



## UvA-DARE (Digital Academic Repository)

### Powered by compassion: The effect of loving-kindness meditation on entrepreneurs' sustainable decision-making

Engel, Y.; Ramesh, A.; Steiner, N.

**DOI**

[10.1016/j.jbusvent.2019.105986](https://doi.org/10.1016/j.jbusvent.2019.105986)

**Publication date**

2020

**Document Version**

Final published version

**Published in**

Journal of Business Venturing

**License**

Article 25fa Dutch Copyright Act

[Link to publication](#)

**Citation for published version (APA):**

Engel, Y., Ramesh, A., & Steiner, N. (2020). Powered by compassion: The effect of loving-kindness meditation on entrepreneurs' sustainable decision-making. *Journal of Business Venturing*, 35(6), [105986]. <https://doi.org/10.1016/j.jbusvent.2019.105986>

**General rights**

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

*UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)*



Contents lists available at ScienceDirect

## Journal of Business Venturing

journal homepage: [www.elsevier.com/locate/jbusvent](http://www.elsevier.com/locate/jbusvent)

## Powered by compassion: The effect of loving-kindness meditation on entrepreneurs' sustainable decision-making

Yuval Engel<sup>a,\*</sup>, Anusha Ramesh<sup>b</sup>, Nick Steiner<sup>a</sup><sup>a</sup> University of Amsterdam, The Netherlands<sup>b</sup> Willamette University, United States of America

## ARTICLE INFO

## Keywords:

Loving-kindness meditation

Compassion

Sustainable decision-making

Experiment

## ABSTRACT

As environmental degradation and climate change continue to threaten our livelihood, entrepreneurs have a crucial role to play in promoting environmental regeneration and infusing their ventures with sustainable decision-making. Building on advances in research on social and sustainable entrepreneurship, we propose that compassion is an important predictor of entrepreneurial decisions involving an ethical balancing act between concerns for environmental and economic sustainability. We further draw on emerging evidence in psychology, pointing to meditative practice as a powerful and accessible source of compassion. In two experimental studies, we test and find support for a mediation model predicting that, compared to an active control group, entrepreneurs engaging in a brief Loving-Kindness Meditation report an increase in compassion and, in turn, higher sustainable decision-making. On the basis of these findings, we offer contributions to research on the psychological drivers of sustainable entrepreneurship and to the literature about meditation and compassion in entrepreneurship.

## Executive summary

Asking entrepreneurs to address grand environmental challenges is not particularly useful unless we better understand why and how entrepreneurs make environmentally sustainable decisions. Whereas prior research has emphasized cognitive predictors like values or self-efficacy, it has lagged behind in recognizing the central role of affective factors – emotions, moods, and feelings – in shaping how entrepreneurs make sustainability-related decisions. In this paper, we argue that Loving-Kindness Meditation (LKM) is an accessible contemplative practice through which entrepreneurs can cultivate feelings of compassion and therefore enhance their sustainable decision-making. Thus, in contrast to prior research, we put affect at the core of our study and propose a mediation model in which compassion transmits the positive effect of LKM on entrepreneurs' environmentally sustainable decisions. Our approach to LKM and compassion is theoretically based on psychological studies showing that even a very brief LKM intervention can elicit compassion. To explain how compassion relates to entrepreneurs' sustainable decision-making, we build on prior conceptual work on social entrepreneurship and further develop theory about the overlap between social and sustainable decision making among entrepreneurs.

We test our theoretical propositions in two experimental studies. In study 1 we use random assignment of entrepreneurs who either listened to a brief guided LKM (treatment group) or to a recorded lecture about meditation (active control group) before

\* Corresponding author.

E-mail addresses: [y.engel@uva.nl](mailto:y.engel@uva.nl) (Y. Engel), [aramesh@willamette.edu](mailto:aramesh@willamette.edu) (A. Ramesh).<https://doi.org/10.1016/j.jbusvent.2019.105986>

Received 8 September 2018; Received in revised form 31 August 2019; Accepted 19 November 2019

Available online 27 November 2019

0883-9026/ © 2019 Elsevier Inc. All rights reserved.

responding to a realistic decision scenario involving a tradeoff between business and environmental concerns. This approach enabled us to test whether a brief guided LKM positively affects entrepreneurs' sustainable decision making. In study 2 we sought to improve our experimental protocol with a more robust study design, provide further support for the basic hypothesis tested in study 1, and expand our investigation to test whether compassion mediates the relationship between LKM and entrepreneurs' sustainable decision-making. Consistent with our theoretical predictions, we find converging evidence that LKM positively affects entrepreneurs' sustainable decision-making through elevated compassion.

Both theoretically and practically, our study helps to understand why and how entrepreneurs make environmentally sustainable decisions. As a theoretical contribution, we complement work on the psychological basis of sustainable decision making in entrepreneurship by pointing to the shared affective foundation underlying social and sustainable entrepreneurship. This is important because it suggests that other affective constructs exclusively studied as predictors of social entrepreneurship may also predict sustainability-related decisions and vice versa. We further show how entrepreneurs can become more compassionate by practicing meditation, which, beyond the impact of sustainable entrepreneurship, is also relevant to adjunct research streams related to pro-social motivation, compassion organizing, and social entrepreneurship. This enhanced understanding of LKM as a facilitator of entrepreneurs' compassion and sustainable decisions should serve to stimulate novel research about meditation in entrepreneurship more broadly. In practical terms, our study demonstrates the speed and efficacy with which a single guided meditation session can produce favorable effects for entrepreneurs. Given the potential of prolonged meditation practice to solidify short term effects and turn them into habitual patterns of responding, there is much promise in exposing entrepreneurs to meditation. Ultimately, we hope that our study will inspire others to study what entrepreneurs can actually do to become more compassionate and make more environmentally sustainable decisions.

## 1. Introduction

All entrepreneurs, whether leading a sustainable, green, social, or purely commercial ventures, often engage with decisions involving competing demands for commercial and ecological sustainability (Markman et al., 2016; Muñoz and Cohen, 2018; Shepherd et al., 2013; Shepherd and Patzelt, 2011). Why do some entrepreneurs make decisions that seek to shrink their ventures' ecological footprint and promote environmental regeneration while others do not? Whereas potential answers to this question have been suggested by studies using an economic perspective (e.g., Cohen and Winn, 2007; Dean and McMullen, 2007) or, alternatively, an institutional lens (e.g., Mair and Martí, 2006; Meek et al., 2010), knowledge about the psychological drivers of entrepreneurs' sustainable decisions still lags behind (e.g., Muñoz, 2018; Shepherd et al., 2013). Hence, prior research fails to adequately explain how entrepreneurs can enhance their sustainable decision-making. In this paper, we extend this conversation by empirically examining the relationship between meditation practice, compassion, and entrepreneurs' sustainable decision-making.

Entrepreneurial decisions are sustainable to the extent that they prioritize the preservation of nature, life support, and community (Flannery and May, 2000; Markman et al., 2016; Muñoz, 2018; Shepherd et al., 2013). Research points to multiple psychological factors that can influence entrepreneurial decisions concerning sustainability (see Gast et al., 2017; Muñoz, 2018; Muñoz and Cohen, 2018 for recent reviews). For example, Muñoz (2018) provides a comprehensive overview of the literature and finds that studies have so far been focused on cognitive factors, highlighting aspects such as values (e.g., Parrish, 2010; Shepherd et al., 2009), prior knowledge, (e.g., Muñoz and Dimov, 2015), motivation (e.g., Kuckertz and Wagner, 2010), or self-efficacy (e.g., Shepherd et al., 2013). In contrast, research on the affective basis of sustainable decisions in entrepreneurship, while called for (Shepherd, 2015; Shepherd and Patzelt, 2011: 154–155), has yet to emerge. In response, we suggest that one compelling yet surprisingly overlooked affective predictor of sustainable decisions in entrepreneurship is compassion – a powerful prosocial motivator characterized by other-orientation and an emotional connection to others in suffering (Atkins and Parker, 2012; Goetz et al., 2010; Miller et al., 2012). Indeed, compassion is a primary source of moral thought and action (Goetz et al., 2010; Jordan et al., 2016) and has been shown to drive both pro-social and pro-environmental behavior (e.g., Dutton et al., 2014; Miller et al., 2012; Pfattheicher et al., 2016; Weng et al., 2013). Nevertheless, the entrepreneurship literature is still unclear about if and how compassion can be evoked (cf. Atkins and Parker, 2012) as well as the extent to which compassion impacts environmentally sustainable decisions in entrepreneurial situations.

In order to bridge this gap, the present study builds on emerging evidence in psychology suggesting that meditative practices are powerful tools engendering compassion as well as ethical and sustainable decision-making (Aspy and Proeve, 2017; Ericson et al., 2014; Galante et al., 2014; Kreplin et al., 2018; Ruedy and Schweitzer, 2011; Wamsler et al., 2018). In particular, Loving-Kindness Meditation (LKM) – a contemplative practice that focuses on self-generating feelings of love, compassion, and goodwill towards oneself and others – has been found to be effective in producing and maintaining compassionate emotional states (e.g., Engel et al., 2020; Fredrickson et al., 2008; Galante et al., 2014). Based on this insight, we develop a theoretical model predicting that LKM positively affects entrepreneurs' sustainable decision-making through the cultivation of compassion. We empirically test this model in two experimental studies using an ethical decision scenario and random assignment of entrepreneurs to either listen to a brief guided

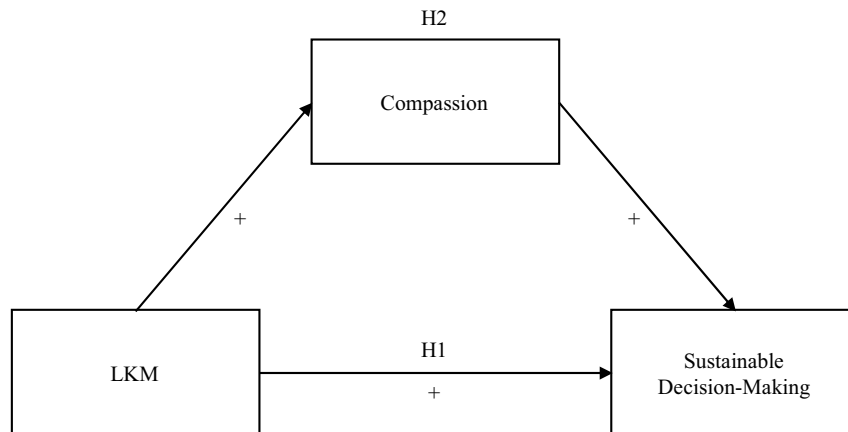


Fig. 1. Conceptual model.

Note. We propose and depict a direct and mediated effect of LKM on entrepreneurs' sustainable decision-making. We test for the direct effect (H1) in Study 1 and test that the effect of LKM is mediated by compassion (H2) in Study 2.

LKM (treatment group) or to a recorded lecture about meditation (active control group). This approach allows us to isolate the role of compassion as the mechanism that transmits the effect of LKM on sustainable decision-making. In line with our theoretical predictions, we find converging evidence that LKM positively affects entrepreneurs' sustainable decision-making through elevating compassion.

The paper makes three primary contributions. First, our theoretical elaboration and empirical findings point to a shared psychological foundation underlying social and sustainable entrepreneurship (Branzei et al., 2018; Harris et al., 2009; Shepherd and Patzelt, 2011). We show that just as compassion predicts engagement in social entrepreneurship (e.g., Miller et al., 2012), it also predicts entrepreneurs' sustainable decisions. This finding promises to invigorate new theoretical and empirical work on the affective sources of sustainable entrepreneurship. Second, we show how entrepreneurs can *become* more compassionate by practicing a brief guided meditation. This is relevant for the study of compassion as a pro-social motivator in entrepreneurship (e.g., Branzei et al., 2018; Miller et al., 2012; Shepherd and Williams, 2014) and provides both theoretical ground and a practically accessible intervention that future research can adopt. Finally, we offer an additional contribution by extending the conceptual boundaries of prior studies in psychology (e.g., Aspy and Proeve, 2017; Pfattheicher et al., 2016) and demonstrating how the relationship between LKM, compassion, and sustainable decision-making works in the unique context of entrepreneurial decisions.

## 2. Theoretical framework and hypotheses development

Our aim is to better understand how entrepreneurs can enhance their sustainable decision-making through loving-kindness meditation (LKM) and the cultivation of compassion. Fig. 1 presents our overarching theoretical framework and hypotheses, which we develop in the following sections.

### 2.1. Sustainable decision-making in entrepreneurship

Several overlapping research streams including sustainable entrepreneurship (e.g., Hall et al., 2010; Shepherd and Patzelt, 2011), environmental entrepreneurship (e.g., Dean and McMullen, 2007; Meek et al., 2010; York and Venkataraman, 2010), and entrepreneurial ethical decision making (e.g., Chell et al., 2016; Hannafey, 2003; Harris et al., 2009; McVea, 2009) have seen an immense growth in recent years. Despite some differences in their disciplinary roots, methodological approaches, and key research questions (see Muñoz and Cohen, 2018; Thompson et al., 2011 for reviews), scholars across these related literatures broadly agree that (1) entrepreneurs often face specific and formidable challenges linked to broader tensions between commercial and ecological decision logics (DiVito and Bohnsack, 2017; Pacheco et al., 2010; York et al., 2016); and (2) in seeking environmental regeneration and positive social transformation, entrepreneurs must take decisions that prioritize the preservation of nature, life support, and

community (Markman et al., 2016; Muñoz, 2018; Shepherd and Patzelt, 2011).

For the purpose of this study and in line with prior research (e.g., Flannery and May, 2000; Muñoz, 2018), we refer to entrepreneurs' sustainable decision making as a key constituent of "the process whereby business founders make choices about current and future business activities that concurrently consider the social, environmental and economic implications of such activities" (Muñoz, 2018: 787). More specifically, however, for entrepreneurs to make sustainable decisions ultimately means that they prioritize "the environment first, society second, and economics third" (Markman et al., 2016: 674; Markman and Krause, 2016). For instance, entrepreneurs are routinely put to the test as they confront situations dictating a tradeoff between environmental sustainability and the venture's economic sustainability (e.g., DiVito and Bohnsack, 2017; Muñoz and Cohen, 2018; York et al., 2016). In such situations, sustainable decision-making is reflected in decisions that either prevent adverse impact on the ecological environment (Muñoz and Dimov, 2015) or more proactively nurture it to promote ecological restoration and regeneration (Markman et al., 2016).

While the entrepreneurship literature generally acknowledges the key role of entrepreneurs as decision makers (Shepherd et al., 2015), research on sustainable decision-making has yet to examine this role in detail, and does not fully account for the relevant psychological processes that impact such decisions (cf. Muñoz, 2018; Shepherd and Patzelt, 2011). To bridge this gap, we describe the theoretical and empirical foundations of a model grounded in recent work about compassion as a key psychological variable driving entrepreneurs' socially ethical decisions (e.g., Miller et al., 2012; Shepherd, 2015) as well advances in experimental psychology that position LKM-based interventions as antecedents of compassion (e.g., Fredrickson et al., 2008; Galante et al., 2014). In doing so, we are able to derive a model (Fig. 1) that begins to explain the affective psychological foundations of sustainable decision-making in entrepreneurial situations.

## 2.2. Loving-kindness meditation, compassion, and sustainable decision making

LKM is part of an ensemble of meditation techniques originating from Buddhist tradition and teaching (Dahl et al., 2015; Hofmann et al., 2011; Sedlmeier et al., 2012). Among these different contemplative practices, we can also locate mindfulness meditation, which has received increasing research attention across disciplines, including in management and entrepreneurship (e.g., Good et al., 2016; Kudesia, 2019; Murnieks et al., 2019; van Gelderen et al., 2018; Wamsler and Brink, 2018). The approach taken in LKM is, however, different from mindfulness practices, insofar as it involves "actively changing cognitive and affective content, as opposed to simply observing or noting the presence of thoughts, emotions, and perceptions" (Dahl et al., 2015: 518). In doing so, LKM emphasizes nurturing harmonious relationships with one's environment through the gradual extension of kindness, love, and caring feelings towards a broadening circle of targets (Hofmann et al., 2011). Practically speaking, in a typical LKM session, one is invited to silently repeat a series of phrases, such as "may you be happy and healthy" or "may you be safe and free from suffering", where the targets are oneself, other people, and ultimately all beings (including plants and animals) without distinction (Aspy and Proeve, 2017; Zeng et al., 2015).

Therefore, at the core of LKM, which is also sometimes labeled "Compassion Meditation" (Kreplin et al., 2018), "Kindness-Based Meditation" (Galante et al., 2014), or "Compassion Training" (Weng et al., 2013), is a systematic technique that cultivates compassion towards oneself and others (Engel et al., 2020; Fredrickson et al., 2008; Zeng et al., 2015). Compassion – defined as the emotional response of caring for and wanting to alleviate suffering (Batson, 1991; Goetz et al., 2010; Weng et al., 2013) – is a distinct affective state and trait that emerged evolutionarily to facilitate the protection of vulnerable offspring and to enable cooperation between non-kin (Goetz et al., 2010). By encouraging compassion, LKM essentially seeks to engender kin-like responses towards those targeted by the meditation. Empirical findings to date are strongly supportive of this logic, showing that LKM reliably facilitates compassionate feelings and behaviors (see Galante et al., 2014; Kreplin et al., 2018; Zeng et al., 2015 for meta analytic findings). For instance, Weng et al. (2013) find that compassion can be cultivated with LKM training and traces the neurological mechanisms linking it with altruistic behavior. Similarly, Hutcherson et al. (2008) used a very brief (seven-minute) LKM exercise to increase feelings of social connection and positivity towards novel individuals on both explicit and implicit levels. More recently, Aspy and Proeve (2017) showed that LKM goes beyond social connectedness to also increase nature connectedness, consistent with the stepwise expansion of compassion targets in the LKM practice.

We next posit that compassion is indeed what links LKM to sustainable decision-making. To explain why compassion influences sustainability-related decisions, we build on the affective and cognitive processes that Miller et al. (2012) identified as mechanisms that connect compassion with social venturing – i.e., prosocial cost-benefit analysis; integrative thinking; and commitment to alleviating suffering. We are able to do so because of the close correspondence between social entrepreneurship, entrepreneurial ethics, as well as sustainable and environmental entrepreneurship, especially in their overlap around decision-making processes (Harris et al., 2009; Saebi et al., 2019; Shepherd and Patzelt, 2011).

How does compassion affect entrepreneurs' sustainable decision-making? First, compassion yields a cost-benefit analysis focused on the other rather than oneself (Miller et al., 2012). As Oveis et al. (2010: 618) explain: "compassion promotes attention to the needs of weak or suffering others, often motivating actions costly to the self for the benefit of others". This means that, when compassion is activated, selfish considerations may seem less important and the benefits of acting to alleviate others' suffering are valued more highly (Goetz et al., 2010). Other-oriented tendencies are indeed central predictors of pro-social (e.g., Leiberg et al., 2011; Weng et al., 2013) as well as pro-environmental behavior (e.g., Berenguer, 2007, 2010; Dickinson et al., 2016; Ericson et al., 2014; Schultz, 2000; Tam, 2013; Wamsler and Brink, 2018).

Next, compassion also facilitates integrative thinking, thereby incorporating the larger potential consequences of one's decision-making on their surroundings (Atkins and Parker, 2012; Miller et al., 2012). For example, compassion to others was found to enhance support for a much broader issue – government policy to address climate change (Lu and Schuldt, 2016). In addition, when entrepreneurs promote environmental sustainability, they seek to achieve multiple and often conflicting objectives (DiVito and Bohnsack, 2017; Muñoz and Cohen, 2018). The integrative thinking afforded by compassion allows one to consider diverse information from multiple sources and thereby avoid getting stuck in conflict between ostensibly competing goals (Miller et al., 2012).

Finally, compassion implies an emotional connection to suffering and therefore increases commitment to actually reducing that suffering (Miller et al., 2012). In situations of unjustified harm in particular, compassion serves as a moral compass that directs action to alleviate noticed suffering (Goetz et al., 2010; Jordan et al., 2016). For instance, Shepherd and Williams (2014) provide in-depth qualitative evidence of how local individuals impacted by a natural disaster build entrepreneurial ventures motivated by compassion to address the needs of community members. Crucially, this emotional link is not necessarily limited to decisions involving direct impact on other humans (Tam, 2013). Environmental concerns are composed of concerns for people as well as closely related concerns for animals, plants, and nature (Schultz, 2001). Consistent with this logic, Pfattheicher et al. (2016) report compelling evidence that compassion for other humans can "carry-over" to concern with the environment and thereby strengthen pro-environmental values, intentions and behavior.

Overall, we expect that, through practicing LKM and the compassion it engenders, entrepreneurs can enhance their sustainable decision making. We therefore hypothesize that:

**Hypothesis 1.** Loving-kindness meditation positively affects entrepreneurs' sustainable decision making.

**Hypothesis 2.** Compassion mediates the positive relationship between loving-kindness meditation and sustainable decision making.

### 3. Study 1

The most important objective of Study 1 is to test our first hypothesis that LKM positively affects entrepreneurs' sustainable decision making. We therefore conducted a between-subjects experiment utilizing random assignment of entrepreneurs that either listened to a brief guided LKM audio or to a Tedtalk *about* meditation (i.e., without actually meditating). Participants were then presented with a realistic scenario in which they had to make a key entrepreneurial decision involving a tradeoff between business and environmental concerns.

#### 3.1. Sample

We contacted entrepreneurs at three startup hubs in The Netherlands. In line with other empirical work (e.g., Hmieleski and Baron, 2008, 2009), we defined entrepreneurs as individuals who currently own and run a business that they have (co)started. Participants were recruited on-site or via email and after confirming their status as entrepreneurs, were asked to indicate their age. Entrepreneurs over the age of 18 were allowed to take part in the study and signed an informed consent before commencing with the experiment.

A total of 81 entrepreneurs agreed to participate. Eleven participants were excluded from the final sample because their responses were incomplete, they did not pass our attention check question<sup>1</sup>, or reported to already have a regular meditation practice. Regular meditation experience was used as an exclusion criterion since the study was explicitly designed to test the efficacy of a minimal meditative intervention and we wanted to avoid a confound as a result of prior meditation experience. In addition, one participant who reported technical problems with the audio (not being able to hear the entire recording) was also excluded. This resulted in a final sample of 69 entrepreneurs, of which 33 were randomized into the control condition and 36 to the LKM (treatment) condition. Of these 69 entrepreneurs, 44 were male and 25 were female. The average age of the participants was 27.59 years. Most of them ( $n = 59$ ) had a university degree. The average age of the firms that these entrepreneurs started was 3.17 and they had an average of 2.32 co-founders. About half of the ventures they started were private limited companies<sup>2</sup> ( $n = 33$ ).

<sup>1</sup> Attention checks are items designed to identify careless survey respondents. Kung et al. (2017) recently confirmed that attention checks do not compromise scale validity. We included such an item in the survey (e.g., "please select 'strongly agree' here") and used it to screen out participants who ignored our instructions.

<sup>2</sup> Private limited company (in Dutch – besloten vennootschap or BV) is a legal form akin to the limited liability company (LLC) that is more common in the US. For more details about legal forms in the Netherlands, see: <https://business.gov.nl/starting-your-business/choosing-a-business-structure/private-limited-company/>.

### 3.2. Experimental design and procedure

Data were collected at three entrepreneurial hubs in the Netherlands, where we arranged for a quiet space to conduct the study. Multiple sessions were held over the span of three weeks to ensure participants' availability. Participants were told that the experiment was conducted to investigate the effect of meditation on decision making. To limit potential bias, specific research questions were not communicated in advance.

Each participant was given a 30-minute time slot. The study was typically conducted in groups of 3 or 4 sharing the same room. Each entrepreneur was provided or brought their own laptop and headphones so that they were not disturbed during the course of the study. The experiment itself ran on the Qualtrics online platform where each participant was randomly assigned to the LKM condition or the control condition. At least one researcher was present at the location at all times. Nevertheless, due to automatic randomization on Qualtrics, the experiment could be conducted in a double-blind fashion – neither the participants nor the researchers knew in which condition the subjects were.

After providing informed consent, participants were asked to put on their headphones and answer several general questions about themselves (including demographics and a measure of trait mindfulness) as well as factual information about their businesses (e.g., company age, industry). They were then randomly assigned to either a guided LKM (our treatment condition), or a recording of a TedTalk about meditation (our active control condition). After listening to one of the audio recordings, participants responded to manipulation check items. Subsequently, participants were exposed to a situation in which they were confronted with a realistic entrepreneurial decision problem involving an ethical dilemma with environmental consequences. Adapted from May and Pauli (2002), this decision-making scenario was designed to typify a difficult dilemma where there is no one correct answer and the solution necessitates a tradeoff among various morals and values (see also Zhang et al., 2018). Finally, we conducted a debrief session where we confirmed with the participants that the scenario was realistic and informed them about the actual purpose of the study.

### 3.3. Measures

#### 3.3.1. Experimental conditions

Participants were randomly assigned to the LKM (treatment) and active control conditions. Individuals in the treatment condition were guided through an LKM audio clip focused on developing feelings of love and kindness for themselves, friends, and strangers (retrieved from: <https://www.youtube.com/watch?v=sz7cpV7ERsM>; see Logie and Frewen, 2014 for a similar procedure). Individuals in the active control condition listened to a recording of a TedTalk about meditation (retrieved from: [https://www.ted.com/talks/andy\\_puddicombe\\_all\\_it\\_takes\\_is\\_10\\_mindful\\_minutes](https://www.ted.com/talks/andy_puddicombe_all_it_takes_is_10_mindful_minutes)), but while the purpose was to provide participants with a closely matched task (an overview of meditation), they were not instructed to meditate. The full transcripts and timings for both conditions are available from the authors upon request.

#### 3.3.2. Sustainable decision making

We measured entrepreneurs' sustainable decision-making using a scenario adapted from May and Pauli (2002) and an item used by Flannery and May (2000) (see Appendix A.1). Briefly, participants were presented with an entrepreneurial situation where they are told that their offshore supplier runs a factory that allegedly pollutes the environment. Because this supplier is crucial for the survival of their venture, a decision to stop production and avoid environmental pollution represents an ethical dilemma. Hence, this scenario was designed to not have a single "right" answer so that it represents the thorny ethical decisions that entrepreneurs actually face in the field (Zhang et al., 2018). Sustainable decisions of this kind can also be seen as a binary in that one either prevents environmental harm or not. However, per McKelvie et al. (2011: 281) "employing a binary dependent variable in an experimental study poses grave challenges to understanding the true effects [...] on decisions, as there would be little variance in the dependent variable to explain". Given the information described in the scenario, participants were therefore asked to indicate how likely they were to stop production immediately on a 7-point Likert scale ranging from 1 = *Extremely Unlikely* to 7 = *Extremely Likely*. In line with our definition, we consider decisions that prioritize the environment (higher score) to indicate sustainable decision-making.

#### 3.3.3. Control variables and manipulation check

To ensure that potential confounds are properly randomized across the experimental groups, we controlled for entrepreneurs' age, gender, and education level. In addition, because of its relationship with LKM (e.g., Fredrickson et al., 2008), ethical decision making in general (Ruedy and Schweitzer, 2011) and sustainability concerns more specifically (Ericson et al., 2014; Wamsler and Brink, 2018), we wanted to rule out the possibility that the two groups have inherent differences on trait mindfulness coming into the experiment. Trait mindfulness was measured before randomization into the experimental conditions using the adapted MAAS scale

**Table 1**

Means, standard deviations, and differences between the experimental groups in Study 1.

Variable	<i>M (SD)</i>		Test statistic	Effect size
	Control (n = 33)	LKM (n = 36)		
Sustainable decision-making	2.60 (1.25)	3.78 (1.77)	$t(62.93) = 3.19^{**}$	0.76
Manipulation check	2.60 (0.93)	3.43 (0.79)	$t(63.26) = 3.96^{***}$	0.96
Age (years)	27.21 (8.21)	27.94 (6.34)	$t(60.15) = 0.41$	0.10
Gender (1 = female)	0.33 (0.48)	0.39 (0.49)	$\chi^2(1) = 0.23$	0.13
Education (1 = University)	0.88 (0.33)	0.83 (0.38)	$\chi^2(1) = 0.29$	0.20
Trait mindfulness	3.72 (0.72)	3.52 (0.61)	$t(62.66) = 1.20$	0.29
Firm age (years)	3.27 (2.35)	3.08 (1.83)	$t(60.35) = 0.37$	0.01
Firm Size (in FTE)	2.42 (1.09)	2.50 (1.11)	$\chi^2(4) = 3.32$	
Firm Industry (1 = High-tech)	0.67 (0.48)	0.56 (0.50)	$\chi^2(1) = 0.89$	0.26
Firm Legal Structure (1 = PLC)	0.55 (0.51)	0.42 (0.50)	$\chi^2(1) = 1.14$	0.28
Number of co-founders	2.27 (1.04)	2.36 (0.99)	$t(65.78) = 0.36$	0.09

*Note.* The effects were tested by dummy coding two experimental conditions to represent the effect of LKM (coded 1) versus the control condition (coded 0); Gender is coded as 1 for female and 0 for male; Education is coded as 1 for university degree and 0 for all other categories; Firm size is measured in 5 ordinal categories ranging from 0 to 11–25. Firm Industry is coded as 1 for high-tech industry and knowledge-intensive services or 0 for all other industries; Firm Legal Structure is coded 1 for PLC (Private Limited Company) or 0 for all other categories; Test statistic refers to either Welch's *t*-test or Chi-Squared test depending on the nature of the variable in question; Effect size refers to Cohen's *d*.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

by Dane and Brummel (2014 7-*itmes*;  $\alpha = .66$ ). We also asked participants to report their ventures' age, size, industry, legal structure and number of co-founders.

As a manipulation check, we used a previously established scale (Hafenbrack et al., 2014). Participants were asked about their experience during the recording and in particular about the extent to which they: (1) were focusing on their breathing, (2) were focusing on the physical sensation of breathing and (3) felt in touch with their bodies. We then combined these into a mean score for the manipulation check ( $\alpha = 0.84$ ).

### 3.4. Results

Table 1 shows the means, standard deviations and differences between the experimental groups on all the variables used in this study.

#### 3.4.1. Preliminary analyses

As shown in Table 1, none of the variables we controlled for indicates significant differences between the groups. This shows that the groups are comparable with respect to demographics, firm characteristics, and trait mindfulness. In contrast, we find a significant difference between the mean scores for the manipulation check for the LKM and control conditions [ $M_{lkm} = 3.43$ ,  $SD = 0.79$ ;  $M_{control} = 2.60$ ,  $SD = 0.93$ ,  $t(63.26) = 3.96$ ,  $p < .001$ ,  $d = 0.96$ ], indicating that, as intended, participants in the LKM group meditated while participants in the control group did not.

#### 3.4.2. Test of hypothesis

Hypothesis 1 stated that individuals in the LKM condition are more likely to make sustainable decisions. Consistent with this central hypothesis, we find that individuals in the LKM condition had a significantly higher score on sustainable decision-making compared to individuals in the control condition [ $M_{lkm} = 3.78$ ,  $SD = 1.78$ ;  $M_{control} = 2.61$ ,  $SD = 1.25$ ,  $t(62.93) = 3.19$ ,  $p = .002$ ,  $d = 0.76$ ]. This shows that LKM positively affects entrepreneurs' propensity to make environmentally sustainable decisions. Further, the large effect size demonstrates that the impact of LKM on entrepreneurs' sustainable decision-making is meaningful: 78% of participants in the LKM group reported sustainable decision-making scores higher than the mean of the control group. The results are further illustrated in Fig. 2.



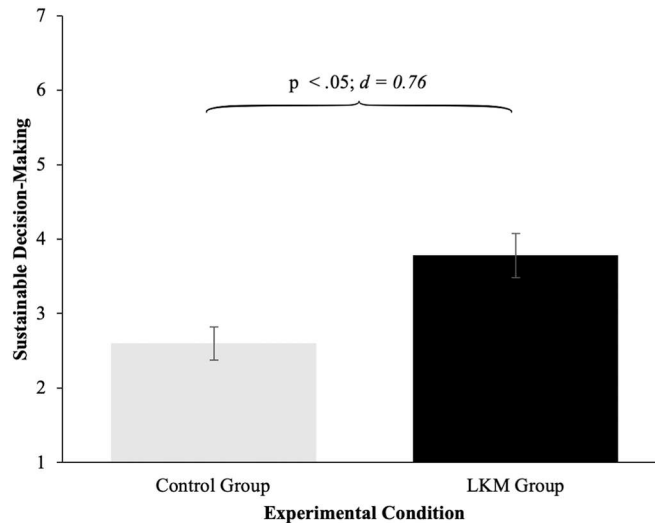


Fig. 2. Test of hypotheses 1.

### 3.5. Discussion

Overall, the findings of Study 1 provide support for the hypothesis (H1) that LKM positively affects entrepreneurs' propensity to make sustainable decisions. Although the magnitude of the effect points to the relevance of this relationship, a number of study design considerations limit our ability to rule-out alternative explanations or provide any insights about the mechanisms through which this relationship operates. First, the scenario we used might have introduced an unnecessary confound. In the scenario, another person ("Terry Bakker") informs the focal entrepreneur about the polluting supplier (see [Appendix A.1](#)). Further, the item following up on the scenario (our dependent variable) asked participants if they would stop production immediately and might therefore introduced a bias towards action. Finally, the guided meditation audio we used, while also used in prior studies ([Logie and Frewen, 2014](#)) was different than the active control audio in two respects other than its content: (1) the LKM recording was longer (twelve minutes vs. nine minutes for the control condition); and (2) it was narrated by a woman (the control condition was a TedTalk presented by a man). Finally, Study 1 could not examine the mechanisms transmitting the positive impact of LKM on sustainable decision-making. To address these challenges, provide a stronger test of H1 and in order to test H2, we conducted Study 2, mobilizing a more stringent experimental protocol and a larger sample size.

## 4. Study 2

In Study 2 we seek to overcome the design limitations of Study 1, reproduce its findings, and isolate the mechanisms that help explain how LKM affects entrepreneurs' sustainable decision-making. Specifically, we aim to reconfirm that LKM positively affects sustainable decision-making (H1) and to test whether compassion mediates the relationship between LKM and sustainable decision-making for entrepreneurs (H2).

### 4.1. Sample

We collected the data using prolific.co (see [Palan and Schitter, 2018](#) for an analysis of the efficacy of Prolific as a crowdworking data collection platform). The requirement to compensate participants at an effective rate of at least £5 per hour enables Prolific to maintain high response quality ([Peer et al., 2017](#)). In addition, unlike other online platforms (e.g., MTurk), Prolific allows to specify detailed and rigorous pre-screening criteria that help us ensure that recruited respondents are relevant for our specific study. We thus used multiple pre-screening criteria on the platform itself by recruiting only participants over 18 years of age who were fluent in English and currently running their own business in the United States. A number of additional and more stringent pre-screening criteria, based on data provided within our survey, were used to further screen the sample (see [Appendix A.1](#) for details).

Using a-priori power analysis we estimated that a sample size of  $n = 120$  at 90% power and  $\alpha = 0.05$  will be needed to detect an effect size of  $d = 0.60$  for between-groups comparison.<sup>3</sup> Considering our strict pre-screening criteria and therefore the expectation of substantial attrition, we recruited 225 participants from prolific.<sup>4</sup> Our combined exclusion criteria meant that we arrived at a final sample of 114 entrepreneurs (61 in the LKM group and 53 in the control group).

Of the 114 entrepreneurs in our final sample, 58 were male, 52 were female, and 4 were identified as gender non-conforming. The average age was 37.46 years. Most of these entrepreneurs ( $n = 103$ ) had either some college or higher education. The average age of the firms that these entrepreneurs started was 7.30 years and they had an average of 1.33 co-founders. About 82% of the firms they started were either LLCs or sole proprietorships.

#### 4.2. Experimental design and procedure

The basic setup of this study is similar to Study 1 in that Study 2 is also a between-subjects design with two experimental conditions. However, there are several important improvements that we highlight below as we describe the experimental design.

Participants who provided informed consent were first asked to confirm their age and entrepreneur status as well as report their average weekly hours devoted to entrepreneurship. They were then instructed to put on their headphones, listen to a sound check audio (short recording of a man counting down from 10 to 0), and confirm that they did not experience any technical problems. Participants were then presented with several baseline measures (pro-environmental values and trait compassion), before reporting on their first battery of state measures (state compassion and mood). Next, participants were randomly assigned into the experimental conditions. The control condition was identical to the one used in Study 1 (a 9-minute audio segment narrated by a man). However, unlike the LKM audio in Study 1, participants in the treatment condition of Study 2 listened to an audio segment (see more details under measures below), which while having the standard elements of LKM (same as Study 1), was narrated by a man and was identical in length to the control condition audio (9-minutes).

Upon completion of the audio, participants answered the second battery of state measures (state compassion and mood) as well as manipulation check items, and then moved to the scenario page. This scenario text was adapted from the scenario used in Study 1 in that we removed any reference to a third party and further complemented the basic information with additional facts about environmental pollution from yet another scenario validated by Shepherd et al. (2013). As our primary dependent variable, the item following up on the scenario was similar to the one used in Study 1 but the directionality of the question as well as the answer options were reversed to help mitigate bias (i.e., instead of asking participants if they would stop production, we now asked them to report if they would continue their operations as is). In addition, we asked respondents to briefly explain in open text boxes their reasoning for this particular decision (up to 10 answers).

On the next screens, participants filled in their demographic information and were asked to report factual information about their businesses (e.g., company age and size, legal form). Just before they were debriefed, we asked participants to report their prior meditation experience, confirm that they did not experience any technical issues throughout the study, and respond to a final set of state measures (state compassion and mood). We additionally asked them to provide us with written feedback about the design and procedures.

#### 4.3. Measures

##### 4.3.1. Experimental conditions

The experimental condition consisted an audio segment with either (1) a guided LKM session (retrieved from Williams & Penman, 2011 and available in its original version at: <https://soundcloud.com/hachetteaudiouk/meditation-seven-befriending>); or (2) a TedTalk about meditation (see study 1). Both recordings were of exactly the same length (nine minutes) and narrated by men with a British accent (see also Engel et al., 2020). The full transcripts and timings for both conditions are available from the authors upon request.

##### 4.3.2. Sustainable decision-making

The scenario we used as the backdrop for our sustainable decision-making measure is provided in Appendix A.3. Based on Study 1, participants were similarly presented with an entrepreneurial situation where they are told that their offshore supplier runs a factory that allegedly pollutes the environment. This time, however, the source of this information about pollution was a more objective scientific report and we included further details about the specifics “as they appeared” in this report (see Shepherd et al., 2013 for a similar setup). As in Study 1, because this supplier is presented not only as important for the survival of the venture but also as a threat to the environment, what entrepreneurs need to decide on in this situation (i.e., stopping production to prevent

<sup>3</sup> While the effect we find in Study 1 was larger in magnitude ( $d = 0.76$ ) we note that in a recent meta-analysis of the relationship between LKM treatments and compassion Galante et al. (2014) report a slightly more modest mean effect size at Hedges  $g$ 's 0.61 with confidence intervals between 0.24 and 0.99.

<sup>4</sup> The number of participants who started the study as reported in the appendix is larger due to the way prolific works. Prolific invites eligible panel participants to take part in the study but only the first 225 who submit completed responses are rewarded.

**Table 2**

Means, Standard deviations, and differences between the experimental groups in Study 2.

Variable	M (SD)		Test Statistic (df)	Effect size
	Control (n = 53)	LKM (n = 61)		
Sustainable Decision-Making	4.06 (1.78)	4.79 (1.79)	$t(109.95) = 2.18^*$	0.41
Manipulation Check	4.09 (1.51)	5.56 (1.02)	$t(89.24) = 5.99^{***}$	1.15
State Compassion 1	4.18 (1.16)	4.35 (1.29)	$t(111.87) = 0.76$	0.14
State Compassion 2	4.44 (1.24)	5.07 (1.30)	$t(111.10) = 2.65^{**}$	0.50
State Compassion 3	4.35 (1.31)	4.92 (1.24)	$t(107.95) = 2.38^*$	0.45
Positive Mood 1	4.81 (1.20)	4.70 (1.47)	$t(111.54) = 0.45$	0.08
Positive Mood 2	4.94 (1.16)	4.92 (1.49)	$t(110.67) = 0.08$	0.01
Positive Mood 3	4.77 (1.24)	4.85 (1.48)	$t(111.88) = 0.31$	0.06
Negative Mood 1	2.55 (1.42)	2.67 (1.62)	$t(111.97) = 0.42$	0.08
Negative Mood 2	2.08 (1.09)	2.23 (1.42)	$t(110.44) = 0.68$	0.12
Negative Mood 3	2.42 (1.23)	2.45 (1.54)	$t(111.29) = 0.13$	0.02
Trait Compassion	5.72 (0.92)	5.76 (0.86)	$t(107.56) = 0.20$	0.04
Pro-Environmental Values	5.44 (1.30)	5.56 (1.24)	$t(108.31) = 0.50$	0.09
Age (Years)	36.17 (12.58)	38.59 (12.81)	$t(110.31) = 1.02$	0.19
Gender	0.58 (0.60)	0.48 (0.54)	$\chi^2(2) = 1.63$	
Education (1 = College)	0.81 (0.39)	0.77 (0.42)	$\chi^2(1) = 0.28$	0.14
Nationality (1 = American)	0.98 (0.14)	0.97 (0.18)	$\chi^2(1) = 0.21$	0.31
Country of Birth (1 = USA)	0.98 (0.14)	0.95 (0.22)	$\chi^2(1) = 0.77$	0.55
Ethnicity (1 = White/Caucasian)	0.74 (0.45)	0.72 (0.45)	$\chi^2(1) = 0.03$	0.04
Native Language (1 = English)	0.98 (0.14)	0.95 (0.22)	$\chi^2(1) = 0.77$	0.55
Prior Meditation Experience	3.08 (1.89)	3.39 (2.07)	$\chi^2(6) = 1.73$	
Prior Entrepreneurial Experience (# of ventures)	1.66 (1.33)	1.65 (1.54)	$t(112) = 0.04$	0.01
Firm Age (Years)	7.88 (7.28)	6.81 (5.74)	$t(90.40) = 0.83$	0.16
Firm Size (in FTE)	2.34 (1.63)	2.41 (1.27)	$\chi^2(7) = 6.22$	
Firm Industry (1 = High-tech)	0.60 (0.49)	0.51 (0.50)	$\chi^2(1) = 1.05$	0.21
Firm Legal Structure (1 = LLC and sole proprietorship)	0.60 (0.49)	0.51 (0.50)	$\chi^2(1) = 0.73$	0.17
Number of Co-Founders	1.36 (0.88)	1.31 (0.56)	$t(86.27) = 0.33$	0.06

Note. The effects were tested by dummy coding two experimental conditions to represent the effect of LKM (coded 1) versus the control condition (coded 0); Gender is coded into three categories with 0 = men, 1 = women, and 2 = gender non-conforming; Education is coded as 1 for college degree and 0 for all other categories; Nationality is coded as 1 for American and 0 for all other nationalities; Country of Birth is coded as 1 for USA and 0 for all other countries; Ethnicity is coded as 1 for White/Caucasian and 0 for all other ethnicities; Native Language is coded as 1 for English and 0 for all other languages; Prior Meditation Experience is measured in seven ordinal categories ranging from 'Never' to '2–3 times a week'; Firm size is measured in eight ordinal categories ranging from 0 to 101–500. Firm Industry is coded as 1 for high-tech industry and knowledge-intensive services or 0 for all other industries; Firm Legal Structure is coded 1 for LLC (Limited Liability Company) and sole proprietorship or 0 for all other categories. Test statistic refers to either Welch's *t*-test or Chi-Squared test depending on the nature of the variable in question; Effect size refers to Cohen's *d*.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

adverse impact on the ecological environment but risking bankruptcy vs. continuing the relationship as is and risking responsibility for environmental harm) represents an ethical dilemma of the "right vs. right" kind (Zhang et al., 2018).

To ensure that the situation presented was indeed ethically ambiguous, regardless of our experimental conditions, we draw on procedures reported in Flynn and Wiltermuth (2010) and Pitesa and Thau (2013) to pretest this adapted scenario. We recruited an independent sample of 49 MTurk participants<sup>5</sup> who, after reading the scenario, were asked: "how likely are you to continue working with the supplier as is?". The responses grouped close to the center value between the two options ( $M = 3.86$ ,  $SD = 1.92$ ), indicating an ambiguous decision-making task. Participant in the pre-test were also asked about the extent to which they perceived the scenario to be an ethical dilemma next to how realistic and believable the scenario was for them (7-point scale ranging from 1 = *Not at All* to 7 = *Very Much*). The responses indicated that the scenario was seen as an ethical dilemma ( $M = 5.57$ ,  $SD = 1.53$ ), and perceived to be a realistic and believable ( $M = 5.37$ ,  $SD = 1.51$ ).

Following the results of the pretest, in the current study, immediately after reading the scenario, we measured sustainable decision-making by asking participants to report the likelihood that they will continue their operations with the supplier as is (7-point

<sup>5</sup> We only included individuals who indicated they were currently running a venture that they helped start, spent more than 20 h per week working on this venture, were American nationals, and answered our attention check question correctly. These strict filtering criteria reduced our sample size from 106 to 49.

**Table 3**  
Mediation results. \*\*\*

Mediation estimates					
Effect	Label	Estimate	SE	BC 95% CI	
				Lower	Upper
Indirect	<i>ab</i>	0.23*	0.11	0.06	0.51
Direct	<i>c</i>	0.50	0.33	-0.13	1.16
Total	<i>c'</i>	0.73*	0.34	0.08	1.38

Path estimates							
LKM	→	Compassion	<i>a</i>	0.63**	0.24	0.16	1.10
Compassion	→	Sustainable Decision-Making	<i>b</i>	0.37**	0.13	0.11	0.62
LKM	→	Sustainable Decision-Making	<i>c</i>	0.50	0.33	-0.13	1.16

Note. The effects were tested by dummy coding two experimental conditions to represent the effect of LKM (coded 1) versus the control condition (coded 0), the predictor in all models was LKM condition vs. control condition ( $n = 114$ ); BC 95% CI refers to the bias-corrected 95% confidence interval; Estimate refers to the effect estimate using 5000 bootstrap samples.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

scale ranging from 1 = *Extremely Likely* to 7 = *Extremely Unlikely*). In line with our definition, we consider decisions that prioritize the environment (higher score) to indicate sustainable decision-making. In addition, we asked participants to write down the most important decision criteria they used in making this choice (up to 10 different reasons). We could therefore construct measures looking into the number of criteria reported as well as analyze participants' textual responses qualitatively (more on that below). Finally, similar to the pretest, we had participants report whether the scenario was realistic and believable and whether they perceived the situation described in the scenario as an ethical dilemma.

#### 4.3.3. Compassion

Using Oveis et al. (2010)'s measure of state compassion, participants were asked to report how they were feeling "right now" (7-point scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*). Compassion was assessed through a composite of ratings of the items "I feel compassionate", "I feel sympathetic", and "I feel moved", presented in randomized order among all other mood items (see below). We measured state compassion at three occasions during the study; before the experimental condition (*state compassion 1*;  $\alpha = 0.80$ ), right after it (*state compassion 2*;  $\alpha = 0.83$ ), and at the very end of the questionnaire (*state compassion 3*;  $\alpha = 0.84$ ).

#### 4.3.4. Control variables and manipulation check

We measured several relevant variables to ensure that the experimental groups were comparable following randomization. We thus controlled for differences in demographics such as gender, age, education, nationality, country of birth, ethnicity, and native language, along with more specific individual measures such as prior mitigation experience, prior entrepreneurial experience,<sup>6</sup> and weekly hours devoted to entrepreneurship. In addition, we asked participants to report their firms' age, size, legal status, industry affiliation, and the number of co-founders.

Because we predict that LKM impacts entrepreneurs' sustainable decision-making through compassion, we wanted to make sure that other variables previously shown to be associated with either compassion, sustainable decision-making or both are randomized across conditions. In order to do so, we measured trait compassion, using the DPES compassion subscale (Shiota et al., 2006). The scale itself has 5-items that measure compassion on a 7-point scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly agree* ( $\alpha = 0.86$ ). Sample items are "I am a very compassionate person" and "When I see someone hurt or in need, I feel a powerful urge to take care of them". We also measured pro-environmental values using the "respect for nature" subscale of the sustainable development values scale (Shepherd et al., 2009). Further, prior research suggests that LKM can influence mood (Fredrickson et al., 2008) and that mood can influence how individuals respond to moral issues (Wheatley and Haidt, 2005). Thus, with our repeated measures of state compassion we also measured positive and negative mood at three different occasions. Participants indicated how they felt "right now" on three positive mood items ("I feel happy", "I feel cheerful", "I feel satisfied";  $\alpha_1 = 0.91$ ;  $\alpha_2 = 0.92$ ;  $\alpha_3 = 0.92$ ), and

<sup>6</sup> In what seems to be a data entry outlier – "data points that lie at a distance from other data points because they are the result of inaccuracies" (Aguinis et al., 2013: 282) – a 26 years old participant indicated to have previously started 100 ventures. We therefore set entrepreneurial experience for that participant at the sample mean. Upon close inspection, no additional anomalies were found for other responses by that participant.

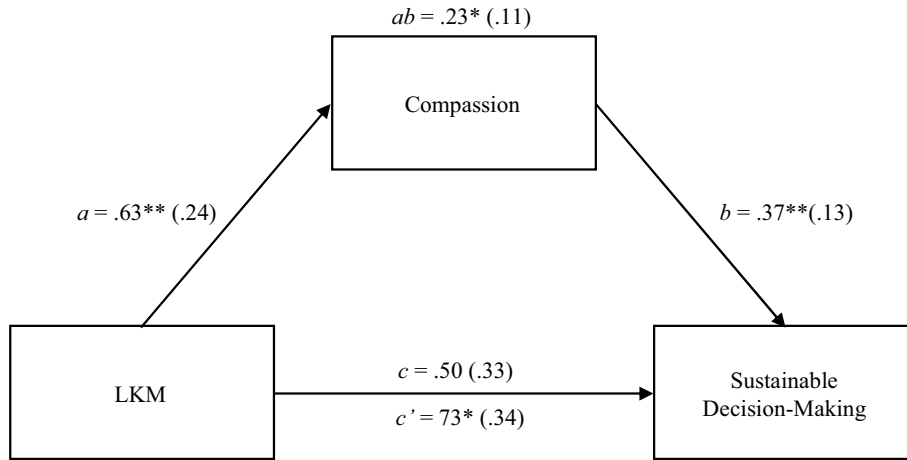


Fig. 3. Mediation model showing the effects of LKM on entrepreneurs' sustainable decision-making as mediated by Compassion. Note. All values are unstandardized coefficients. \*p < .05, \*\*p < .01, \*\*\*p < .001.

three negative mood items (“I feel sad”, “I feel unhappy”, “I feel dejected”;  $\alpha_1 = 0.93$ ;  $\alpha_2 = 0.94$ ;  $\alpha_3 = 0.92$ ) with all items appearing in randomized order.

As a manipulation check we used the same three items as in study 1 (Hafenbrack et al., 2014;  $\alpha = 0.93$ ).

4.4. Results

Table 2 shows the means, standard deviations and differences between the experimental groups on all the variables used in this study.

4.4.1. Preliminary analyses

Similar to Study 1, we ensured randomization by comparing the experimental groups on all control variables. We did not detect any significant differences between the groups on any of these variables (see Table 2). We did, however, find a significant difference on the manipulation check items for the LKM and control conditions [ $M_{lkm} = 5.56, SD = 1.02$ ;  $M_{control} = 4.09, SD = 1.51$ ],  $t(89.24) = -5.99, p < .0001, d = 1.15$ ], indicating that our experimental conditions worked as intended.

4.4.2. Test of hypotheses

Hypothesis 1 stated that individuals in the LKM condition are more likely to make sustainable decisions. Consistent with the results of Study 1, we find that the LKM group had a significantly higher mean score on our measure of sustainable decision making ( $M = 4.79, SD = 1.79$ ) compared to the control condition ( $M = 4.06, SD = 1.78$ ) [ $t(109.95) = -2.179, p = .03; d = 0.41$ ].<sup>7</sup>

Hypothesis 2 stated that compassion would mediate the effect of LKM on entrepreneurs' sustainable decision-making. Before addressing this mediation hypothesis, we took several precautionary measures. First, to establish that group differences in sustainable decision-making are not attributable to trait compassion, we test and find no significant difference between the mean of the trait compassion scores for the LKM and the control condition [ $M_{lkm} = 5.76, SD = 0.86$ ;  $M_{control} = 5.72, SD = 0.92, t(107.56) = -0.20, p = .84; d = 0.04$ ]. We also find no significant difference in the state compassion scores measured before exposure to the experimental conditions [state compassion 1:  $M_{lkm} = 4.35, SD = 1.29$ ;  $M_{control} = 4.18, SD = 1.16, t(111.87) = -0.76, p = .45; d = 0.14$ ]. However, as predicted, after listening to the audio segment, individuals in the LKM condition reported significantly higher compassion compared to those in the control condition [state compassion 2: ( $M_{lkm} = 5.07, SD = 1.30$ ;  $M_{control} = 4.44, SD = 1.24, t$

<sup>7</sup> As we also asked participants to write down their decision criteria, we conducted two additional tests. First, we checked whether there were any differences between the groups in the number of written responses they provided. There were no significant differences [ $M_{lkm} = 3.45, SD = 1.79$ ;  $M_{control} = 3.52, SD = 1.50$ ],  $t(101.88) = 0.23, p = .82, d = 0.04$ . Second, we recruited two independent coders blind to the study's hypotheses to rate each of our participants' textual responses. We asked coders to indicate whether the criteria mentioned by each participant reflected the use of sustainability-related reasoning (1 = Not At All to 7 = A Great Deal). Given high inter-rater reliability ( $ICC_2 = 0.94, p < .001$ ), we aggregated the raters' responses into a single measure (see similar procedures in Zhang et al., 2018). The data were not normally distributed, and we carried out a non-parametric Mann Whitney U Test. Findings show that written decision criteria provided by individuals in the LKM condition were coded as marginally more sustainable than those provided by individuals in the control group conditions [ $M_{lkm} = 4.33, SD = 1.92$ ;  $M_{control} = 3.71, SD = 2.11$ ],  $U = 1275, p = .068, d = 0.31$ ]. This lends additional support to Hypothesis 1.

(111.10) =  $-2.65$ ,  $p = .009$ ;  $d = 0.50$ ]. Importantly, we are able to show that this difference in state compassion persists at least until the end of the experiment [*state compassion 3*:  $M_{\text{LKM}} = 4.92$ ,  $SD = 1.24$ ;  $M_{\text{control}} = 4.35$ ,  $SD = 1.31$ ,  $t(107.95) = -2.39$ ,  $p = .02$ ;  $d = 0.45$ ]. Next, we tested for group differences across the three measures of positive and negative mood. As shown in Table 2, we find no significant differences (see Table 2). We are thus able to isolate the effects of LKM on state compassion and sustainable decision-making and reject mood changes as an alternative explanation for any differences we observe between the groups. Together, these results establish that the significantly higher state compassion in the LKM group is attributable solely to our experimental condition.

Turning back to our mediation hypothesis, we sought to understand whether compassion transmits the effect of LKM on entrepreneurs' sustainable decision-making. We use *state compassion 2* as the mediator since it is measured after the LKM treatment and before the decision scenario, thereby providing a logical path for the indirect effect we look to identify. We use a bootstrapped regression-based path analyses for estimating direct and indirect effects with a mediator (Hayes, 2018), using 5000 bootstraps. This entails randomly sampling 5000 bootstrapped cases from our data to derive bias-corrected and accelerated 95% confidence intervals (CI). This method does not require any assumptions about the sampling distribution underlying the mediation model and helps in offsetting the weaknesses of traditional causal steps approaches (Hayes, 2009). As illustrated in Table 3 and Fig. 3, we find that LKM is a significant predictor of compassion ( $b = 0.63$ ,  $SE = 0.24$ , 95% CI [0.16, 1.10]) and compassion is a significant predictor of entrepreneurs' sustainable decision-making ( $b = 0.37$ ,  $SE = 0.13$ , 95% CI [0.11, 0.62]). In support of Hypothesis 2, we find a significant positive indirect effect of LKM on sustainable decision-making through compassion ( $b = 0.23$ ,  $SE = 0.11$ , 95% CI [0.06, 0.51]). Indeed, when controlling for compassion, LKM is no longer a significant predictor of sustainable decision-making ( $b = 0.50$ ,  $SE = 0.33$ , 95% CI [-0.13, 1.16]), further supporting the hypothesis that compassion transmits the effect of LKM on sustainable decision-making in entrepreneurial situations.

#### 4.5. Discussion

Following limitations identified in Study 1, we undertook several steps to cross-validate our experimental scenario and measures in Study 2, therefore addressing potential confounds and mitigating potential bias. In doing so, we provide additional support to the hypothesis that LKM leads to more environmentally sustainable decisions among entrepreneurs. Further, using a more robust experimental protocol, we are able to show that compassion mediates the relationship between LKM and entrepreneurs' sustainable decision-making, thus isolating compassion as the mechanism that transmits the effect of LKM on sustainable decision-making.

### 5. General discussion

On the 30th anniversary of the Journal of Business Venturing, Shepherd (2015) called for more research on why and how entrepreneurs act to benefit others and organize compassionately, not only to alleviate suffering among humans but also paying attention to the larger ecological environment. Indeed, entrepreneurs can have a crucial role to play in crafting solutions to grand environmental challenges (Dean and McMullen, 2007; Markman et al., 2016; York and Venkataraman, 2010). However, as Shepherd (2015) noted, turning to entrepreneurs for solutions is not very useful unless we better understand why and how they make environmentally sustainable decisions (Hall et al., 2010; Sarasvathy and Ramesh, 2019; Shepherd and Patzelt, 2011). In response to this gap, we join a promising stream of research to understand the psychological underpinnings of entrepreneurial decisions concerning the environment (e.g., Muñoz, 2018; Shepherd et al., 2013). Specifically, by addressing the relationship between LKM, compassion, and sustainable decision making, our objective was to extend ongoing conversations with theoretical development and an empirical inquiry of the affective basis of sustainable decisions in entrepreneurship.

Based on two experimental studies, varying in experimental protocols and utilizing samples of entrepreneurs across two different countries, we obtain converging evidence that LKM affects entrepreneurs' sustainable decision-making and that compassion is the mechanism through which this relationship operates. These findings have several theoretical and practical implications that we discuss below. Finally, we also present a number of exciting directions for future research.

#### 5.1. Theoretical implications

First and foremost, our theoretical development in this paper draws further attention to the parallels between social and sustainable entrepreneurship as they overlap in aiming to alleviate suffering (Harris et al., 2009; Markman et al., 2016; Shepherd and Patzelt, 2011; Thompson et al., 2011). As Branzel et al. (2018: 552) put it, this kind of common ground "is perhaps the most

noteworthy stepping stone towards a programmatic integration of prosociality in theories of entrepreneurship". Our results demonstrate that, as predicted, the effects of LKM and compassion are not limited to decisions about social venturing (e.g., Miller et al., 2012) but can be extended to environmental concerns as well (e.g., Aspy and Proeve, 2017; Pfattheicher et al., 2016; Tam, 2013). This is an important finding because it opens the possibility that other psychological constructs exclusively studied as predictors of social entrepreneurship may also predict sustainability-related decisions, and vice versa. For instance, unlike the literature on social entrepreneurship, research on entrepreneurs' sustainable decision making has so far drifted towards cognitive explanations (e.g., Muñoz, 2018; Shepherd et al., 2013) and largely ignored the role of entrepreneurial affect – emotions, moods, or feelings – that are antecedent to almost every entrepreneurial decision (Baron, 2008; Cardon et al., 2012; Foo, 2011; Miller et al., 2012; Shepherd et al., 2015). In offering insights about compassion as an affective foundation for entrepreneurs' sustainable decisions we are therefore not just complementing prior research with the addition of a single variable but rather extend it with multiple opportunities to examine other affective variables in the context of sustainable decision making (e.g., Zietsma and Toubiana, 2019).

Second, although entrepreneurship research on compassion is already thriving (Miller et al., 2012; Shepherd, 2015; Shepherd and Williams, 2018), virtually no progress has been made on understanding the facilitators of entrepreneurs' compassion (cf. Atkins and Parker, 2012). By highlighting the role of meditation practice, we provide new insights on how entrepreneurs can actually *become* more compassionate. Apart from its relevance to scholars working on sustainable entrepreneurship, the relationship between LKM and compassion is also valuable for research on social entrepreneurship (Saebi et al., 2019), compassion organizing (Dutton et al., 2006; Shepherd and Williams, 2014; Williams and Shepherd, 2018) and pro-social motivation in entrepreneurship (Bolino and Grant, 2016; Branzei et al., 2018). The studies described in our paper could be adapted to understand how compassion can be evoked in these fields, thus expanding our understanding of these phenomena and their antecedents.

Third, evidence about the efficacy of meditation techniques, including LKM, has seen an immense growth in recent years (e.g., Galante et al., 2014; Good et al., 2016; Kreplin et al., 2018), indicating that meditation may influence a much broader spectrum of entrepreneurship-relevant variables. The study of emotions (e.g., Cardon et al., 2012) and decision-making (e.g., Shepherd et al., 2015) represent central themes in entrepreneurship research and is well positioned to benefit from this new frontier. Thus, our findings promise to stimulate theoretical development and fresh empirical investigations of meditation in entrepreneurship (see Good et al., 2016 for similar ideas about the impact of mindfulness on management theory). For example, next to compassion, LKM has also been shown to promote self-compassion – defined by self-kindness, emotional balance, and broadened perspective on challenging situations (Engel et al., 2020; Neff, 2003; Shepherd and Cardon, 2009). Engel et al. (2020) have recently demonstrated that LKM and self-compassion are extremely relevant for the literature about entrepreneurial fear of failure (Cacciotti et al., 2016; Kollmann et al., 2017). Much in the same way, future studies involving meditation may contribute more broadly to research on entrepreneurial well-being (Rauch et al., 2018; Stephan, 2018; Wiklund et al., 2019).

Finally, we contribute back to studies in psychology by extending our test of psychological theories to the specific context of entrepreneurship. As Cardon et al. (2012) suggest, testing basic psychological theories in the extreme context of entrepreneurship, allows to “extend the boundary conditions of the original theories we draw from” [...] and “make a major contribution to literatures in both entrepreneurship and psychology” (2012: 7). Thus, while our study reaffirms the impact of LKM on compassion (Galante et al., 2014; Kreplin et al., 2018; Zeng et al., 2015), it significantly stretches the conceptual boundaries of studies proposing a relationship between LKM and sustainable decision-making (Aspy and Proeve, 2017), as well as compassion and sustainable decision-making (Pfattheicher et al., 2016). On the one hand, entrepreneurs are more powerful than private individuals and their decisions, representing a firm as well as an individual, carry more weight (e.g., Shepherd et al., 2015). On the other hand, entrepreneurs are also unencumbered by past business models and organizational routines, which allows them more freedom to act where larger organizations hesitate or get stuck in red tape (Cohen and Winn, 2007; Parrish, 2010; York and Venkataraman, 2010). These uniquely entrepreneurial conditions offer the potential to transform seemingly unsolvable situations such as environmental degradation into new ventures (Pacheco et al., 2010; Sarasvathy and Ramesh, 2019) and serves as an extreme context in which to stress test basic psychological theories (e.g., Shepherd et al., 2015). Therefore, our study showcases the importance of entrepreneurship as a context in which to study the applicability of psychological constructs. In that respect, our theoretically consistent findings extend the broad applicability of LKM and compassion to entrepreneurship.

## 5.2. Limitations and future research

While our work offers a number of contributions, it is not without weaknesses. First, the entrepreneurs in our study made decisions in response to a hypothetical scenario that cannot account for the full complexity of ‘real-life’ entrepreneurial situations. We fully acknowledge that such approximations of the real world are stylized and imperfect. However, the experimental method allows

us to control for extraneous variables and establish causality. Two things give us more confidence in our ability to offer implications for entrepreneurs: (1) we conducted multiple studies in this paper and in each study the respondents reported that they found the scenario believable and realistic; and (2) as prior studies in similar decision contexts (e.g., Shepherd et al., 2013) point out, judgements elicited in hypothetical scenarios often yield results similar to real life situations (Hammond and Adelman, 1976). However, future studies should extend this and validate our results in the field.

Second, while the entrepreneurs participating in our studies operate a variety of different businesses across different country contexts, they might not be representative of all entrepreneurs with all types of firms and in all environments. For example, more than 70% of ventures that were run by entrepreneurs participating in Study 1 employed at least one full time employee, but none of the firms employed more than 25 employees. Similarly, in Study 2 we made use of an online panel to identify entrepreneurs, which are then more likely to run smaller firms or be self-employed. Although our model and hypotheses are theoretically driven and should therefore hold across a wide range of situations, the effect sizes we show may vary for entrepreneurs with larger firms, where pressures and constraints are more pronounced. This also represents an interesting path for future research that could aim to test the boundaries of our predictions.

Third, our study was designed to understand what explains entrepreneurs' sustainable decision making at the individual level and at one point in time. Yet, entrepreneurs routinely engage with their stakeholders in order to garner resources and work with them in order to build sustainable ventures over time (Schlange, 2006). Future research could therefore examine how variations in compassion between stakeholders impacts entrepreneurial decision making and study the impact of LKM interventions on various stakeholders as they interact with a focal entrepreneur. In addition, different stakeholders are salient to the entrepreneur at particular stages of the venture creation process (McMullen and Dimov, 2013). Therefore, further studies could consider studying LKM and compassion across time in order to understand how they evolve and impact sustainable decision making in various parts of the venture creation process.

Finally, we recognize that just like other positive emotions, at very high levels, too much compassion may also become debilitating and might have unintended consequences both for the individual and the venture (e.g., Baron et al., 2012). Simpson et al. (2014) argue that compassion is a social relational construct and may either be wielded consciously or unconsciously as a mode of power in an organization. In entrepreneurship, McMullen and Bergman (2017) similarly show that social entrepreneurs become attached to their ventures and causes, and this leads them to expect gratitude from their beneficiaries, which, in turn, leads to suboptimal venture development and lower entry rates. Therefore, while compassion is generally a "good" thing, we are careful not to unilaterally advocate for the development of compassion in all contexts. Additional studies should contextualize our understanding of compassion and LKM in order to better delineate their conceptual boundaries in entrepreneurship.

### 5.3. Practical implications

Our research has clear implications for practice. Since LKM interventions promote feelings of compassion, we suggest that LKM could be used as a practical tool to stimulate the salience of the environment as a stakeholder in entrepreneurial decision making. The entrepreneurs who participated in our study effectively followed the short guided LKM audio, and this, in turn, generated immediate impact on their levels of compassion and their sustainability-related decisions. The speed in which a single guided meditation session can produce such results together with the promise of sustained long-term effects with continued practice (e.g., Brefczynski-Lewis et al., 2007; Cahn and Polich, 2006; Hofmann et al., 2011; Le Nguyen et al., 2019), makes this approach extremely relevant for entrepreneurs who may use brief and widely available recordings on their own and within the time constraints of their busy daily lives.

## 6. Conclusion

Amidst growing recognition that entrepreneurship can counteract climate change, offer innovative solutions to ecosystem preservation, and assist in environmental restoration, our purpose was to better understand how entrepreneurs can enhance their sustainable decision-making. We proposed a model predicting that compassion and, in turn, sustainable decision-making would increase among entrepreneurs who were randomly assigned to practice a brief guided LKM, compared to an active control group. We then tested this model empirically in two experimental studies and found converging evidence supporting our hypotheses. Specifically, we were able to isolate compassion as the mechanism that transmits the effect of LKM on sustainable decision-making. We believe that our contributions to theory on the psychological drivers of sustainable entrepreneurship and to the literature about meditation and compassion in entrepreneurship will encourage exciting new research and strengthen the overall development of the field. We also hope that our results will directly advance knowledge of what entrepreneurs can actually do to become more compassionate and make more sustainable decisions.



## Acknowledgments

We thank the field editor Oana Branzei and three anonymous reviewers for their thoughtful guidance and insightful comments. We are grateful to Dean Shepherd for his valuable feedback on earlier drafts of this paper and to Leonie Moraal, Amba van Erkelens, Wessel van der Woude, and Bettina Lorena von Arnim for their research assistance. Any inaccuracies or omissions are entirely our own. This study was supported by the Netherlands Organization for Scientific Research (NWO) under project number: 016.Veni.195.133.

## Appendix A

### A.1. Study 1 Decision scenario

“You have started a new business with an important supplier who operates an offshore plant. The plant fully conforms to local requirements for maximum emission of toxic substances and was established 10 years ago. The facility is inspected annually, and toxic emissions have always been at an acceptable level. Relying on recently published research, however, Terry Bakker – another entrepreneur working with the same supplier – argues that the cumulative effects of the pollution from the plant can cause environmental degradation. Terry, who's opinion you value, claims that public officials would agree if they knew of these findings. Thus, he urges you to reconsider your business relationship with this supplier and the plant in question. However, changing the manufacturing process or finding a new supplier would delay your business operation substantially and might cause bankruptcy.”

### A.2. Study 2 Detailed sample filtering criteria

Step	Participants excluded (remaining)	
<i>Starting sample (participants who provided consent and started the study)</i>	369	
- Deleted participants who dropped out before indicating their entrepreneurial status	104 (265)	
- Deleted participants who did not identify as an entrepreneur	13 (252)	
- Deleted participants who reported spending less than 20 h per week on entrepreneurship-related activities	70 (182)	
- Deleted participants who dropped out before starting the audio	2 (180)	
<i>Participants randomized into experimental conditions</i>	Control	LKM
	90	90
- Deleted participants who did not complete the entire audio segment (9 min) or remained on that page for more than 15 min	16 (74)	16 (74)
- Deleted participants who remained on the scenario page less than 1 min or more than 10 min	9 (65)	11 (63)
- Deleted participants who failed to answer attention check questions correctly	2 (63)	0 (63)
- Deleted participants who reported already having regular meditation practice	7 (56)	1 (62)
- Deleted participants who completed the entire study in less than 16 min or more than 1 h	1 (55)	0 (62)
- Deleted participants who reported audio/technical problems	2 (53)	1 (61)
Total retained for analysis	53	61
Final sample	114	

### A.3. Study 2 Decision scenario

“You have started a new business and established a strategic partnership with a supplier who operates an offshore plant. The plant conforms fully to local requirements for maximum emission of toxic substances, as established 10 years ago. The facility is inspected annually, and toxic emissions have always been at an acceptable level. Relying on recently published scientific research, however, you discover that cumulative effects of the pollution from the plant cause a significant decline in the natural environment. Specifically, the published study reported the following:

- Chemical experiments showed that one of the waste products of the production process can act as a greenhouse gas. In the laboratory, the greenhouse gas effect was 250 times stronger than for carbon dioxide, which is a known greenhouse gas.
- Calculations of the scientists showed that the amount of emissions of the production site on which you base your business model can have a measurable impact on the greenhouse effect. According to the predictions, temperatures are likely to rise by 5% per year in areas where the waste product is emitted.

- The published figures also suggest that from the predicted production and sales volumes in the business plan over the next five years, the cumulated emissions can measurably contribute to global warming. The impact is likely to be about 10% of the impact of globally emitted carbon dioxide (which is responsible for about 60% of human-made climate change).

The evidence on which this information is based is reliable and accepted by experts in the field. You need to decide what to do next. Changing the current manufacturing process would be very costly and the supplier is reluctant to discuss any adjustments. At the same time, terminating your relationship with this key supplier and finding a new one would delay your business operation substantially and might cause bankruptcy.”

## References

- Foo, M.-D., 2011. Emotions and entrepreneurial opportunity evaluation. *Entrepreneurship Theory and Practice* 35 (2), 375–393. <https://doi.org/10.1111/j.1540-6520.2009.00357.x>.
- Tam, K.-P., 2013. Dispositional empathy with nature. *J. Environ. Psychol.* 35, 92–104. <https://doi.org/10.1016/j.jenvp.2013.05.004>.
- Aguinis, H., Gottfredson, R.K., Joo, H., 2013. Best-practice recommendations for defining, identifying, and handling outliers. *Organ. Res. Methods* 16 (2), 270–301. <https://doi.org/10.1177/1094428112470848>.
- Aspy, D.J., Proeve, M., 2017. Mindfulness and loving-kindness meditation: effects on connectedness to humanity and to the natural world. *Psychol. Rep.*, 0033294116685867. <https://doi.org/10.1177/0033294116685867>.
- Atkins, P.W.B., Parker, S.K., 2012. Understanding individual compassion in organizations: the role of appraisals and psychological flexibility. *Acad. Manag. Rev.* 37 (4), 524–546. <https://doi.org/10.5465/amr.2010.0490>.
- Baron, R.A., 2008. The role of affect in the entrepreneurial process. *Acad. Manag. Rev.* 33 (2), 328–340. <https://doi.org/10.5465/amr.2008.31193166>.
- Baron, R.A., Hmieleski, K.M., Henry, R.A., 2012. Entrepreneurs' dispositional positive affect: the potential benefits – and potential costs – of being “up” *J. Bus. Ventur.* 27 (3), 310–324. <https://doi.org/10.1016/j.jbusvent.2011.04.002>.
- Batson, C.D., 1991. The altruism question: toward a social-psychological answer. In: *The Altruism Question: Toward a Social-psychological Answer*. Lawrence Erlbaum Associates, Inc, Hillsdale, NJ, US.
- Berenguer, J., 2007. The effect of empathy in proenvironmental attitudes and behaviors. *Environ. Behav.* 39 (2), 269–283. <https://doi.org/10.1177/0013916506292937>.
- Berenguer, J., 2010. The effect of empathy in environmental moral reasoning. *Environ. Behav.* 42 (1), 110–134. <https://doi.org/10.1177/0013916508325892>.
- Bolino, M.C., Grant, A.M., 2016. The bright side of being Prosocial at work, and the dark side, too: a review and agenda for research on other-oriented motives, behavior, and impact in organizations. *Acad. Manag. Ann.* 0, 1–94. <https://doi.org/10.1080/19416520.2016.1153260>. (ja).
- Branzei, O., Parker, S.C., Moroz, P.W., et al., 2018. Going pro-social: extending the individual-venture nexus to the collective level. *J. Bus. Ventur.* 33 (5), 551–565. <https://doi.org/10.1016/j.jbusvent.2018.06.007>. Enterprise Before and Beyond Benefit, Part 2: Prosocial Organizing.
- Brefczynski-Lewis, J.A., Lutz, A., Schaefer, H.S., et al., 2007. Neural correlates of attentional expertise in long-term meditation practitioners. *Proc. Natl. Acad. Sci.* 104 (27), 11483–11488. <https://doi.org/10.1073/pnas.0606552104>.
- Cacciotti, G., Hayton, J.C., Mitchell, J.R., et al., 2016. A reconceptualization of fear of failure in entrepreneurship. *J. Bus. Ventur.* 31 (3), 302–325. <https://doi.org/10.1016/j.jbusvent.2016.02.002>.
- Cahn, B.R., Polich, J., 2006. Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychol. Bull.* 132 (2), 180–211. <https://doi.org/10.1037/0033-2909.132.2.180>.
- Cardon, M.S., Foo, M.-D., Shepherd, D., et al., 2012. Exploring the heart: entrepreneurial emotion is a hot topic. *Entrepreneurship Theory and Practice* 36 (1), 1–10. <https://doi.org/10.1111/j.1540-6520.2011.00501.x>.
- Chell, E., Spence, L.J., Perrini, F., et al., 2016. Social entrepreneurship and business ethics: does social equal ethical? *J. Bus. Ethics* 133 (4), 619–625. <https://doi.org/10.1007/s10551-014-2439-6>.
- Cohen, B., Winn, M.I., 2007. Market imperfections, opportunity and sustainable entrepreneurship. *J. Bus. Ventur.* 22 (1), 29–49. <https://doi.org/10.1016/j.jbusvent.2004.12.001>.
- Shepherd, D., Patzelt, H., 2011. The new field of sustainable entrepreneurship: studying entrepreneurial action linking ‘what is to be sustained’ with ‘what is to be developed’ *Enterp. Theory Pract.* 35 (1), 137–163.
- Dahl, C.J., Lutz, A., Davidson, R.J., 2015. Reconstructing and deconstructing the self: cognitive mechanisms in meditation practice. *Trends Cogn. Sci.* 19 (9), 515–523. <https://doi.org/10.1016/j.tics.2015.07.001>.
- Dane, E., Brummel, B.J., 2014. Examining workplace mindfulness and its relations to job performance and turnover intention. *Hum. Relat.* 67 (1), 105–128. <https://doi.org/10.1177/0018726713487753>.
- Dean, T.J., McMullen, J.S., 2007. Toward a theory of sustainable entrepreneurship: reducing environmental degradation through entrepreneurial action. *J. Bus. Ventur.* 22 (1), 50–76. <https://doi.org/10.1016/j.jbusvent.2005.09.003>.
- Dickinson, J.L., McLeod, P., Bloomfield, R., et al., 2016. Which moral foundations predict willingness to make lifestyle changes to avert climate change in the USA? *PLoS One* 11 (10), e0163852. <https://doi.org/10.1371/journal.pone.0163852>.
- DiVito, L., Bohnsack, R., 2017. Entrepreneurial orientation and its effect on sustainability decision tradeoffs: the case of sustainable fashion firms. *J. Bus. Ventur.* 32 (5), 569–587. <https://doi.org/10.1016/j.jbusvent.2017.05.002>.
- Dutton, J.E., Worline, M.C., Frost, P.J., et al., 2006. Explaining compassion organizing. *Adm. Sci. Q.* 51 (1), 59–96. <https://doi.org/10.2189/asqu.51.1.59>.
- Dutton, J.E., Workman, K.M., Hardin, A.E., 2014. Compassion at work. *Annual Review of Organizational Psychology and Organizational Behavior* 1 (1), 277–304. <https://doi.org/10.1146/annurev-orgpsych-031413-091221>.
- Engel, Y., Noordlijk, S., Spoelder, A., van Gelderen, M., 2020. Self-Compassion When Coping With Venture Obstacles: Loving-Kindness Meditation and Entrepreneurial Fear of Failure. *Enterp. Theory Pract.* <https://doi.org/10.1177/1042258719890991>. In press.
- Ericson, T., Kjønsstad, B.G., Barstad, A., 2014. Mindfulness and sustainability. *Ecol. Econ.* 104, 73–79. <https://doi.org/10.1016/j.ecolecon.2014.04.007>.
- Flannery, B.L., May, D.R., 2000. Environmental ethical decision making in the U.S. metal-finishing industry. *Acad. Manag. J.* 43 (4), 642–662. <https://doi.org/10.2307/1556359>.

- Flynn, F.J., Wiltermuth, S.S., 2010. Who's with me? False consensus, brokerage, and ethical decision making in organizations. *Acad. Manag. J.* 53 (5), 1074–1089. <https://doi.org/10.5465/amj.2010.54533202>.
- Fredrickson, B.L., Cohn, M.A., Coffey, K.A., et al., 2008. Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *J. Pers. Soc. Psychol.* 95 (5), 1045–1062. <https://doi.org/10.1037/a0013262>.
- Galante, J., Galante, I., Bekkers, M.-J., et al., 2014. Effect of kindness-based meditation on health and well-being: a systematic review and meta-analysis. *J. Consult. Clin. Psychol.* 82 (6), 1101–1114. <https://doi.org/10.1037/a0037249>.
- Gast, J., Gundolf, K., Cesinger, B., 2017. Doing business in a green way: a systematic review of the ecological sustainability entrepreneurship literature and future research directions. *J. Clean. Prod.* 147, 44–56. <https://doi.org/10.1016/j.jclepro.2017.01.065>.
- van Gelderen, M., Kibler, E., Kautonen, T., et al., 2018. Mindfulness and taking action to start a new business. *J. Small Bus. Manag.* 0 (0). <https://doi.org/10.1111/jsbm.12499>.
- Goetz, J.L., Keltner, D., Simon-Thomas, E., 2010. Compassion: an evolutionary analysis and empirical review. *Psychol. Bull.* 136 (3), 351–374. <https://doi.org/10.1037/a0018807>.
- Good, D.J., Lyddy, C.J., Glomb, T.M., et al., 2016. Contemplating mindfulness at work: an integrative review. *J. Manag.* 42 (1), 114–142. <https://doi.org/10.1177/0149206315617003>.
- Hafenbrack, A.C., Kinias, Z., Barsade, S.G., 2014. Debiasing the mind through meditation mindfulness and the sunk-cost bias. *Psychol. Sci.* 25 (2), 369–376.
- Hall, J.K., Daneke, G.A., Lenox, M.J., 2010. Sustainable development and entrepreneurship: Past contributions and future directions. *J. Bus. Ventur.* 25 (5), 439–448. <https://doi.org/10.1016/j.jbusvent.2010.01.002>. Sustainable Development and Entrepreneurship.
- Hammond, K.R., Adelman, L., 1976. Science, values, and human judgment. *Science* 194 (4263), 389–396. <https://doi.org/10.1126/science.194.4263.389>.
- Hannafey, F.T., 2003. Entrepreneurship and ethics: a literature review. *J. Bus. Ethics* 46 (2), 99–110. <https://doi.org/10.1023/A:1025054220365>.
- Harris, J.D., Sapienza, H.J., Bowie, N.E., 2009. Ethics and entrepreneurship. *J. Bus. Ventur.* 24 (5), 407–418. <https://doi.org/10.1016/j.jbusvent.2009.06.001>. Special Issue Ethics and Entrepreneurship.
- Hayes, A.F., 2009. Beyond Baron and Kenny: statistical mediation analysis in the new millennium. *Commun. Monogr.* 76 (4), 408–420.
- Hayes, A.F., 2018. Introduction to Mediation, Moderation, and Conditional Process Analysis Second Edition: A Regression-Based Approach, 2nd ed. Guilford Press.
- Hmieleski, K.M., Baron, R.A., 2008. Regulatory focus and new venture performance: a study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty. *Strateg. Entrep. J.* 2 (4), 285–299. <https://doi.org/10.1002/sej.56>.
- Hmieleski, K.M., Baron, R.A., 2009. Entrepreneurs' optimism and new venture performance: a social cognitive perspective. *Acad. Manag. J.* 52 (3), 473–488 (DOI: papers://BA75DBD3-74D3-4A2D-AAAC-910414082C6C/Paper/p7847).
- Hofmann, S.G., Grossman, P., Hinton, D.E., 2011. Loving-kindness and compassion meditation: potential for psychological interventions. *Clin. Psychol. Rev.* 31 (7), 1126–1132. <https://doi.org/10.1016/j.cpr.2011.07.003>.
- Hutcherson, C.A., Seppala, E.M., Gross, J.J., 2008. Loving-kindness meditation increases social connectedness. *Emotion* 8 (5), 720–724. <https://doi.org/10.1037/a0013237>.
- Jordan, M.R., Amir, D., Bloom, P., 2016. Are empathy and concern psychologically distinct? *Emotion*. <https://doi.org/10.1037/emo0000228>. No Pagination Specified.
- Kollmann, T., Stöckmann, C., Kensbock, J.M., 2017. Fear of failure as a mediator of the relationship between obstacles and nascent entrepreneurial activity—an experimental approach. *J. Bus. Ventur.* 32 (3), 280–301. <https://doi.org/10.1016/j.jbusvent.2017.02.002>.
- Kreplin, U., Farias, M., Brazil, I.A., 2018. The limited prosocial effects of meditation: a systematic review and meta-analysis. *Sci. Rep.* 8 (1), 2403. <https://doi.org/10.1038/s41598-018-20299-z>.
- Kuckertz, A., Wagner, M., 2010. The influence of sustainability orientation on entrepreneurial intentions — investigating the role of business experience. *J. Bus. Ventur.* 25 (5), 524–539. <https://doi.org/10.1016/j.jbusvent.2009.09.001>. Sustainable Development and Entrepreneurship.
- Kudesia, R.S., 2019. Mindfulness as metacognitive practice. *Acad. Manag. Rev.* 44 (2), 405–423. <https://doi.org/10.5465/amr.2015.0333>.
- Kung, F.Y.H., Kwok, N., Brown, D.J., 2017. Are attention check questions a threat to scale validity? *Appl. Psychol.* 67, 264–283. <https://doi.org/10.1111/apps.12108>.
- Le Nguyen, K.D., Lin, J., Algoe, S.B., et al., 2019. Loving-kindness meditation slows biological aging in novices: evidence from a 12-week randomized controlled trial. *Psychoneuroendocrinology*. <https://doi.org/10.1016/j.psychneuen.2019.05.020>.
- Leiberg, S., Klimecki, O., Singer, T., 2011. Short-term compassion training increases prosocial behavior in a newly developed prosocial game. *PLoS One* 6 (3). <https://doi.org/10.1371/journal.pone.0017798>.
- Logie, K., Frewen, P., 2014. Self/other referential processing following mindfulness and loving-kindness meditation. *Mindfulness* 6 (4), 778–787. <https://doi.org/10.1007/s12671-014-0317-z>.
- Lu, H., Schuldt, J.P., 2016. Compassion for climate change victims and support for mitigation policy. *J. Environ. Psychol.* 45, 192–200. <https://doi.org/10.1016/j.jenvp.2016.01.007>.
- Mair, J., Martí, I., 2006. Social entrepreneurship research: a source of explanation, prediction, and delight. *J. World Bus.* 41 (1), 36–44. <https://doi.org/10.1016/j.jwb.2005.09.002>.
- Markman, G.D., Krause, D., 2016. Theory building surrounding sustainable supply chain management: assessing what we know, exploring where to go. *J. Supply Chain Manag.* 52 (2), 3–10. <https://doi.org/10.1111/jscm.12105>.
- Markman, G.D., Russo, M., Lumpkin, G.T., et al., 2016. Entrepreneurship as a platform for pursuing multiple goals: a special issue on sustainability, ethics, and entrepreneurship. *J. Manag. Stud.* 53 (5), 673–694. <https://doi.org/10.1111/joms.12214>.
- May, D.R., Pauli, K.P., 2002. The role of moral intensity in ethical decision making: a review and investigation of moral recognition, evaluation, and intention. *Bus. Soc.* 41 (1), 84–117. <https://doi.org/10.1177/0007650302041001006>.
- McKelvie, A., Haynie, J.M., Gustavsson, V., 2011. Unpacking the uncertainty construct: implications for entrepreneurial action. *J. Bus. Ventur.* 26 (3), 273–292. <https://doi.org/10.1016/j.jbusvent.2009.10.004>.
- McMullen, J.S., Bergman, B.J., 2017. Social entrepreneurship and the development paradox of prosocial motivation: a cautionary tale. *Strateg. Entrep. J.* 11 (3), 243–270. <https://doi.org/10.1002/sej.1263>.
- McMullen, J.S., Dimov, D., 2013. Time and the entrepreneurial journey: the problems and promise of studying entrepreneurship as a process: time and the entrepreneurial journey. *J. Manag. Stud.* <https://doi.org/10.1111/joms.12049>. n/a-n/a.
- McVea, J.F., 2009. A field study of entrepreneurial decision-making and moral imagination. *J. Bus. Ventur.* 24 (5), 491–504. <https://doi.org/10.1016/j.jbusvent.2008.07.003>.
- Meek, W.R., Pacheco, D.F., York, J.G., 2010. The impact of social norms on entrepreneurial action: evidence from the environmental entrepreneurship context. *J. Bus. Ventur.* 25 (5), 493–509. <https://doi.org/10.1016/j.jbusvent.2009.09.007>. Sustainable Development and Entrepreneurship.
- Miller, T.L., Grimes, M.G., McMullen, J.S., et al., 2012. Venturing for others with heart and head: how compassion encourages social entrepreneurship. *Acad. Manag. Rev.* 37 (4), 616–640. <https://doi.org/10.5465/amr.2010.0456>.
- Muñoz, P., 2018. A cognitive map of sustainable decision-making in entrepreneurship. *Int. J. Entrep. Behav. Res.* <https://doi.org/10.1108/IJEBR-03-2017-0110>.

- Muñoz, P., Cohen, B., 2018. Sustainable entrepreneurship research: taking stock and looking ahead. *Bus. Strateg. Environ.* 27 (3), 300–322. <https://doi.org/10.1002/bse.2000>.
- Muñoz, P., Dimov, D., 2015. The call of the whole in understanding the development of sustainable ventures. *J. Bus. Ventur.* 30 (4), 632–654. <https://doi.org/10.1016/j.jbusvent.2014.07.012>.
- Murnieks, C.Y., Arthurs, J.D., Cardon, M.S., et al., 2019. Close your eyes or open your mind: effects of sleep and mindfulness exercises on entrepreneurs' exhaustion. *J. Bus. Ventur.* <https://doi.org/10.1016/j.jbusvent.2018.12.004>.
- Neff, K.D., 2003. The development and validation of a scale to measure self-compassion. *Self Identity* 2 (3), 223–250. <https://doi.org/10.1080/152988603090027>.
- Oveis, C., Horberg, E.J., Keltner, D., 2010. Compassion, pride, and social intuitions of self-other similarity. *J. Pers. Soc. Psychol.* 98 (4), 618–630.
- Pacheco, D.F., Dean, T.J., Payne, D.S., 2010. Escaping the green prison: entrepreneurship and the creation of opportunities for sustainable development. *J. Bus. Ventur.* 25 (5), 464–480. <https://doi.org/10.1016/j.jbusvent.2009.07.006>.
- Palan, S., Schitter, C., 2018. Prolific.ac—a subject pool for online experiments. *J. Behav. Exp. Financ.* 17, 22–27. <https://doi.org/10.1016/j.jbef.2017.12.004>.
- Parrish, B.D., 2010. Sustainability-driven entrepreneurship: principles of organization design. *J. Bus. Ventur.* 25 (5), 510–523. <https://doi.org/10.1016/j.jbusvent.2009.05.005>.
- Peer, E., Brandimarte, L., Samat, S., et al., 2017. Beyond the Turk: alternative platforms for crowdsourcing behavioral research. *J. Exp. Soc. Psychol.* 70, 153–163. <https://doi.org/10.1016/j.jesp.2017.01.006>.
- Pfattheicher, S., Sassenrath, C., Schindler, S., 2016. Feelings for the suffering of others and the environment: compassion fosters proenvironmental tendencies. *Environ. Behav.* 48 (7), 929–945. <https://doi.org/10.1177/0013916515574549>.
- Pitesa, M., Thau, S., 2013. Compliant sinners, obstinate saints: how power and self-focus determine the effectiveness of social influences in ethical decision making. *Acad. Manag. J.* 56 (3), 635–658. <https://doi.org/10.5465/amj.2011.0891>.
- Rauch, A., Fink, M., Hatak, I., 2018. Stress processes: an essential ingredient in the entrepreneurial process. *Acad. Manag. Perspect.* <https://doi.org/10.5465/amp.2016.0184>.
- Ruedy, N.E., Schweitzer, M.E., 2011. In the moment: the effect of mindfulness on ethical decision making. *J. Bus. Ethics* 95 (1), 73–87. <https://doi.org/10.1007/s10551-011-0796-y>.
- Saebi, T., Foss, N.J., Linder, S., 2019. Social entrepreneurship research: past achievements and future promises. *J. Manag.* 45 (1), 70–95. <https://doi.org/10.1177/0149206318793196>.
- Sarasvathy, S., Ramesh, A., 2019. An Effectual Model of Collective Action for Addressing Sustainability Challenge. *Academy of Management Perspectives* 33, 405–424.
- Schlange, L.E., 2006. Stakeholder identification in sustainability entrepreneurship: the role of managerial and organisational cognition. *Greener Manag. Int.* 55, 13–32.
- Schultz, P.W., 2000. Empathizing with nature: the effects of perspective taking on concern for environmental issues. *J. Soc. Issues* 56 (3), 391–406. <https://doi.org/10.1111/0022-4537.00174>.
- Schultz, P.W., 2001. The structure of environmental concern: concern for self, other people, and the biosphere. *J. Environ. Psychol.* 21 (4), 327–339. <https://doi.org/10.1006/jevp.2001.0227>.
- Sedlmeier, P., Eberth, J., Schwarz, M., et al., 2012. The psychological effects of meditation: a meta-analysis. *Psychol. Bull.* 138 (6), 1139–1171. <https://doi.org/10.1037/a0028168>.
- Shepherd, D.A., 2015. Party on! A call for entrepreneurship research that is more interactive, activity based, cognitively hot, compassionate, and prosocial. *J. Bus. Ventur.* 30 (4), 489–507. <https://doi.org/10.1016/j.jbusvent.2015.02.001>.
- Shepherd, D.A., Cardon, M.S., 2009. Negative emotional reactions to project failure and the self-compassion to learn from the experience. *J. Manag. Stud.* 46 (6), 923–949. <https://doi.org/10.1111/j.1467-6486.2009.00821.x>.
- Shepherd, D.A., Williams, T.A., 2014. Local venturing as compassion organizing in the aftermath of a natural disaster: the role of localness and community in reducing suffering. *J. Manag. Stud.* 51 (6), 952–994. <https://doi.org/10.1111/joms.12084>.
- Shepherd, D.A., Williams, T., 2018. Spontaneous Venturing: An Entrepreneurial Approach to Alleviating Suffering in the Aftermath of a Disaster. Available at <https://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=5626633>, Accessed date: 26 August 2019.
- Shepherd, D.A., Kuskova, V., Patzelt, H., 2009. Measuring the values that underlie sustainable development: the development of a valid scale. *J. Econ. Psychol.* 30 (2), 246–256. <https://doi.org/10.1016/j.joep.2008.08.003>.
- Shepherd, D.A., Patzelt, H., Baron, R.A., 2013. “I care about nature, but...”: disengaging values in assessing opportunities that cause harm. *Acad. Manag. J.* 56 (5), 1251–1273. <https://doi.org/10.5465/amj.2011.0776>.
- Shepherd, D.A., Williams, T.A., Patzelt, H., 2015. Thinking about entrepreneurial decision making: review and research agenda. *J. Manag.* 41 (1), 11–46. <https://doi.org/10.1177/0149206314541153>.
- Shiota, M.N., Keltner, D., John, O.P., 2006. Positive emotion dispositions differentially associated with Big Five personality and attachment style. *J. Posit. Psychol.* 1 (2), 61–71. <https://doi.org/10.1080/17439760500510833>.
- Simpson, A.V., Clegg, S., Pitsis, T., 2014. “I used to care but things have changed”: a genealogy of compassion in organizational theory. *J. Manag. Inq.* 23 (4), 347–359. <https://doi.org/10.1177/1056492614521895>.
- Stephan, U., 2018. Entrepreneurs' mental health and well-being: a review and research agenda. *Acad. Manag. Perspect.* <https://doi.org/10.5465/amp.2017.0001>.
- Thompson, N., Kiefer, K., York, J.G., 2011. Distinctions not dichotomies: exploring social, sustainable, and environmental entrepreneurship. In: *Social and Sustainable Entrepreneurship. Advances in Entrepreneurship, Firm Emergence and Growth* 13 Emerald Group Publishing Limited, pp. 201–229. [https://doi.org/10.1108/S1074-7540\(2011\)0000013012](https://doi.org/10.1108/S1074-7540(2011)0000013012).
- Wamsler, C., Brink, E., 2018. Mindsets for sustainability: exploring the link between mindfulness and sustainable climate adaptation. *Ecol. Econ.* 151, 55–61. <https://doi.org/10.1016/j.ecolecon.2018.04.029>.
- Wamsler, C., Brossmann, J., Hendersson, H., et al., 2018. Mindfulness in sustainability science, practice, and teaching. *Sustain. Sci.* 13 (1), 143–162. <https://doi.org/10.1007/s11625-017-0428-2>.
- Weng, H.Y., Fox, A.S., Shackman, A.J., et al., 2013. Compassion training alters altruism and neural responses to suffering. *Psychol. Sci.* 24 (7), 1171–1180. <https://doi.org/10.1177/0956797612469537>.
- Wheatley, T., Haidt, J., 2005. Hypnotic disgust makes moral judgments more severe. *Psychol. Sci.* 16 (10), 780–784. <https://doi.org/10.1111/j.1467-9280.2005.01614.x>.
- Wiklund, J., Nikolaev, B., Shir, N., et al., 2019. Entrepreneurship and well-being: past, present, and future. *J. Bus. Ventur.* 34 (4), 579–588. <https://doi.org/10.1016/j.jbusvent.2019.01.002>.
- Williams, M., Penman, D., 2011. *Mindfulness: a practical guide to finding peace in a frantic world*. Hachette UK.
- Williams, T.A., Shepherd, D.A., 2018. To the rescue!? Brokering a rapid, scaled and customized compassionate response to suffering after disaster. *J. Manag. Stud.* 55 (6), 910–942. <https://doi.org/10.1111/joms.12291>.

- York, J.G., Venkataraman, S., 2010. The entrepreneur–environment nexus: uncertainty, innovation, and allocation. *J. Bus. Ventur.* 25 (5), 449–463. <https://doi.org/10.1016/j.jbusvent.2009.07.007>. Sustainable Development and Entrepreneurship.
- York, J.G., O'Neil, I., Sarasvathy, S.D., 2016. Exploring environmental entrepreneurship: identity coupling, venture goals, and stakeholder incentives. *J. Manag. Stud.* <https://doi.org/10.1111/joms.12198>. n/a-n/a.
- Zeng, X., Chiu, C.P.K., Wang, R., et al., 2015. The effect of loving-kindness meditation on positive emotions: a meta-analytic review. *Front. Psychol.* 6, 1693. <https://doi.org/10.3389/fpsyg.2015.01693>.
- Zhang, T., Gino, F., Margolis, J., 2018. Does could lead to good? On the road to moral insight. *Acad. Manag. J.* <https://doi.org/10.5465/amj.2014.0839>. amj.2014.0839.
- Zietsma, C., Toubiana, M., 2019. Emotions as the glue, the fuel and the rust of social innovation. In: *Handbook of Inclusive Innovation*, Available at. <https://www.elgaronline.com/view/edcoll/9781786436009/9781786436009.00029.xml>, Accessed date: 26 August 2019.