin, V. L., & Murray, B. (2004). Transformational leadership, goal difficulty, and job design: Independent and interactive effects on employee outcomes. *The Leadership Quarterly, 15*(5), 593–606. https://doi.org/10.1016/j.leaqua.2004.07.001

582. Wickens, C. D., Gordon, S. E., & Liu, Y. (1997). *An introduction to human factors engineering*. New York: Longman.

583. Williams, K. A., Kolar, M. M., Reger, B. E., & Pearson, J. C. (2001). Evolution of a wellness-based mindfulness stress reduction intervention: a controlled trial. *American Journal of Health Promotion*, 15, pp. 422-432.

584. Williams, K. Y., & O'Reilly, C. A. (1998). Demography and Diversity in Organizations: A Review of 50 Years of Research. *Research in Organizational Behaviour*, *20*, pp. 77-140.

585. Wolever, R. Q., Bobinet, K. J., McCabe, K., Mackenzie, E. R., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology, 17*, pp. 246-258, https://doi.org/10.1037/a0027278

586. Wolniak, R. (2022). Individual Innovations. *Scientific Papers of Silesian university of Technology, Organization and Management, 166*, pp. 861-875, https://doi.org/10.29119/1641-3466.2022.166.54

587. Woodman, R. W., Sawyer, J. E., & Griffin, R. (1993). Toward a theory of organizational creativity. *Academy of Management Review, 18*, pp. 293-321.

588. Xanthopoulou, D, Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2013) The role of personal resources in the job demands-resources model, *International Journal of Stress Management, 14*(2), https://doi.org/10.1037/1072-5245.14.2.121

589. Yadav, D. & Ahuja, S. (2023). A systematic review of meditation and physical activity based interventions in schools, *Amoghvarta, 3*(1), 276-286.

590. Yams, N. B. (2016). Integrated model of innovation competence. *Proceedings of ISPIM Conference*, p 1-23.

591. Young, S. (1997). *The science of enlightenment*. Boulder: Sounds True.

592. Yu, L., & Zellmer-Bruhn, M. (2018). Introducing team mindfulness and considering its safeguard role against conflict transformation and social undermining. *Academy of Management Journal, 61*(1), 324-347, https://doi.org/10.5465/amj.2016.0094

593. Yuan, F., & Woodman, R. W. (2010). Innovative work behavior in the workplace: The role of performance and image outcome expectations, *Academy of Management Journal, 53*(2), 323-342, https://doi.org/10.5465/amj.2010.49388995

594. Yusur, M., M., Othman, A. R., Mokhtar, S. S. M., & Don, M. S. (2014). How innovation capability can be a mediate between knowledge management and innovation performance? *International Business Management, 8*(2), 118-125.

595. Zabelina, D. L., Robinson, M. D., Ostafin, B. O., & Council, J. C. (2011), Manipulating mindfulness benefits creative elaliation at high levels of neuroticism. *Empirical Studies of the Arts, 29*, 243-255. https://doi.org/10.2190/EM.29.2.g

596. Zaltman, G., Duncan, R. & Holbek, J. (1973). *Innovations and organizations*. New York: NY: John Wiley.

597. Zedelius, C. M., & Schooler, J. W., (2015). Mind wandering 'Ahas' versus mindful reasoning: alternative routes to creative solutions, *Frontiers in Psychology, 6*(834), 1-13. https://doi.org/10.3389/fpsyg.2015.00834

598. Zhao, Xiangge, Tan Peng-Liang, Gary, Wong, Chee Hoo (2020). The Impact of self-Efficacy, Growth Mindset, Empowerment and Training on Employees' Innovation Capability: A Conceptual Framework. *INTI Journal*, p. 268-277.

599. Zhou, J. (2003). When the presence of creative coworkers is related to creativity: Role of supervisor close monitoring, developmental feedback, and creative personality.

Journal of Applied Psychology, 88, 413-422. https://doi.org/10.1037/0021-9010.88.3.413

600. Zhuang, L., Williamson, D., & Carter, M. (1999) Innovate or liquidate: Are all organizations convinced? A two-phased study into the innovation process. *Management Decisions ,27*(1), 57-71. https://doi.org/10.1108/00251749910252030.
601. Zivnuska, S., Kacmar, K. M., Ferguson, M., & Carlson, D. S. (2016), Mindfulness at work: resource accumulation, well-being, and attitudes, *Career Development International, 21*(2), 106-124. https://doi.org/10.1108/CDI-06-2015-0086
602. Zolkoski, S. M., & Lewis-Chiu, C. (2019). Alternative Approaches: Implementing Mindfulness Practices in the Classroom to Improve Challenging Behaviors, *Emotional and Behavioral Health, 28*(1), https://doi.org.10.1177/1074295619832943
603. Żur, A., & Wałęga, A. (2023). Internationalization and innovation orientation as factors of employee learning and development adaptation during Covid-19: Evidence from Polish SMEs. *Entrepreneurial Business and Economics Review, 11*(1), 77-91. https://doi.org/10.15678/EBER.2023.110104

LIST OF TABLES AND FIGURES

List of Tables

List of Figures

APPENDIX 1 MAPPING OF PERSONAL INNOVATION COMPETENCES TO INNOVATIVE WORK BEHAVIOURS

The table below lists the characteristics as well as sub-skills comprising the personal characteristics and skills comprising the personal innovation competence to the activities of the three stages of innovative work behaviour.

Table 7.1 Personal Innovation Competences mapped to Innovative Work Behaviours

			Idea generation			**Idea promotion**			**Idea Implementation**		
			Generates original solutions to problems	Creates new ideas for difficult issues	Searches out for new working methods, techniques or	Makes important stakeholders enthusiastic for innovative ideas	Mobilizes support for innovative ideas	Acquires approval for innovative ideas	Evaluates the utility of innovative ideas	Introduces innovative ideas into work environment in a systematic way	Transforms innovative ideas into useful applications
		Personal characteristics									
1		Self esteem									
2		Self-management									
3		Self-efficacy and control									
4		Ability to focus on tasks									
5		Persistence and conscientiousness									
6		Ability to perform well under pressure									
7		Ambition									
8		Engagement									

9		Goal orientation and generation									
10		Learning goal orientation									
11		Achievement and value orientation									
12		Motivation									
13		Engagement									
14		Flexibility									
15		Sense of humour									
16		Take initiative and responsibility									
17		Tolerating uncertainty									
		Future orientation									
18		Future orientation and creative visioning									
19		Visioning									
20		Openness to experiences									
21		Curiosity									
22		Proactiveness									
23		Ability to cope with non-routine tasks and uncertainty									
24		Risk taking ability									
25		Moderate resistance to change									
		Creative thinking skills									
26		Creativity									
27		Imagination									
28		Inventiveness									
29		Ability to generate new ideas and solutions									
30		Ability to do things differently									
31		Problem solving skills									
32		Learning skills									
33		Ability to rapidly acquire									
34		Exchange and combine									
35		Knowledge and cognitive skills									

36		Analytical thinking									
37		Ability to combine and interpret									
38		Willingness to question your own and others' idea									
		Social skills									
39		Cooperation skills									
40		Teamwork skills									
41		Social astuteness and sensitivity									
42		Interpersonal management									
43		Interpersonal influence									
44		Championing									
45		Ability to motivate others									
46		Ability to build trust									
47		Ability to mobilize the capacities of others									
48		Ability to create partnerships									
49		Internal and external networking									
50		Communication									
51		Ability to make your meaning clear to others									
52		Presentation skills									
53		Ability to write reports, memos or documents									
54		Ability to write and speak in a foreign language									
55		Negotiation skills									
56		Active listening									
57		Brokering (information exchange)									
		Development project management skills									
58		Ability to manage collaborative									

		knowledge creation process									
59		Ability to use time efficiently									
60		Research and development skills									
61		Project management skills									
62		Planning skills									
63		Decision making skills									
64		Ability to recognize competencies									
65		Building team spirit									
66		Negotiating the division of labour									
67		Technical skills									
68		Ability to use computers and the internet									
69		Technical crafting and researching skills									
		Content knowledge and making skills									
70		Mastery of one's own field or discipline									
71		Knowledge of other fields or disciplines									
72		Content knowledge that is not specified in advance									
		Concretization and implementation planning skills									
73		Designing skills									
74		Prototyping skills									
75		Skills in making (know-how)									
76		Esthetical and psychomotor skills									
77		Making a prototype and testing it									
78		Marketing, sales and entrepreneurship planning									

79		Implementation, planning and commercialization									

Source: Own compilation based on Janssen (2023) and Hero et al. (2021)

APPENDIX 2 MINDFUL INTERVENTION CASE STUDIES

Below a list of case studies described in academic publications used in this dissertation, which investigated the impact of mindfulness techniques.

Table 8.1. Mindful intervention case studies, population size and intervention type, 1999-2023

	Reference	Population size	Intervention type	Intervention length
1	Allen et al, 2012	61	Mindfulness meditation Mindfulness reading	6 weeks
2	Arch & Craske, 2010	60	Focused breathing	One off
3	Argyriadis et al., 2023	16	Mindfulness meditation	10 days
4	Baer et al. 2012	87	MBSR	6 weeks
5	Baer, 2006	51	MBSR	6 weeks
6		90	MBSR	6 weeks
7		42	MBSR	6 weeks
8		30	MBSR	6 weeks
9		142	MBSR	6 weeks
10		78	MBSR	6 weeks
11		22	MBSR	6 weeks
12		18	MBSR	6 weeks
13		132	MBCT	N/A
14		41	MBCT	N/A
15		59	MBSR	6 weeks
16		121	MBSR	6 weeks
17		37	Mindful listening	N/A
18		90	MBSR	6 weeks
19		54	MBSR	6 weeks
20		20	MBSR	6 weeks
21		86	MBSR	6 weeks
22		121	MBSR	6 weeks
23		16	Meditation	N/A
24		19	MBSR	6 weeks
25		73	MBSR	6 weeks
26		75	MBSR	6 weeks
27	Brewer et al., 2011	25	Meditation	One off
28	Broderick, 2005	177	Meditation	One off
29	Carlson & Brown 2005	122	MBSR	6 weeks
30	Carmody & Baer, 2008	174	MBSR	8 weeks
31	Colzato, Ozturk, & Hommel, 2012	19	meditation	One-off

32	Creswell, Way, Eisenberger, & Lieberman, 2007	35	Mindful meditation Relaxation training	3 day
33	Desbordes et al., 2012	51	MAT Mindful attention training CBCT Cognitively-Based Compassion Training	8 weeks
34	Ding et al, 2015	84	IBMT integrative body mind training	1 week
35	Farb et al., 2007	35	Mindful meditation	8 weeks
36	Flook, et al., 2013	18	MBSR	8 weeks
37	Gard et al., 2014	47	Yoga meditation	One off
38	Goldin & Gross, 2010	14	MBSR	8 weeks
39	Greenberg, Reiner, & Meiran, 2012	14	Meditation	One off
40		76	Meditation	One-off
41	Haas and Langer, 2014	90	Mindful conversation	One off
42	Hepburn & McMahon, 2017	5	Yoga breathing (pranayama) meditation	5 weeks
43	Hülsheger et al., 2013	291	Diary keeping	5 day
44		64	Diary keeping & meditation	10 days
45	Jain et al., 2007	83	Mindfulness meditation Relaxation	4 weeks
46	Jha et al., 2010	39	MMFT mindfulness-based mind fitness training	8 weeks
47		40	MMFT mindfulness-based mind fitness training	8 weeks
48		24	MMFT mindfulness-based mind fitness training	8 weeks
49		60	MMFT mindfulness-	8 weeks

			based mind fitness training	
50	Johnson et al, 2021	206	Mindfulness and meditation practices	N/A
51	Keng et al., 2013	129	Mindfulness and reappraisal training	One off
52	Leroy et al. 2013	68	MBSR	8 weeks
53	MacLean et al., 2010	60	Sustained attention meditation	12 weeks
54	Malow & Austin, 2016	15	Mindfulness training	6 weeks
55	McCarthy & Reiser, 2017	14	Stress prevention and mindfulness training	6-8 weeks
56	Ostafin & Kassman, 2012	71	Mindfulness training	One off
57	Rieken et al. 2019	92	Meditation training	One off
58	Roeser et al., 2013	58	Mindfulness training	8 weeks
59		55	Mindfulness training	8 weeks
60	Salanova, 2017	19	MBI, mindfulness-based intervention	3 weeks
61	Schmertz, Anderson, & Robins, 2009	50	Sustained attention tasks	One off
62	Tan et al., 2007	50	Integrative body-mind training	5 days
63	Valentine & Sweet, 1999	19	Meditation	One off
64	Wadlinger & Isaacowitz, 2011	73	MBSR	8 weeks
65		30	Mindfulness intervention	One off
66		302	MBSR	10 weeks
67		59	MBSR	8 weeks
68		40	Meditation training	10 days
69		93	Meditation	One off
70		139	Loving kindness meditation	7 weeks
71		44	MBSR	8 weeks
72		72	MBSR	8 weeks
73		23	MBSR	8 weeks
74		43	MBSR	8 weeks

75		41	MSSR	8 weeks
76	Weinstein et al., 2009	65	Mental tasks	One off
77		70	Stress appraisal	7 days
78		141	Mindfulness measurements	6 weeks
79	Westbrook et al., 2013	47	Mindful attention task	2 weeks
80	Wolever et al. 2012	90	Yoga-based stress reduction program	12 weeks
81		96	Meditation-based stress reduction program	12 weeks
82	Yadav & Ahuja, 2023	100	Integrative contemplative pedagogy	6 weeks
83		63	Mindful planting	8 weeks
84		4	MBSR	12 weeks
85		9	MBCT	6 weeks
86		64	Mind awareness techniques	8 weeks
87		175	Self-awareness and relaxation techniques	One off
88		121	Breathing awareness meditation	12 weeks
89		28	Mindfulness meditation	8 weeks
90		155	Mindful awareness through yoga	8 weeks
91		41	MBSR	12 weeks
92		246	Mindful education	10 weeks
93		216	Breathing techniques	12 weeks
94		17	Mindful school	2 weeks
95		48	MBSR	6 weeks
96		522	Mindfulness in school program	9 weeks
97		41	Mindfulness and yoga practices	8 weeks
98		194	Attention academy	24 weeks
99		3	Soles of feet	8 weeks

100		4	MSRD	5 weeks
101		246	Mindful education	10 weeks
102		13	MBCT	6 weeks

Source: Own compilation based on literature cited in this dissertation.