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CAN MINDFULNESS PRACTICES INFLUENCE AUTHENTIC  
LEADERSHIP?

**António Jorge Duarte Leal Moreira Magalhães**

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Supervised by  
**Maria Teresa Vieira Campos Proença**

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## **The author**

António Jorge Duarte Leal Moreira Magalhães is currently studying Health Management and Economics at Faculdade de Economia do Porto (FEP) part of University of Porto, after 12 enjoyable years working and studying in London.

He is passionate about leadership and coaching. The ability to positively influence others has been a passion from a young age and has defined his career choices so far.

António is delighted to explore, apply, and share the benefits he experienced himself from practising meditation and mindfulness, therefore, influence organisational teams to further acknowledge the present moment and explore their full individual potential. He is looking forward to creatively undertaking present and future leadership challenges within organizations and continuing to positively impact their teams.

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Throughout my life I've been influenced by numerous people. Within the various roles I played, personal and professional, there are some players worth mentioning.

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Thank you "Be the Change" for building the Mindfulness Program used as intervention for this study. It may well represent the beginning of something bigger?

## **Abstract**

Organisations search for authentic leaders is imminent, however there are still limitations on recognising personal antecedents and effective means to enhance it. This research explores the relationship between trait mindfulness (TM) levels and the authenticity of leadership, having as core goal to investigate if mindfulness techniques contribute to a more authentic leadership. If simple mindfulness practices provide means for effective leadership, then perhaps mindfulness should become an essential element of contemporary leadership development.

The present work is composed of two studies and the sample is composed of leaders who manage a team within an organization. Study 1 aims to explore the correlation between TM and authentic leadership (AL), having 192 participants. Study 2 is a quasi-experimental study where 31 participants are assessed at two different points in time. The same measures were applied before and after the mindfulness-based practices (MBPs) through self-report questionnaires. Both the MBP and questionnaires were done remotely through online platforms.

No positive correlation was found between AL and TM features in study 1. After completing the MBPs program, the participants didn't show a significant increment on the AL and TM features. When looking at leaders with lower trait mindfulness characteristics, we can observe that they did not benefit more from MBPs regarding acquiring significantly higher levels of authentic leadership features.

This study concludes that MBPs do not increase leader's authenticity levels which science-based benefits can positively impact leaders and their teams. Organisations may search for additional ways to promote authentic leadership levels and behaviours within their leaders, aiming to induce follower outcomes (Larsson, Clifton & Schnurr, 2021). Nevertheless, further studies should be conducted to explore further the relationship between mindfulness and authentic leadership, as this study involved a considerably small sample.

**Keywords:** Organizational Challenges, Authentic Leadership, Trait Mindfulness, Mindfulness-based Practices

## Resumo

As organizações procuram líderes autênticos, no entanto, ainda existem limitações no reconhecimento de predisposições pessoais e meios eficazes para as exponenciar. Esta pesquisa explora a relação entre os níveis de *mindfulness* e a autenticidade da liderança, tendo como objetivo principal investigar se as técnicas de *mindfulness* contribuem para uma liderança mais autêntica. Caso as práticas simples de *mindfulness* forneçam meios para uma liderança eficaz, então talvez deva tornar-se um elemento essencial do desenvolvimento da liderança contemporânea.

O presente trabalho é composto por dois estudos e a amostra é composta por líderes que gerem uma equipa dentro de uma organização. O Estudo 1 tem como objetivo explorar a correlação entre TM e liderança autêntica, tendo 192 participantes. O Estudo 2 é um estudo quase experimental onde 31 participantes são avaliados em dois pontos temporais. As mesmas medidas foram aplicadas antes e depois das práticas baseadas no *mindfulness* através de questionários de autoavaliação. Tanto as práticas de *mindfulness* como os questionários foram feitos remotamente através de plataformas online.

Não foi encontrada qualquer correlação positiva entre as características de AL e TM no estudo 1. Após completarem o programa, os participantes não mostraram um aumento significativo nas características associadas a *mindfulness* e liderança autêntica. Quando olhamos para líderes com menos características de *mindfulness*, podemos observar que eles não beneficiaram mais com as práticas de *mindfulness* no que respeita à aquisição de níveis significativamente mais elevados de características de liderança autêntica.

Este estudo conclui que as práticas de *mindfulness* não aumentam os níveis de autenticidade do líder podendo impactar positivamente os líderes e as suas equipas. As organizações devem procurar formas adicionais de promover níveis e comportamentos autênticos de liderança nos seus líderes, com o objetivo de induzir resultados positivos nos seus seguidores (Larsson, Clifton & Schnurr, 2021). No entanto, devem ser realizados mais estudos para explorar ainda mais a relação entre o *mindfulness* e a liderança autêntica, uma vez que este estudo envolveu uma amostra consideravelmente pequena.

**Palavras-chave:** Desafios Organizacionais, Liderança Autêntica, *Mindfulness*, Práticas baseadas em *Mindfulness*

## **Abbreviations**

**AL** - Authentic Leadership

**ALI** - Authentic Leadership Inventory

**ALQ** - Authentic Leadership Questionnaire

**EFA** - Exploratory Factor Analysis

**CFA** - Confirmatory Factor Analysis

**MAAS** - Mindful Attention Awareness Scale

**MBPs** - Mindfulness-based Practices

**MTurker** – Mechanical Turk User

**TM** - Trait Mindfulness

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## 1. Introduction

Today's organisations experience a variety of challenges brought by globalisation, by the enhanced connectivity required for remote roles and by the constant drive for efficiency authentic leadership and trait mindfulness features and performance (Passmore, 2019). There are numerous tools and training programs available, however, organisations are still not able to apply leadership training programs designed to individual needs (Nübold, 2020).

The search for a leadership approach allowing individuals to achieve performance standards aligned with their values has become a challenge, given the complexity of the current reality, as well as situations of organisational neglect and leadership failure (Gardner, Cogliser, Davis, & Dickens, 2011). Authentic leadership (AL) appears as a form of normative and functionalist perspective (Avolio and Gardner, 2005; Avolio et al., 2004) in which leaders are considered 'transparent about their intentions and [who] strive to maintain a seamless link between espoused values, behaviours and actions' (Luthans and Avolio, 2003: 242). Authentic leaders are defined as "those who are deeply aware of how they think and behave, and are perceived by others as being aware of their own and others' values/moral perspectives, knowledge and strengths; aware of the context in which they operate; and who are confident, hopeful, optimistic, resilient, and of high moral character" (Avolio, Luthans, & Walumba, 2004, p. 4).

Various authors (Gardner, Cogliser, Davis, & Dickens, 2011; Kinsler, 2014), have demonstrated the benefits of AL for task, group, and organisational performance as well as followers' job satisfaction, engagement, organisational citizenship behaviours and interpersonal justice. This evidence is well-accepted and delineated, however, there is "scarce research on the personal antecedents of authentic leadership and thus few answers about how to develop appropriate training" (Nübold, 2020, p. 469).

Being an authentic leader is an integral part of a leader's way of being and not a leadership style. Nevertheless, there are certain characteristics and behaviours that can be enhanced or developed with appropriate training (Cooper et al., 2005; Gardner et al., 2011). That being said, we believe that MBPs can be extremely advantageous to promote leaders' authentic characteristics. Authentic leadership consists of a pattern of behaviour based on positive psychological capacities and an ethical and moral climate (Ferreira, 2019). Moreover,

having in mind the previous definition of AL, it is expected that these types of training programs might improve awareness and authenticity.

Traditional trainings do not have a holistic approach that consequently treats the individual as a whole (Barling, Weber, & Kelloway, 1996; Dvir, Eden, Avolio, & Shamir, 2002) but focus on a specific set of skills that are desirable, standard and ideal (Fenley, & Liechti, 2011). Promoting leader's acknowledgement of their own "true core" can result in transparent and honest communication with followers and can contribute to maintaining congruence, individual identity and values. (Nübold, 2020).

Reb, Sim, Chintakananda, and Bhave (2015), Verdorfer (2016), and Auken (2019) presented considerations on how mindfulness positively relates to authentic leadership, identifying self-awareness as an essential starting point for AL. Mindfulness and leadership are explored and discussed empirically in various books and articles (Carroll 2006, 2008; Gonzalez 2012; Marturano 2014; Bunting 2016; Sinclair 2016; Pircher Verdorfer 2016; Hougaard & Carter 2018) and numerous crossover themes emerge from the popular literature, specifically: attention, awareness, unbiased observation, self-regulation, accessibility (of the practice), adaptability, authenticity, and resilience (Auken, 2019).

In the past decade, corporate mindfulness training programs have exploded in popularity (Hafenbrack et al., 2020). Although some sceptical authors have questioned if these programs are only a trend or a way of using spiritualism as an advantage to capitalism (Foster, 2016; Hülsheger, 2015; Purser & Loy, 2013; Van Dam et al., 2018), others enlighten the advantages of mindfulness techniques and practices when used with a critical eye (Nübold, 2020). Various clinical, medical, and psychological studies have been conducted on individuals and collectives; mindfulness at work and its correlation with well-being, performance, adaptability, and quality of relationships seems to be encouraging positive, improving cognitive ability to perform better in general and in dynamic environments (Badham & King, 2021).

Mindfulness could be integrated as a substantial building block of leadership development programs or might even be included in trainee programs in order to build leader's trait mindfulness (TM) and AL in a sustainable way (Nübold, 2020). Mindfulness-based programs (MBPs) positively influence various roles frequently performed by a leader such as conflict management and collaboration (Kay & Skarlicki, 2020). However, there is

still a lot to explore and know about the direct experience of leaders who attend such programs in their specific context (Dix et al., 2021; Ihl et al., 2020).

Nübold (2020) suggests that future studies should further explore the effect of mindfulness training on a variety of leadership behaviours, determining which ones benefit most from mindfulness practices and which ones act as important prerequisites for other behaviours. Auken (2019) explored the relationship between Mindfulness and Leadership and suggests that further studies could be conducted to identify correlations and measure the intervenient factors of AL. Recent studies direct further investigation to the boundary conditions that boost or hinder the influence of TM as well as the success of mindfulness interventions for leaders' AL (Nübold 2020). Trait (or dispositional) mindfulness refers to the innate capacity of paying and maintaining attention to present-moment experiences with an open and non-judgmental attitude (Brown & Ryan, 2003) and is one of the most relevant personality traits to date for meditation-based interventions (Yi-Yuan, 2020). Likewise, as recommended by Davidson and Kaszniak (2015), future studies should measure the effect of MBPs on organisational employees.

The present research aim is to contribute to understanding the use of the mindfulness techniques in organisational leadership. The main objective is to analyse the effect of MBPs on AL, assessing the consequences of an intervention, transforming them on performance and wellbeing advantages. Inherent to being a leader is the capability of influencing others and promoting these practices, spreading them through their teams. We aim to understand how MBPs influence the awareness of AL, which can itself support practising leaders in managing the complex contemporary organisational dynamics at play, as suggested by Iszatt-white & Stead (2021).

Such information can potentially help organisations understand the value and how to use and tailored mindfulness interventions to different groups of participants based on their characteristics.

This dissertation is composed of two main chapters: a literature review and an online intervention study. First, we outlined and examined the most recent research and literature on the topics of Authentic Leadership and Mindfulness. Secondly, we explained how these concepts relate to each other and future studies suggested by recent researchers. In the following chapter, we set out our methods of data collection and analysis as well as

the research objectives, potential issues and methodology used. The results obtained are presented, and so are the conclusions of the study and its contributions to management and leadership teams within institutional organisations. We conclude by suggesting an agenda for future research in this area and highlight the value of mindfulness practices as a key context for sharpening and testing our understanding of authenticity in leadership.

## 2. Authentic Leadership

Much has been said on the evolution of leadership (i.e. Northouse, 2013) and many leadership theories available today help to make sense of leadership styles and tendencies; however, a relatively new and important focus in leadership studies is on how leaders themselves can achieve a state of leadership that meets the current leadership demand without “burning” themselves out (Sinclair, 2007). As referred by Iszatt-White, Stead and Elliott (2020), the call for leaders to be authentic in the daily representation of their role is real and frequently noticed in the academic literature (Avolio and Gardner, 2005), business world and news.

Authentic leadership consists of a pattern of behaviour based on positive psychological capacities (self and others awareness and self-regulation) and an ethical and moral climate (Jones, 2012, Ferreira, 2019). The concept of AL is the focus of much leadership scholarship, and there are still some misconceptions and the need to understand/define the concept (Larsson, Clifton & Schnurr, 2021).

Contemporary leaders face ever-increasing technological changes and advancements, generational and cultural shifts, and social norms, all of which are increasingly intolerant to outdated protocols. Today’s leaders must endure constant change, competing commitments, and complex inter- and intra-personal exchanges intensified by remote work; all of which requiring new methods and training practices that appropriately enable them to meet these and other challenges (Auken, 2019).

According to Avolio et al. (2004), authentic leadership is characterised by four behaviours: i) self-awareness, ii) internalised moral perspective, iii) balanced processing and iv) relational transparency. Balanced processing refers to objectively analysing the context and all relevant data before making decisions. The internalised moral perspective is characterised by the leader being guided by moral values and internal norms that direct his/her actions, even if such values are against the group, the organisation, or social pressures. Relational transparency is about the ability of the leader to present clearly and without any tendentious amendments the “real truth”. Finally, self-awareness is associated with the leader’s process of achieving a deeper understanding of himself as regards his/her strengths and weaknesses (Avolio et al., 2017). In short, the AL theory proposes that authentic leaders are faithful to their moral convictions and their actions represent their

rooted values, even under pressure (Walumbwa, P. Wang, Wang, Schaubroeck, & Avolio, 2014).

Authentic leadership propagates from the atomized leader and there is a causal logic to it so that AL behaviours can induce follower outcomes (Larsson, Clifton & Schnurr, 2021) and has shown positive correlations with transformational leadership, job satisfaction, work engagement, and affective organisational commitment (Jones 2012, Ferreira, 2019). Followers of authentic leaders tend to be self-controlled and focus on added value goals, maintaining high self-esteem, identifying potential threats, which leads followers to achieve enhanced performance, learning, satisfaction, and well-being at work (Rahimnia & Sharifirad, 2015).

### **3. Mindfulness**

#### **3.1 What does mindfulness mean?**

Mindfulness comes from the Buddhist word "sati", which corresponded to the primordial teaching related to remembrance, attention, and consciousness (Germer, 2013). For Passmore (2018), "sati" combines aspects of consciousness, attention, and remembrance, which are accompanied by non-judgment, acceptance, kindness, and sympathy for each other. Choi and Leroy (2015) state that investigating mindfulness without considering its origin and context may lead to an incorrect interpretation of the word. The term, as per Buddhist psychology, consists of the reflection of cognitive, affective, and attention qualities. The origin in Buddhist psychology and the complexity of the mindfulness concept have originated several definitions and applications of the term (Bergomi, Tschacher, & Kupper, 2013), although some attempts have been made to draw up a definition (Bishop et al., 2004). For Choi and Leroy (2015), this variety can be positive as it provides advances in scientific research. It may also be considered a limiting factor for researchers that decide to objectively explore the subject, increasing the difficulty level (Lutz, Jha, Dunne, and Saron, 2015). Bishop et al. (2004) recommended a model to define mindfulness, which involves two components: i) the self-regulation of attention to the present moment, that is, directing attention to the stimuli that arise, to enable a growing recognition of mental events in the present moment; ii) the adoption of a posture of curiosity, acceptance and openness to mental events that will allow, through the conscious elaboration of multiple interpretations and perspectives, their relativization.

According to Kabat-Zinn (1991, referenced by Passmore, 2018), one of the most cited authors and responsible for transferring mindfulness to the clinical area and society in general, "Mindfulness is simply a practical way to be more in touch with the fullness of our being, through a systematic process of self-observation, self-inquiry and mindful action. There is nothing cold, analytical or unfeeling about it. The overall tenor of mindfulness practises gentle, appreciative, and nurturing" (p. 3). For Kabat-Zinn (1991, referenced by Karjalainen, Islam, & Holm, 2019), from a modern perspective, mindfulness is widely promoted as a tool to increase the state of attention to the present moment, as well as improving life balance and wellbeing. According to Germer (2013), the word mindfulness can be interpreted as i) a way to define a state or psychological process; (ii) a practice that allows the development of mindfulness - meditation. Mindfulness as a practice concerns



meditation techniques and other techniques used to promote this psychological process. Therefore, in literature, the concept becomes somewhat ambiguous since it simultaneously portrays an antecedent (the practice of mindfulness) and an effect (a state or level of mindfulness).

Sutcliffe et al. (2016) mention that mindfulness can be studied in two distinct ways: the individual form and the collective form. Thus, two distinct paths of research have emerged, namely, one that focuses on the intrapsychic processes of the individual level of mindfulness (individual form) and another that focuses on the social processes of collective mindfulness (collective form). The individual level of mindfulness does not have a universally accepted definition. Sutcliffe et al. (2016) analysed several definitions in scientific articles and verified they all agree on mindfulness being a particular state of consciousness, which is, the individual attention and focus on the events of the present moment. Individual mindfulness can correspond to a trait or state. The trait is related to a characteristic or a natural pattern with which an individual treats daily internal and external events. On the other hand, the collective level of mindfulness encompasses five processes interrelated at multiple organisational levels: i) concern with failure, ii) reluctance to simplify interpretations, iii) sensitivity to operations, iv) commitment to patience and v) dependence on expertise. Unlike the individual form, collective mindfulness is not seen as an intrapsychic process (Sutcliffe et al., 2016)

### **3.2 Mindfulness based practices**

Mindfulness based practices (MBPs) can use any of the five senses: vision, smell, taste, hearing and touch. Buddhist psychology considers the mind as an organ of meaning since thoughts and images can be objects of consciousness. However, at an early stage, the practice of mindfulness is easier for the practitioner when he focuses only on body sensations (Germer, 2013). According to Germer (2013), for mindfulness to be known needs to be experienced. People can practice mindfulness daily, or with other regularity, through formal or informal training. The practice of formal mindfulness refers to meditation where the practitioner trains attention, systematically observes the content of the mind, and learns how the mind works. The practice of informal mindfulness consists of using mindfulness in day-to-day life. In informal practice, any mental event can correspond to an object of consciousness and attention can be directed to the practitioner's breathing, to listening a

specific sound or to bodily sensations at a specific moment. In this type of practice, conscious walking and conscious feeding stand out. In the conscious walk, inwardly and silently, the practitioner observes what is around him/her as he/she walks. In conscious eating, the practitioner eats slowly and silently, observes the food on his plate, identifies the sensations of food in his mouth, as well as the taste of food throughout the process of chewing and swallowing (Germer, 2013).

Bergomi, Tschacher, and Kupper (2015) mention that when meditation practice is intended for the development of mindfulness it is called mindfulness meditation. The mindfulness meditation practitioner can practice it in a variety of ways, including sitting, lying down, standing, walking, or through body movements. According to Caldwell, Harrison, Adams, Quin, and Greeson (2010) all meditation practices focus on one of the following aspects: on body sensations, breathing, mantra or visualisation. The authors also point out that each practice promotes the development of different levels of mindfulness. In formal practice, the practitioner should decide the place and time of his day he intends to train his mindfulness when meditating, as well as how he will perform it. Mindfulness meditation may differ from practitioner to practitioner due to the characteristics of the practice, the behaviour and attitude of the practitioner at the time of training. In informal practice, the individual acts consciously throughout his day, using some of the available techniques of mindfulness meditation.

Sutcliffe et al. (2016) report several investigations proving that meditation enhances the development of mindfulness. Their results showed that the state of mindfulness can be activated and developed using brief instructions and exercises related to meditation. A study by Brown and Ryan (2004) showed significantly higher individual level of TM between Zen meditation practitioners and people not enrolling in meditative practices. Furthermore, the results demonstrate that years of practice were related to higher levels of TM.

Despite some studies suggesting that meditation can increase TM levels others point to no relationship between meditation practice and the individual level of TM (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

Bergomi et al. (2015) reinforce that self-reporting mindfulness outcomes can influence the results, and lead to biases about the relationship between meditation practice and TM levels. Additionally, according to Hafenbrack (2017), one does not necessarily has

to practice meditation to develop a state of mindfulness. The author provides three examples of mindfulness which are not meditative: (i) the perspective of mindfulness as a state, with one being aware of the present moment; (ii) the day-to-day of basketball players/professional sportsmen, who cannot be distracted; (iii) airplane pilots when they cannot go into autopilot mode.

#### 4. Authentic leadership and mindfulness

Direct theoretical connections between mindfulness and effective leadership have established (Boyatzis & McKee, 2005; Heifetz & Linsky, 2002) attention as a measure of leadership quality and have built their theory of adaptive leadership (Heifetz, Grashow, & Linsky, 2009) using attention regulation, awareness, and observation as crucial skills (Auken, 2019). Research has shown that employees with high levels of mindfulness exhibit more authentic behaviours (Leroy et al., 2013) based on a deeper understanding of themselves, their strengths and weaknesses (Avolio et al., 2017). Mindfulness is considered foundational for leaders, particularly impacting the perception of leadership behaviours by followers (Graf et al., 2011).

As described previously, there have been recent calls for the importance of authentic leaders (Iszatt-White et al., 2020), with several authors proposing that full consciousness of self, others, nature, and society (Boyatzis & McKee, 2005) is an essential component of authentic leadership (Northouse, 2013). Models have been designed by organisations recognising leadership as a way of being, focusing on the interpersonal development of the self as a leader (Brendel & Bennett, 2016). Today, many of the largest companies such as Google, Target, Lego, and McKinsey, offer their employees personalised mindfulness programs (Caring-Lobel, 2016), hoping to influence better leadership practices.

According to Islam et al. (2017), mindfulness development programs are growing, as have been contributing to employees being less reactive, behaving more strategically, and taking a moment to listening to people.

However, some recent studies question the results of this approach (Van Dam et al., 2018) and some authors use the concept *McMindfulness* to criticise a popularised version of mindfulness, misused by organisations, despite detrimentally ethical foundations of these programmes (Purser & Loy, 2013). There are also less conclusive studies such as that conducted by Tuckey, Sonnentag & Bryan (2018) finding weaker relationships between mindfulness levels and engagement at work.

Organisations today experience a variety of challenges brought by globalisation, including the enhanced connectivity required for remote roles and the constant drive for efficiencies and better results (Passmore, 2019). There are numerous tools and training

programs available, however, organisations are still faced with the challenge of designing leadership training programs tailored to individual needs (Nübold, 2020).

Passmore (2018) points out that more research is needed to make strong conclusions about the usefulness of mindfulness practices for improving occupational performance, since there is still no clear understanding of the psychological processes relating the two. For Passmore (2018), despite promising evidence for the use of mindfulness as a tool, more studies are needed to better understand the role of mindfulness to enhance individual and collective performance. In addition, the author highlights the need of randomised studies with appropriate sample size and the need for researchers to publish their, whether positive or negative results were observed results.

## 5. Research objectives and hypotheses

The individual level of mindfulness does not have a universally accepted definition. Sutcliffe et al. (2016) revised several definitions in scientific articles and verified an overall agreement on mindfulness being a particular state of consciousness, characterized by the individual attention and focus on present-moment event. Individual mindfulness can correspond to a trait or a state. The trait is related to a characteristic or a natural pattern used by the individual to handle daily internal and external events. The state of TM is a more volatile individual characteristic, thus potentially easier to influence using training programs. This study aims to measure the impact of MBPs on the level of mindfulness in organisational leaders currently on remote work. Moreover, previous studies show that full consciousness of self, others, nature, and society (Boyatzis & McKee, 2005) is an essential component of AL (Hughes et al., 2009; Northouse, 2013). Direct theoretical connections between mindfulness and effective leadership performance have been demonstrated (Boyatzis & McKee, 2005; Heifetz & Linsky, 2002). We intend to determine how much the baseline TM level of organisational leaders is influencing their AL features. The following hypothesis are proposed:

**Hypothesis 1:** *There is a positive correlation between TM and AL.*

The present research aims to contribute to the understanding of the role of mindfulness in improving leadership skills of organisational leaders on a remote role. The dimensions to be considered are the leader's trait mindfulness level and the four behaviours of authentic leadership: i) self-awareness, ii) internalised moral perspective, iii) balanced processing and iv) relational transparency. Research has shown that employees with high mindfulness would exhibit more authentic behaviours (Leroy et al., 2013) based on a deeper understanding of themselves, particularly own strengths and weaknesses (Avolio et al., 2017). This research may also be able to offer some insights about further workplace adaptations capable of supporting leaders in maintaining mindfulness practices (Dix et al., 2021).

**Hypothesis 2:** *MBPs will positively influence AL features as perceived by the leader.*

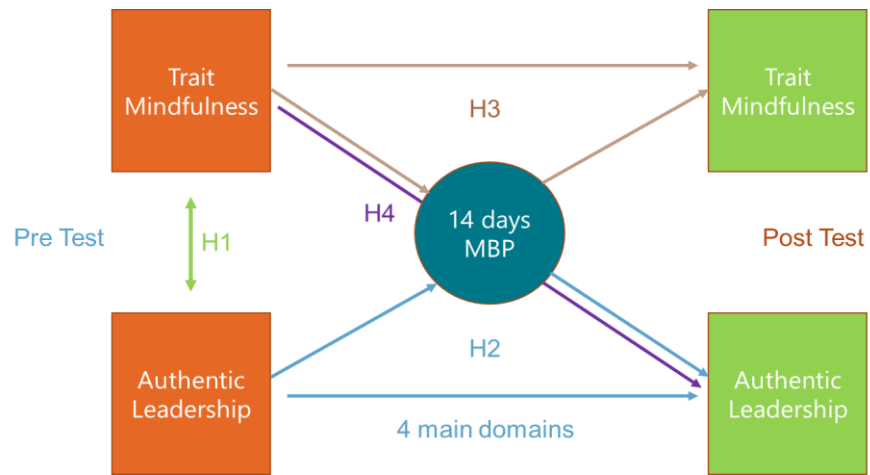
The main objective is to analyse the effect of MBPs on individual baseline level of AL, exploring how mindfulness can be used by leaders to enhance their own and unique qualities, transforming them on performance and wellbeing's advantages. For clarity, mindfulness practices involve practising mindfulness meditation and generally include attention, awareness, present moment focus, and non-judgement. Despite some evidence of the contribution of meditation practices to the development of individual's level of mindfulness., this is no consensual in the literature (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Therefore, this study aims to contribute to the understanding how MBPs affect leaders' TM levels.

**Hypothesis 3:** *MBPs influence individual core characteristics of TM as perceived by the leader.*

This study aims to analyse and understand the impact of MBPs on individual AL baseline level, and support practising leaders in managing complex dynamics, as suggested by Iszatt-white & Stead (2021). We also intend to determine if MBPs positively influence authentic leadership characteristics. If so, it will allow organisations to direct leaders with the bigger gain opportunity to this or other programs. With such information in hand, organisations would be better equipped to tailor mindfulness interventions to different groups of participants based on their individual characteristics. Saying that, we intend to identify which organisational leaders may benefit from these programs the most and offer organisations evidence that provides direction to which training they may undertake to be better prepared to undertake the challenges and responsibilities associated with the position.

**Hypothesis 4:** *Leaders with lower TM scores can benefit more from MBPs regarding acquiring AL features.*

Figure 1 – Investigational Model



Acronyms: MBPs, mindfulness-based practices



## 6. Methodology

To test the defined research hypotheses (Creswell, 2009) we will use a quasi-experimental study design which is a type of quantitative methodology. In quasi-experimental research, participants are not randomly assigned to treatments or sequences of treatments (Cook & Campbell, 1979). Instead, participants self-select to the control or intervention, or are assigned using naturally occurring grouping or based on a specific characteristic, which is the case of this investigation. Because the independent variable is manipulated before the dependent variable is measured, quasi-experimental research eliminates the directionality problem. Because participants are not randomly assigned, quasi-experimental research does not eliminate the problem of confounding variables. In terms of internal validity, therefore, quasi-experiments are generally somewhere between correlational studies and true experiments (Maciejewski, 2018).

The study will use primary data, collected through online questionnaire surveys, with closed and concise questions, allowing the collection of objective quantitative data (Reichardt & Cook, 1979). This method has several advantages such as the simplicity of administration (Malhotra & Birks, 2007), speed in the collection and analysis of data (Carmo & Ferreira, 2008), low cost associated with handling and geographical dispersion.

A non-probabilistic sampling method was used, more precisely, a convenience sampling method, where the elements are selected for their convenience to the study (Marôco, 2018). Although this method presents some drawbacks, such as being considered unrepresentative of the population, it is the least expensive and least time-consuming of all sampling methods, and sampling units are accessible and easy to measure (Malhotra et al., 2017).

This study is directed to employees who are part of the leadership team of their organisation and are directly managing other employees. They will also be on the remote work regimen and located amongst various geographical regions.

The questionnaires are preceded by informed consent. The study and research goals were clearly explained to the participants and data confidentiality and anonymity were assured to the participants. Since the questionnaires were made available in public groups, information from users who are linked to a particular health service were not accessed.

The present work is divided into two studies. Study 1 has a cross-sectional nature and is intended to evaluate the reliability and factorial structure of the instruments applied. Furthermore, Study 1 aims to test H1. Study 2 is a quasi-experimental study where the participants voluntarily self-evaluate their AL and TM levels at two different points in time. The same measures will be applied before and after the MBP and H2, H3 and H4 will be tested.

## 7. Empirical Studies

### 7.1 Study 1 - Cross-sectional study

#### 7.1.1 Procedure

The questionnaires were disseminated by contacting organisations through their Human Resources Department, where would potentially be Team Leaders with interest in participating in the study; via email (academic and personal contacts); and using social and professional media such as LinkedIn, Facebook, Twitter, and Instagram. Due to the low number of participants and low adherence to the program, Amazon Mechanical Turk was also used as an instrument of gathering the necessary number of participants.

We asked leaders to indicate their level of TM by answering an online questionnaire based on the 15-item Mindful Attention and Awareness Scale (MAAS) by Brown and Ryan (2003); and answer the 14-item Authentic Leadership Inventory (ALI) by Neider (2020) and Schriesheim (2011), which will determine their baseline AL level.

#### 7.1.2 Participants

288 participants completed survey 1, of which 192 were considered for analysis. The 96 participants excluded were either not leading teams or did not correctly respond to the control question. The control question, adapted from Phillips (2013), was introduced to ensure participants were reading attentively the full survey resulting in good quality data.

The sample gender distribution was almost even with 49% males and 51% females.

Concerning nationality, Americans had the highest representativeness, representing 49% of the sample, followed by Indian (14.1%), and Portuguese (10.4%). The diversity of the participants was obtained through the Amazon MTurk crowdsourcing platform and from contacts on social networks, such as Instagram and LinkedIn.

Regarding education, 53.6% had a bachelor's degree, 20.8% a master's degree and 12.0% had no university studies. Approximately 58.1% were on hybrid working schemes, 29.0% on remote roles, and 12.9% were working on-site. From all participants, 51.6% managed a team of up to 10 people, 41.9% from 11 to 100 people and the remaining managed

100 people or more. There were 63.0% of participants who had practised mindfulness before the study.

*Table 1 - Sample's sociodemographic and professional characterization*

		<b>n</b>	<b>%</b>
Gender	Male	94	49
	Female	98	51
Age	Under 25 years	23	11.9
	25 to 40 years	129	67.2
	Above 40 years	40	20.8
Nationality	American	94	49
	Indian	27	14.1
	Portuguese	20	10.4
	Others	42	26.5
Education	Bachelor / Degree	103	53.6
	Doctorate	10	5.2
	Master	40	20.8
	No university studies	23	12
	Post-Graduation/MBA	16	8.3
Working Scheme	100% On-site	42	21.9
	100% Remote	51	26.6
	Hybrid (50% remote + 50% on-site)	32	16.7
	Hybrid (25% remote + 75% on-site)	46	24
	Hybrid (75% remote + 25% on-site)	21	10.9
Directly Managing	Up to 10 people	99	51.5
	11 to 100 people	80	41.7
	More than 100 people	13	6.8

### 7.1.3 Measurement of constructs

Walumbwa, Avolio, Gardner, Wernsing, and Peterson (2008) proposed the Authentic Leadership Questionnaire (ALQ), composed of sixteen items distributed in four factors (balanced processing, internalised moral perspective, relational transparency, and self-awareness). This instrument has proven to be adequate to measure psychometric

characteristics in studies conducted across the world namely North America, China, Kenya, Spain, Brazil and Poland among others (Walumbwa et al., 2008).

It should be noted, though, that this instrument is protected by copyrights, which makes it difficult to be used by researchers and professionals with interests in this subject. Consequently, Neider and Schriesheim (2011) developed the Authentic Leadership Inventory (ALI), which is based on the same theory adopted by Walumbwa et al. (2008) but is freely accessible to the public. The initial version of the scale consisted of 16 items (as per Table 2), to be answered in five-point Likert type scales and distributed in the same four dimensions of the ALQ, namely: balanced processing, internalised ethics/moral, transparency to others and self-awareness. Higher scores indicate higher levels of AL.

*Table 2 - Items and dimensions of the Authentic Leadership Inventory (Neider and J Bus Psychol, 2020)*

<b>Dimensions</b>	<b>Self-Assessment Questionnaire</b>
Self-awareness	1. I can list my three greatest weaknesses. 2. I can list my three greatest strengths. 3. I seek feedback as a way of understanding who I really am as a person. 4. I accept the feelings I have about myself.
Internalised Moral Perspective	5. My actions reflect my core values. 6. I do not allow group pressure to control me 7. Other people know where I stand on. 8. My morals guide what I do as a leader.
Balanced Processing	9. I seek others' opinions before making up my own mind. 10. I listen closely to the ideas of those who disagree with me. 11. I do not emphasise my own point of view at the expense of others. 12. I listen very carefully to the ideas of others before making decisions.
Relational Transparency	13. I openly share my feelings with others. 14. I let others know who I truly am as a person. 15. I rarely present a "false" front to others. 16. I admit my mistakes to others.

The individual level of mindfulness was measured through the MAAS. The MAAS is appropriate for the present study, once it does not expect that individuals have experience or knowledge about mindfulness practices. The MAAS is a 15-item unidimensional scale

(table 3) measuring the ability of an individual to act with awareness and be attentive in various day-to-day experiences. The authors (Brown & Ryan, 2003) reported a strong reliability coefficient ( $\alpha = .87$ ) using a 6-point Likert scale (1 - "Always" to 6 – "Never") and participants indicate how regularly they experience each of the items. Higher scores indicate a higher individual level of TM. Table 3 presents all the items to be used.

*Table 3 - Items of the Mindful Attention Awareness Scale*

MAAS	Self-Assessment Questionnaire
	<ol style="list-style-type: none"> <li>1. I could be experiencing some emotion and not be conscious of it until sometime later.</li> <li>2. I break or spill things because of carelessness, not paying attention, or thinking of something else.</li> <li>3. I find it difficult to stay focused on what's happening in the present.</li> <li>4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.</li> <li>5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.</li> <li>6. I forget a person's name almost as soon as I have been told it for the first time.</li> <li>7. I seem to be "running on automatic," without much awareness of what I am doing.</li> <li>8. I rush through activities without being really attentive to them.</li> <li>9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.</li> <li>10. I do jobs or tasks automatically, without being aware of what I am doing.</li> <li>11. I find myself listening to someone with one ear, doing something else at the same time.</li> <li>12. I drive to places on 'automatic pilot' and then wonder why I went there.</li> <li>13. I find myself preoccupied with the future or the past.</li> <li>14. I find myself doing things without paying attention.</li> <li>15. I snack without being aware that I am eating.</li> </ol>

*Acronyms: MAAS, Mindful Attention Awareness Scale*

#### 7.1.4 Data analysis

SPSS Statistics 27 (IBM, 2021) was used to calculate descriptive statistics, reliability analysis (Cronbach's alpha) and Pearson's correlations.

Factor analysis is a statistical method that aims to identify a set of reduced number of latent variables, factors, or constructs, which allow explaining the correlation structure observed within a larger a set of manifest variables (Marôco, 2010). This simplifies the analysis by reducing the number of variables needed to describe the correlation (Pestana & Gageiro, 2003).

Factor analysis may be exploratory (EFA), treating the relationship between variables without determining the extent to which the results fit the model, or confirmatory (CFA), comparing the results achieved with those that make up the theory (Pestana & Gageiro, 2003). EFA is an exploratory method that should be used without background information about the factor structure explaining the correlations between the observable variables. On the other hand, CFA is a confirmatory method to be used in the presence of preliminary information on the factor structure that needs to be confirmed (Marôco, 2010).

The ALI and the MAAS were explored using EFA to discern the underlying factor structure. EFA was performed through parallel analysis with the maximum likelihood method and varimax rotation. Measurement specialists have conducted simulation studies and concluded that parallel analysis is the most accurate estimate of the number of factors to retain (Ledesma & Valero-Mora, 2007). An oblique rotation method was used, considering that if more than one factor exists, they would be correlated (Field, 2009; Damásio, 2012). Items with commonalities under .50 and factor loadings under .40 were removed according to established criteria (Hair, 1998). EFA and CFA were performed using an open-source statistics program JASP 0.16.3 (2022).

For the CFA, a  $p < .01$  cut-point was used to evaluate significance. Established fit criteria for evaluating the CFA were utilised, including the Hu and Bentler (1999) two indices combination strategy using a standardised root mean square residual (SRMR) under .09 and a root mean square error of approximation (RMSEA) of .06 or less as indicators of good fit. In addition, a Chi-squared ratio ( $\chi^2/DF$ ) of five or less and a comparative fit index (CFI) of .95 or higher were used to assess model fit Kline's (2016).

#### 7.1.4.1 Authentic Leadership Inventory

Reliability analysis was performed for each of the four dimensions proposed by the authors and the coefficients are reported on table 4. Inspecting the items' contribution for the Cronbach's alpha coefficients lead to the removal of one item in D2 (10. *Other people know where I stand on controversial issues*) and D4 (16. *I admit my mistakes to others*). For the ALI total scale, the reliability coefficient increased after removing item 16.

Table 4 - Reliability analysis and descriptive statistics of the total Authentic Leadership Inventory

Dimensions	M	SD	Initial $\alpha$	Final $\alpha$
D1. Self-awareness	3.91	.68	.617	.617
D2. Internalised moral perspective	3.98	.66	.663	.663
D3. Balanced Processing	3.82	.66	.575	.575
D4. Relational Transparency	3.71	.63	.328	.506
ALI total	3.89	.60	.840	.860

Acronyms: ALI, Authentic Leadership Inventory

Regarding the alpha coefficients of each dimension, specially D3 and D4, indicates the dimensions do not retrieve acceptable reliability, therefore ALI was used as a unidimensional (one factor scale). In this case item 16 was removed to improve the overall  $\alpha$ , ending up with a final ALI version comprising 15 items.

The final 15 items of the ALI were submitted to an exploratory factor analysis (EFA) since the authors original structure did not retrieve adequate reliability. The Kaiser-Meyer-Olkin (KMO = .871) test revealed sample adequacy for factor analysis. Bartlett's test of sphericity ( $\chi^2$  (120) = 859.156,  $p < .001$ ) returned a significant revealing consistent correlation between the items. The first and single round of EFA retrieved one factor. Communalities varied from .49 to .67. Item 3 (*I seek feedback as a way of understanding who I really am as a person*) was removed, presenting factor loading under .40. The final solution comprised 14 items accounting for 31% of the explained variance.



CFA was performed to confirm this structure retrieving satisfactory fitting indexes (table 4). The final ALI scale factor loadings and coefficients of determination ( $R^2$ ) are presented in table 5.

*Table 5 - Fitting indexes for the Confirmatory Factor Analysis of the ALI*

<b>ALI</b>	<b><math>\chi^2</math></b>	<b>df</b>	<b><math>\chi^2/df</math></b>	<b>CFI</b>	<b>RMSEA (90% CI)</b>	<b>SRMR</b>
	127.579	76	1,679	.930	.059 (.041 - .077)	.054

*Acronyms: df = degrees of freedom, CFI = Comparative fit index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval, SRMR = Standardised Root Mean Square Residual.*

*Table 6 - ALI scale factor loadings and coefficients of determination*

	<b>Factor</b>	<b>R<sup>2</sup></b>
1. I can list my three greatest weaknesses.	.499	.278
2. I can list my three greatest strengths.	.700	.497
4. I accept the feelings I have about myself.	.455	.369
5. My actions reflect my core values.	.612	.314
6. I do not allow group pressure to control me	.553	.318
7. Other people know where I stand on.	.563	.432
8. My morals guide what I do as a leader.	.635	.233
9. I seek others' opinions before making up my own mind.	.486	.228
10. I listen closely to the ideas of those who disagree with me.	.476	.245
11. I do not emphasise my own point of view at the expense of others.	.499	.205
12. I listen very carefully to the ideas of others before making decisions.	.458	.425
13. I openly share my feelings with others.	.662	.449
14. I let others know who I truly am as a person.	.672	.390
15. I rarely present a "false" front to others.	.630	.278

*Acronyms: ALI, Authentic Leadership Inventory*

#### 7.1.4.2 Mindful Attention Awareness Scale

Mindful Attention Awareness Scale – MAAS (M = 3.56, SD = 1.19) is a unidimensional scale that has been used and tested before in several studies (xxx). Cronbach's alpha was calculated for the entire scale. The analysis retrieved excellent reliability coefficients without removing any items ( $\alpha = .944$ ) as per table 8.

Table 7 - MAAS Means, SD and Alphas

MAAS	Mean	Standard Deviation	$\alpha$
MAAS total	3,56	1,19	.944

Acronyms: MAAS, Mindful Attention Awareness Scale

As the authors presented the MAAS as a unidimensional scale a CFA was performed to confirm this structure. The analysis retrieved adequate fitting indexes (table 8). The MAAS scale factor loadings and coefficients of determination ( $R^2$ ) are presented on table

Table 8 - Fitting indexes for the Confirmatory Factor Analysis of the MAAS

MAAS	$\chi^2$	df	$\chi^2/df$	CFI	RMSEA (90% CI)	SRMR
	190.304	90	2.114	.954	.070 (.054 - .086)	.040

Acronyms: df = degrees of freedom, CFI = Comparative fit index, RMSEA = Root Mean Square Error of Approximation, CI = Confidence Interval, SRMR = Standardised Root Mean Square Residual.

Table 9 - MAAS scale item loadings and coefficients of determination

	Factor	$R^2$
1. I could be experiencing some emotion and not be conscious of it until sometime later.	.507	.262
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.	.637	.405
3. I find it difficult to stay focused on what's happening in the present.	.794	.630
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	.799	.623
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	.690	.471
6. I forget a person's name almost as soon as I have been told it for the first time.	.670	.426
7. I seem to be "running on automatic," without much awareness of what I am doing.	.811	.660
8. I rush through activities without being really attentive to them.	.878	.774
9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.	.783	.618

	<b>Factor</b>	<b>R<sup>2</sup></b>
10. I do jobs or tasks automatically, without being aware of what I am doing.	.792	.629
11. I find myself listening to someone with one ear, doing something else at the same time	.642	.411
12. I drive to places on 'automatic pilot' and then wonder why I went there.	.786	.617
13. I find myself preoccupied with the future or the past	.605	.366
14. I find myself doing things without paying attention.	.774	.604
15. I snack without being aware that I am eating	.738	.546

*Acronyms: MAAS, Mindful Attention Awareness Scale*

### 7.1.5 Results

As demonstrated in the table 10, the hypothesised correlation (H1) between authentic leadership (ALI) and Mindfulness awareness (MAAS) was not confirmed. No positive correlation was found between ALI and MAAS, i.e. the levels of AL for the participants who did not start the mindfulness practices program, were not correlated at all to their TM levels.

Sample's results suggest that TM levels decrease with age (and increase with the number of people managed directly as shown in Table 10.

*Table 10 – Means, SD and intercorrelations among the variables of study 2*

<b>Variables</b>	<b>Mean</b>	<b>S.D.</b>	<b>ALI</b>	<b>MAAS</b>	<b>Age</b>	<b>AQ</b>	<b>WS</b>	<b>CT</b>	<b>MD</b>
<b>ALI</b>	3.89	0.60							
<b>MAAS</b>	3.56	1.19	-0.031						
<b>Age</b>	2.11	0.58	0.123	-0.235**					
<b>AQ</b>	2.74	1.01	0.051	-0.061	0.178*				
<b>WS</b>	2.96	1.51	0.054	0.126	-0.102	0.013			
<b>CT</b>	3.23	0.89	0.066	-0.111	0.282**	0.248**	-0.175*		
<b>MD</b>	1.49	0.61	0.020	0.202**	0.041	-0.010	-0.058	0.015	

*N: 192*

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0,01 level (2-tailed)

**Notes:** <sup>a</sup>Age: 1= Under 25 years old; 2= 25-40 years old; 3= Above 40 years old; Academic Qualifications (AQ): 1= No university studies; 2= Bachelor/Degree; 3= Post Graduation/MBA; 4= Master; 5= Doctorate; Working Scheme (WS): 1= 100% on-site; 2= Hybrid (25% remote + 75% on-site); 3= Hybrid (50% remote + 50% on-site); 4= Hybrid (75% remote + 25% on-site); 5= 100% Remote; Contract Type (CT): 1= Internship; 2= Self-employed; 3= Fixed Term Contract; 4= Permanent Contract; Managing directly (MD): 1= Up to 10 people; 2= 11-100 people; 3= More than 100 people.

Acronyms: ALI, Authentic Leadership Inventory; SD, Standard Deviations; MAAS, Mindful Attention Awareness Scale.

## 7.2 Study 2 – Quasi-experimental design

Study 2 is a quasi-experimental study where the participants were assessed at two different points in time. The same measures were applied before and after the MBP and H2, H3 and H4 will be tested.

### 7.2.1 Procedure

The questionnaires were disseminated by contacting organisations through their Human Resources Department, where there would potentially be Team Leaders with an interest in participating in the study; via email (academic and personal contacts); and using social and professional media such as LinkedIn, Facebook, Twitter, and Instagram. Due to the low number of participants and low adherence to the program, Amazon Mechanical Turk was also used as an instrument of gathering the necessary number of participants.

The study undertook the following steps:

- a) Leaders were asked to indicate their level of trait mindfulness by answering an online questionnaire based on the 15-item Mindfulness Attention and Awareness Scale (MAAS) by Brown and Ryan (2003); and answer the 16-item Authentic Leadership Inventory (ALI) by Neider (2020) and Schriesheim (2011), to determine their baseline ALI score.
- b) Leaders started a 21-day MBPs program consisting of a 5-minutes mindfulness practice per day through an e-learning platform. The daily practice consists of listening to a 5-minutes audio record provided by accredited MBPs therapists from Be the Change Academy. The participants will be able to quit at any point.
- c) After the training leaders were asked to answer an online questionnaire based on the 15-item MAAS to determine their post-training trait mindfulness level; and were asked to answer the 16-item ALI, to determine their post-training ALI score.

The data was collected at day 1 (t1), before the beginning of the MBPs, and after day 21 (t2) through an online questionnaire created in Google Forms.

The participation in the mindfulness program was monitored through their user profile using the email address provided by 6 participants. For the rest of the participants on the program, we could not access their email addresses, therefore, we could not generate a user account on the eLearning platform. The duration of the program and the participation of these users was based on their answers on the post-program survey. Once 6 participants did not constitute a considerable sample for our study, all the 31 participants were included in the analysis, even though we could not verify their answers on the eLearning platform.

The mindfulness program was built by professional mindfulness practitioners, and it's aligned with MBPs reviews on previous literature, aiming to develop the 4 main domains of AL described earlier, however it was not tested before in terms of efficacy.

### 7.2.2 Participants

31 subjects participated in the mindfulness program and post-program survey. From these 31 participants, 18 were aged between 25 and 40 years old, 9 were aged above 40 years old and 4 under 25 years old. The sample consisted of 58.1% males. Americans was the most common nationality, constituting 48.4% of our sample, followed by Portuguese and Indian (19.4% each). There were 51.6% of participants working in America, 19.4% in Portugal 29.0% in countries such as France, Belgium or India. The diversity of the responses was obtained through the Amazon MTurk crowdsourcing platform and from the network of contacts through social networks, such as Instagram and LinkedIn. There were 48.4% of participants with a bachelor's degree, 29% with a master's degree, and 19.4% with a doctorate, post-grad or MBA. Only 1 participant had no university studies.

The business field was varied with no substantial observations to be mentioned. 58.1% were on hybrid working schemes, 29.0% on remote roles and 12.9% were working on-site. There were 51.6% of participants managing a team of up to 10 people, 41.9% managing from 11 to 100 people and the rest 100 people or more. Mindfulness had been practiced before by 67.7% of participants and 74.2% classified the program as enjoyable or very enjoyable.

In Table 11 summarizes participants' sociodemographic variables.

Table 11 - Study 2 sample's sociodemographic and professional characterization

<b>Feature</b>	<b>Description</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Male	18	58.1
	Female	13	41.9
Age	Under 25 years old	4	12.9
	25 to 40 years old	18	58.1
	Above 40 years old	9	29.0
Nationality	American	15	48.4
	Indian	6	19.4
	Portuguese	6	19.4
	Others	4	12.8
Working Country	American	16	51.6
	Portuguese	6	19.4
	Others	9	29.0
Academic Qualifications	Bachelor / Degree	15	48.4
	Doctorate	3	9.7
	Master	9	29.0
	No university studies	1	3.2
	Post-Graduation/MBA	3	9.7
Working Scheme	100% On-site	4	12.9
	100% Remote	9	29.0
	Hybrid (50% remote + 50% on-site)	4	12.9
	Hybrid (25% remote + 75% on-site)	11	35.5
	Hybrid (75% remote + 25% on-site)	3	9.7
Directly Managing	Up to 10 people	13	41.9
	11 to 100 people	16	51.6
	More than 100 people	2	6.5

In table 12 it is possible to observe that most participants trained mindfulness for 7 days (35.5%) or between 7 and 14 days (2.04%). We were aiming to compare the MBPs' efficacy against the different program durations. Due to the low number of participants, it was not possible to conduct this analysis.

Table 12- Participants Mindfulness-based Practices

<b>Under 7 days</b>	<b>7 days</b>	<b>Between 7 days and 14 days</b>	<b>14 days</b>	<b>Between 14 and 21 days</b>	<b>21 days</b>
3.23%	35.48%	29.03%	9.68%	12.90%	9.68%

### 7.2.3 Data analysis

SPSS Statistics 27 (IBM, 2021) – was used to calculate descriptive statistics, reliability analysis and Pearson’s correlations. A repeated-measures generalized linear model (GLM) was performed, specifying 2 levels for one factor within subjects. Two separated models were run, one for ALI and another for MAAS.

### 7.2.4 Reliability and descriptive analysis

Tables 13 and 14 describe ALI and MAAS Cronbach’s Alphas respectively. These scales were used and tested in study 1 – please refer to chapter 7.1.4. for additional information.

Table 13 - Reliability analysis and descriptive statistics of the Authentic Leadership Inventory

<b>ALI (15 items)</b>	<b>Cronbach’s Alpha</b>	<b>N</b>	<b>M T1</b>	<b>SD T1</b>	<b>M T2</b>	<b>SD T2</b>
ALI Total	.843	31	3.946	.361	3.959	.502

*Acronyms: ALI, Authentic Leadership Inventory; SD, standard deviation*

*M T1, Mean before intervention; M T2, Mean after intervention; n = 31 participants*

Table 14- Reliability analysis and descriptive statistics of the Mindfulness Attention Awareness Scale

<b>MAAS</b>	<b>Cronbach’s Alpha</b>	<b>N</b>	<b>M T1</b>	<b>SD T1</b>	<b>M T2</b>	<b>SD T2</b>
MAAS total	.940	31	3.677	1.120	3.817	1.135

*Acronyms: MAAS, Mindful Attention Awareness Scale; SD, standard deviation*

*M T1, Mean before intervention; M T2, Mean after intervention; n = 31 participants*

### 7.2.5 Results

Tables 13 and 14 show the mean and standard deviation before and after the intervention and also ALI and MAAS Cronbach’s Alphas respectively. These scales were used and tested in study 1 – please refer to chapter 7.1.4. For AL levels using the ALI as a scale from 1 to 5 and trait mindfulness levels using MAAS as a scale from 1 to 6, respectively.



A repeated measures GLM was performed, specifying 2 levels (Mean T1 and Mean T2 as per table 15 and 16) for one factor within subjects. Two separated models were run, one for AL and another for MAAS.

Table 15 demonstrates that there was no significant difference between the average AL levels after completing the MBP program, therefore H2 can be rejected due to no increment on the AL levels for the participants ( $Z(1,30) = .022, p = .883$ ).

*Table 15 - Corrected One-way within subjects' ANOVA on participants ALI scores*

<b>Within Subjects</b>					
<b>ALI</b>	<b>Sum of squares</b>	<b>df</b>	<b>Mean Square</b>	<b>Z</b>	<b>Sig.</b>
<b>MBPs</b>	.003	1	.003	.022	.883
<b>Error (MBPs)</b>	4.171	30	.139		

*Acronyms: ALI, Authentic Leadership Inventory; MBPs, Mindfulness Based Practices*

No significant difference within subjects was found for MAAS levels before and after ( $Z(1,30) = .454, p = .506$ ) as per table 16. This means that H3 can be rejected once the MBPs program did not increase the trait mindfulness levels of the participants.

*Table 16 - Corrected One-way within subjects' ANOVA on participants MAAS scores*

<b>Within Subjects</b>					
<b>MAAS</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>Z</b>	<b>Sig.</b>
<b>MBPs</b>	.303	1	.303	.454	.506
<b>Error (MBPs)</b>	20.033	30	.668		

*Acronyms: MAAS, Mindful Attention Awareness Scale; MBPs, Mindfulness Based Practices*

To test H4, we divided the sample in three groups; those who had a low score in MAAS before looking at leaders with lower trait mindfulness characteristics, we can observe that their AL gains were not higher after intervention as per table 17. With this, we are also entitled to reject H4, refusing the chance of lower TM leader having a higher gain opportunity of increasing AL levels. Interestingly, these same leaders had significantly higher TM gains when compared to the ones who scored  $>3$  on MAAS before intervention.

Table 17– Authentic Leadership Inventory and Mindful Attention Awareness Scale (MAAS) gains according to MAAS score before intervention

	<b>MAAS score &lt; 3 before intervention (10 participants)</b>	<b>MAAS score 3-5 before intervention (17 participants)</b>	<b>MAAS score &gt;5 before intervention (4 participants)</b>
<b>Average ALI gains after intervention = ALI2-ALI1</b>	-.107	.099	-.048
<b>Average TM gains after intervention = MAAS2-MAAS1</b>	.593	.142	-1.00

## 8. Discussion of results and investigation conclusions

This work aimed to explore and understand the relationship between MBPs and the authenticity of leadership, exploring correlations between relevant components. At the core of the study is the goal of learning more about mindful leadership in practice, and the exploration of modern-day methods for effective leadership. If simple mindfulness practices provide means for effective leadership, then perhaps mindfulness should become an essential element of contemporary leadership development.

This study aimed to evaluate the impact of mindfulness-based programs on the level of mindfulness in organisational leaders currently on remote work. We intend to determine how much the baseline TM level of organisational leaders is influencing their AL features, proposing that would be a positive correlation between TM and AL. However, no positive correlation between trait mindfulness and AL was found on study 1, therefore H1 was rejected.

For study 2 we had 31 subjects that participated in the MBPs program. No statistically significant difference between the average AL and TM levels were found before and after intervention, leading to a rejection of H2 (*MBPs will positively influence AL features as perceived by the leader*) and H3 (*MBPs influence individual core characteristics of TM as perceived by the leader*).

We also concluded that Leaders with lower trait mindfulness characteristics did not seem to benefit more from MBPs and were not associated with significantly higher levels of AL features. This has led to rejecting H4 (*Leaders with lower TM scores can benefit more from MBPs regarding acquiring AL features*). Elements influencing the results of study 1 and consequently leading to the rejection of all research hypotheses will be explored below.

The call for leaders to be authentic in the daily representation of their role is actual and noticed with enlarged frequency, both in the academic literature (Avolio & Gardner, 2005) and in the business world and news. This study did not find an added benefit of MBPs to increase leader's authenticity levels, so we do not provide evidence supporting these practices within organizations. This is contrasting with published evidence suggesting that organizations can benefit from implementing interventions promoting AL levels and

behaviours in their leaders in the hope to positively induce follower outcomes (Larsson, Clifton & Schnurr, 2021).

There were various limitations and obstacles experienced during this investigation as discussed above that should be considered for the future. Most of them could be contoured if the surveys and MBPs were sent to Organisational Leaders directly by their employer. That would not only improve their engagement (when compared to MTurkers), but also allow the researchers to monitor their participation in the program. We would recommend these studies to be run directly through organisations to get more and more reliable data.

Most of the participants for study 1 and 2 (97% and 80%, respectively) were obtained through the Amazon Mechanical Turk Platform. Although some studies have described M Turk as a reliable option for study participants recruitment and data collection (Buhrmester et al., 2011), no other studies whose target population was composed by Organisational Leaders were found. Some authors raised some concerns about MTurkers not investing sufficient effort in answering questions and following study procedures (Hauser et al., 2019). MBPs programs require attentiveness to be effective, which can be compromised by MTurkers as per Hauser et al. (2019).

Another limitation factor was the percentage of participants that have practised MBPs in the past, in our samples for sample 1 and 2, they were both quite high (63,0% and 67,7%, respectively). The fact that most participants had already practised MBPs in the past could potentially be a limiting factor, affecting the impact of the study program, reducing the increment on MAAS and AL levels. Due to the small number of participants, it is not possible to investigate the direction of this effect on the results.

The participation in the mindfulness program was monitored through their user profile using the email address provided by 6 participants. For the rest of the participants on the program, we could not access their email addresses, therefore, we could not generate a user account on the eLearning platform. The duration of the program and the participation of these users was based on their answers on the post-program survey. Once 6 participants did not constitute a considerable sample for our study, all the 31 participants were included in the analysis, even though we could not verify their answers on the eLearning platform.

The results were obtained through self-evaluation scales which can lack accuracy due to difficulties experienced on reflecting both on strengths and weaknesses as well as being dependant on individual self-evaluation capacity. Ideally in future studies, there would be one practitioner such as a psychologist evaluating the trait mindfulness and AL level before and after designed training programs.

One major limitation of the study is sample size which does not allow for the exploration of explanatory variables due to lack of power and limits the generalization of the results to a broader population of occupational leaders. Future studies should aim for extended samples (more than 200 participants) and can be directed to specific professional fields, instead of depending on the professional background of individuals that are interested in undertaking the MBPs program. That should be able not only to test and define the influence of MBPs and AL levels as well as relate it to TM levels before and after intervention but also to compare results according to professional field and functions. to. A suggested area for future research is determining what further workplace adaptations could support leaders in maintaining mindfulness practices (Dix et al., 2021) and measure the outcomes.

Mindfulness scientific literature is still insufficient or inconclusive, having some authors referring that its benefits have been divulged in a sensationalistic way, biased by the surrounding enthusiasm on the topic (Farias & Wikholm, 2016). As per our results in study 1, TM and AL are not positively correlated. Thus, future studies may test the potential moderating influence of factors that have already been linked to TM or AL (e.g., emotional stability, conscientiousness, psychological capital, leader self-knowledge and self-consistency; Giluk, 2009; Jensen & Luthans, 2006; Peus et al., 2012). This may help to determine and design training programs to develop AL features. Regarding methodology, these studies should have an active control group and seek to explore individual differences in depth (Farias & Wikholm, 2016).

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## Annexes

## **Annex I – Pre-intervention questionnaire**

# Can Mindfulness practices influence Authentic Leadership?

The aim of this study is to understand the effect of mindfulness practices on Authentic Leadership, exploring how mindfulness can be used by leaders as a tool to enhance their unique qualities and skills. To do that, we are offering a free mindfulness program and will be using a questionnaire to measure your mindfulness and leadership levels before and after the program.

This study is part of a dissertation project for the Health Economics and Management Master at Faculty of Economics, University of Porto.

Your contribution is much appreciated if you are currently leading and managing a team within an organization.

We require your e-mail address to register you on the e-learning platform to start the mindfulness program. We'll send you the access to this platform a few days after you complete this questionnaire.

If you have any question, please contact António Magalhães using [up202001326@up.pt](mailto:up202001326@up.pt). For any GDPR clarification please contact DPO of University of Porto using [dpo@reit.up.pt](mailto:dpo@reit.up.pt).

Thank you!

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\*Obrigatório

1. Email \*

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It is essential that you are committed to undertaking the 3 main steps of the study.

Step 1: Complete a 14-minute questionnaire

Step 2: Complete a 5-minute mindfulness-based meditation session per day for 7, 14 or 21 days. 21 days is the recommended period.

Step 3: Complete a 12-minute questionnaire

There are no right or wrong answers, so please answer intuitively and science will thank you on completing the full program.

2. In order to anonymize the data, we will ask you to generate a code using the first \* letter of your birthplace, followed by a number of siblings alive and the first and second letters of your mother's first name.

For example: Born in  
Valencia, has 1 brother and mother's first name is Maria -> V1MA

---

3. By completing this questionnaire, I agree that the data will be used for research \* purposes only and it will be kept confidential for the duration and after the completion of the study. Only these researchers will be using the data which will not be shared with any third parties. You're free to withdraw your consent at any time.

*Marcar tudo o que for aplicável.*

To continue please agree to our data policy.

4. \*

*Marcar tudo o que for aplicável.*

I agree to answer this questionnaire to the best of my knowledge.

Socio-demographic information

Average completion time - 2minutes

5. Are you currently on a Leadership Role? \*

*Marcar apenas uma oval.*

Yes

No

6. Gender \*

*Marcar apenas uma oval.*

Female

Male

Prefer not to say

7. Age \*

---

8. Nationality \*

---

9. Which country are you working in? \*

---

10. Which country are you living in? \*

---



## 11. Academic Qualifications \*

*Marcar apenas uma oval.*

- No university studies
- Bachelor / Degree
- Post Graduation/MBA
- Master
- Doctorate

## 12. Business Field \*

---

## 13. What kind of contract do you have? \*

*Marcar apenas uma oval.*

- Permanent contract
- Fixed-term contract
- Self-employed
- Internship

## 14. Which working scheme are you on? \*

*Marcar apenas uma oval.*

- 100% Remote
- Hybrid (approximately 25% remote + 75% on-site)
- Hybrid (50% remote + 50% on-site)
- Hybrid (approximately 75% remote + 25% on-site)
- 100% On-site

15. How many people do you manage directly? \*

---

16. How many people do you manage indirectly? \*

---

17. How many employees does your organization have (approximately)?

---

18. Have you ever practiced mindfulness? \*

*Marcar apenas uma oval.*

Yes

No

19. In case you have answered yes to the previous question, how many times in total have you practiced (independently of the session duration)?

---

Your baseline Mindfulness  
and Authentic Leadership  
levels

Average completion time - 6 minutes

Key1: 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Key2: 1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often, 5 = Very Often; 6 = Always

For scientific rigor it is extremely important that you answer intuitively and truly to the best of your knowledge.

20. I can list my three greatest weaknesses. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

21. My actions reflect my core values. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

22. I seek others' opinions before making up my own mind. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

23. I openly share my feelings with others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

24. I can list my three greatest strengths. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

25. I do not allow group pressure to control me. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

26. I listen closely to the ideas of those who disagree with me. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

27. I let others know who I truly am as a person. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

28. I seek feedback as a way of understanding who I really am as a person. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

29. Other people know where I stand on controversial issues. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

30. I do not emphasize my own point of view at the expense of others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

31. I rarely present a "false" front to others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

32. I accept the feelings I have about myself. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

33. My morals guide what I do as a leader. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

34. I listen very carefully to the ideas of others before making decisions. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

35. I admit my mistakes to others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

36. How many times is the letter "o" mentioned in this question? \*

*Marcar apenas uma oval.*

1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. I could be experiencing some emotion and not be conscious of it until some time later. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

38. I break or spill things because of carelessness, not paying attention, or thinking of something else. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

39. I find it difficult to stay focused on what's happening in the present. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

40. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

41. I tend not to notice feelings of physical tension or discomfort until they really grab my attention. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

42. I forget a person's name almost as soon as I've been told it for the first time. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

43. It seems I am "running on automatic," without much awareness of what I'm doing. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always



44. I rush through activities without being really attentive to them. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

45. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

46. I do jobs or tasks automatically, without being aware of what I'm doing. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

47. I find myself listening to someone with one ear, doing something else at the same time. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

48. I drive to places on 'automatic pilot' and then wonder why I went there. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

49. I find myself preoccupied with the future or the past. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

50. I find myself doing things without paying attention. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

51. I snack without being aware that I'm eating. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

What's  
next?

You will soon receive an access link for the full mindfulness program. We suggest you start the sessions on the following Monday after receiving the access link the latest but if you prefer starting it earlier, that is not a problem as long as you are determined to do 1 session a day for the program duration.

Thank you for your participation and enjoy!

Mindfulness Program provided by:



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Google Formulários

## **Annex II – Post-intervention questionnaire**

# Mindfulness and authentic leadership

Thank you for taking part of this study as part of a dissertation project for the Health Economics and Management Master at Faculty of Economics part of University of Porto. Please complete the following questionnaire as the last step of the study. There are no right or wrong answers, so please answer intuitively and science will thank you for completing the full program.

If you have any question, please contact António Magalhães using [up202001326@up.pt](mailto:up202001326@up.pt). For any GDPR clarification please contact DPO of Universidade do Porto using [dpo@reit.up.pt](mailto:dpo@reit.up.pt).

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## \*Obrigatório

1. In order to anonymize the data, we will ask you to enter the same code using the \* first letter of your birthplace, followed by a number of siblings alive and the first and second letters of your mother's first name.

For example: Born in  
Valencia, has 1 brother and mother's first name is Maria -> V1MA

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2. By completing this questionnaire, I agree that the data will be used for research \* purposes only and it will be kept confidential for the duration and after the completion of the study.

*Marcar tudo o que for aplicável.*

To continue please agree to our data policy.

3. \*

*Marcar tudo o que for aplicável.*

I agree to answer this questionnaire to the best of my knowledge.

## Program details

Average completion time - less then 1 minute

## 4. How enjoyable was this program? \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Not enjoyable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very enjoyable

## 5. How many days did you complete? \*

*Marcar apenas uma oval.*

- under 7 days
- 7 days
- between 7 and 14 days
- 14 days
- between 14 and 21 days
- 21 days

Your post program Mindfulness  
and Authentic Leadership levels

Average completion time - 6 minutes

Key1: 1 = Strongly disagree; 2 = Disagree; 3 =  
Neutral; 4 = Agree; 5 = Strongly agreeKey2: 1 = Never; 2 = Rarely, 3 = Sometimes; 4 -  
"Often", 5 - "Very Often", 6 - "Always"

The results will be shared at the end of

6. I can list my three greatest weaknesses. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

7. My actions reflect my core values. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

8. I seek others' opinions before making up my own mind. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

9. I openly share my feelings with others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree



10. I can list my three greatest strengths. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

11. I do not allow group pressure to control me. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

12. I listen closely to the ideas of those who disagree with me. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

13. I let others know who I truly am as a person. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

14. I seek feedback as a way of understanding who I really am as a person. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

15. Other people know where I stand on controversial issues. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

16. I do not emphasize my own point of view at the expense of others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

17. I rarely present a “false” front to others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

18. I accept the feelings I have about myself. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

19. My morals guide what I do as a leader. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

20. I listen very carefully to the ideas of others before making decisions. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

21. I admit my mistakes to others. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

22. How many times is the letter "i" mentioned in this question? \*

*Marcar apenas uma oval.*

1	2	3	4	5	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. I could be experiencing some emotion and not be conscious of it until some time later. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

24. I break or spill things because of carelessness, not paying attention, or thinking of something else. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

25. I find it difficult to stay focused on what's happening in the present. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

26. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

27. I tend not to notice feelings of physical tension or discomfort until they really grab my attention. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

28. I forget a person's name almost as soon as I've been told it for the first time. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

29. It seems I am "running on automatic," without much awareness of what I'm doing. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

30. I rush through activities without being really attentive to them. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

31. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

32. I do jobs or tasks automatically, without being aware of what I'm doing. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

33. I find myself listening to someone with one ear, doing something else at the same time. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

34. I drive to places on 'automatic pilot' and then wonder why I went there. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

35. I find myself preoccupied with the future or the past. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

36. I find myself doing things without paying attention. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

37. I snack without being aware that I'm eating. \*

*Marcar apenas uma oval.*

	1	2	3	4	5	6	
Almost never	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Almost always

Thank you!

Your participation has been much appreciated!

## Amazon Mechanical Turk Code

If you've accessed this survey via Amazon Mechanical Turk, please use the code YMP06

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