Organizational Mindfulness and Mindful Organizing: A Reconciliation and Path Forward

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Ray, Baker, and Plowman's (2011) study of organizational mindfulness highlights latent tensions in the mindfulness literature and promising avenues for future research. Their study provides a springboard for reconciling the literature by differentiating organizational mindfulness from mindful organizing, establishing where organizational mindfulness and mindful organizing are most important, and clarifying how and when each construct can be most fruitfully deployed in research and practice. Clearer theorizing leads to a set of research questions that seek to integrate multiple conceptions of individual and organizational mindfulness, establish their individual and organizational antecedents, explore the consequences for individuals and organizations, and in so doing, further increase the relevance of organizational mindfulness for business schools.

In this Dialogue we use Ray et al.'s (2011) development and validation of an organizational mindfulness scale as a starting point for resolving conceptual puzzles, integrating an increasingly bifurcated literature, and offering an expansive research agenda for future theoretical and empirical development. We start by recognizing Ray and colleagues' (2011) four key contributions to the organizational mindfulness literature. First, they develop and validate a 5-factor measure of organizational mindfulness and its constituent processes. This usefully builds on prior work that has validated 1-factor (Vogus & Sutcliffe, 2007a) and 2-factor (Anderson, 2010) measures. Second, Ray and colleagues study organizational mindfulness across hierarchical levels (e.g., deans, associate deans, and department chairs), which is critical for mindfulness to be a truly organizational phenomenon. Prior research focuses on professionally homogenous groups at one hierarchical level, such as aircraft carrier

flight decks (Weick & Roberts, 1993); airline cockpit crews (Waller, 1999); nuclear power control rooms (Schulman, 1993); or wildland firefighting crews (Barton & Sutcliffe, 2009; Weick & Sutcliffe, 2007). Third, in contrast to prior work focused primarily on operational issues and front-line personnel (e.g., Schulman, 1993; Vogus & Sutcliffe, 2007a; Weick & Roberts, 1993), Ray and colleagues (2011) examine organizational mindfulness as it relates to the strategic issues faced by an organization's top administrators. Last, by examining organizational mindfulness in business schools, Ray and colleagues (2011) address a fundamental critique that research on organizational mindfulness only applies to organizations that are special, exotic, and even "far out" compared to the prosaic world of everyday organizations (Scott, 1994).

Ray and colleagues' (2011) study provides an opportunity for us to elaborate and refine the construct of organizational mindfulness while reassessing its conceptual foundations. In doing so, we find that Ray and colleagues (2011) characterize organizational mindfulness as strategic, top-down, and enduring. We contrast this with a complemen-

tary body of research on mindful organizing that focuses on operations as bottom-up, and fragile. Articulating the theoretical nuances of these two conceptualizations enables us to clarify where and how different groups in the organizational hierarchy contribute to mindfulness: top administrators (organizational mindfulness); middle managers (bridging organizational mindfulness and mindful organizing); and front-line employees (mindful organizing). We then explore how differing measures related to these two concepts influence strategic (organizational mindfulness) and operational (mindful organizing) outcomes. Following that, we integrate these insights into an expanded model of mindfulness where organizational mindfulness enables and is reinforced by mindful organizing. We close by offering a broad research agenda that outlines questions which, when answered, will help to clarify organizational mindfulness and mindful organizing, their individual and organizational antecedents, and their consequences for individuals and organizations. We also describe ways in which these questions could be answered by studying business schools.

WHAT IS ORGANIZATIONAL MINDFULNESS?

In their systematic review of the numerous case studies of high-reliability organizations (HROs), Weick and Sutcliffe (Weick & Sutcliffe, 2001; Weick & Sutcliffe, 2007; Weick, Sutcliffe, & Obstfeld, 1999) argue that HROs derive their ability to successfully manage trying conditions of complexity, dynamism, and error-intolerance from organizational mindfulness. _Organizational mindfulness_ refers to the extent to which an organization captures discriminatory detail about emerging threats and creates a capability to swiftly act in response to these details (Weick et al., 1999; Weick & Sutcliffe, 2001; Weick & Sutcliffe, 2007). Organizational mindfulness specifically consists of regularly and robustly discussing potential threats to reliability (preoccupation with failure); developing a nuanced and current understanding of the context by frequently questioning the adequacy of existing assumptions and considering reliable alternatives (reluctance to simplify interpretations); integrating these understandings into an up-to-date big picture (sensitivity to operations); recognizing the inevitability of setbacks and thoroughly analyzing, coping with, and learning from them (commitment to resilience); and deferring to expertise rather than authority when making important decisions (Weick et al., 1999; Weick & Sutcliffe, 2007).

INDIVIDUAL MINDFULNESS

To sharpen the focus of the literature on organizational mindfulness we revisit its foundation—research and theory on individual mindfulness. Research on individual mindfulness consists of two perspectives—the Western and Eastern perspectives (see Brown & Ryan, 2003, and Hede, 2010). The Western perspective on mindfulness largely derives from Langer's (1989) work. A Western perspective means that this approach is a variant of an information-processing approach (Weick & Sutcliffe, 2006). For Langer, mindfulness is expressed through active differentiation and refinement of existing categories and distinctions (1989:138), creation of new discontinuous categories out of streams of events (157), and a more nuanced appreciation of context and alternative ways to deal with it (159). The Eastern perspective on mindfulness has its foundations in Buddhist thought (Hede, 2010; Weick & Putnam, 2006). From this perspective mindfulness is a receptive attention to and awareness of present events and experience occurring both internally and externally (Brown & Ryan, 2003), or moment-to-moment, nonreactive, nonjudgmental awareness (Weick & Putnam, 2006). Regardless of perspective, studies of individual mindfulness show that mindfulness curtails negative functioning and enhances positive outcomes in several important life domains, including mental health, physical health, behavioral regulation, and interpersonal relationships (see Brown, Ryan, & Creswell, 2007; Hede, 2010, and Langer, 2009, for informative reviews).

Weick et al. (1999) founded their conception of organizational mindfulness on Langer's (1989) Western perspective. The idea is that active differentiation and refinement, in creating new categories to make sense of experience and more nuanced appreciation of context and ways to cope with it (Langer, 1989), result from preoccupation with failure, reluctance to simplify interpretations, sensitivity to operations, commitment to resilience, and deference to expertise. More recent theoretical work on organizational mindfulness has begun to link it to Eastern mindfulness (Weick & Putnam, 2006; Weick & Sutcliffe, 2006). Organizational mindfulness can be viewed specifically in terms of its effects on concentration and strength of insight (Weick & Putnam, 2006). Weick and Putnam (2006: 282) provide interesting connections for each component of organizational mindfulness. Preoccupation with failure, with its focus on emerging failures above all else, induces concentration and potentially vivid insights. Reluctance to simplify interpretations and sensitivity to operations in-

crease the vividness of insight by replacing conceptual categories with awareness of current details, but possibly at the expense of concentration. Commitment to resilience is concentration complemented with vivid representation of errors as the means to achieve insights for future actions. Last, deference to expertise increases concentration by routing decisions to experts who are best able to focus on the present phenomenon without distraction.

Ray and colleagues' (2011) work helps to clarify the differences between individual and organizational mindfulness and in doing so also helpfully separates the literature on organizational mindfulness. Organizational mindfulness is not an intrapsychic process or an aggregation thereof; it is an organizational attribute that is relatively stable and enduring that results from structures and practices implemented by top administrators. In contrast, other work (e.g., Vogus & Sutcliffe, 2007a; Weick & Sutcliffe, 2007) characterizes organizational mindfulness as mindful organizing. Mindful organizing similarly is not an intrapsychic process of individuals or collectives, but a social process that becomes collective through the actions and interactions among individuals (Morgeson & Hofmann, 1999). Next, we further develop these complementary perspectives to provide the foundation for a more comprehensive approach to understanding organizational mindfulness and establishing an agenda for future research.

Organizational Mindfulness

Ray and colleagues (2011) argue that *organizational mindfulness* is evident when leaders create cultures that encourage rich thinking and a capacity for action (199). In doing so, they make three important claims about organizational mindfulness: (1) it results from top-down processes; (2) it creates the context for thinking and action on the front line; and (3) it is a relatively enduring property of an organization (like culture). As such, their conceptualization is consistent with other concepts from strategy research that inhere in structures, practices, and other supraindividual features of the organization (March, 1991).

Organizational mindfulness, according to Ray and colleagues (2011), works to create context by signaling what the organization expects, rewards, and supports (Zohar, 1980). Signaling occurs through top administrators' prioritization of mindfulness (i.e., the extent to which it is not subordinated to other goals, see Katz-Navon, Naveh, & Stern, 2005) through their pattern of practice (Zohar & Luria, 2004), and their establishment of organi-

zational structures and practices (Rerup, 2009). For example, administrators instil organizational mindfulness when they look for multiple and deeper explanations for emerging problems, pay attention to evolving operational data (e.g., enrollment, course evaluations, etc.), act swiftly and otherwise boost morale when faculty depart, and solicit input from junior faculty about current salaries in the marketplace. In contrast, lower levels of organizational mindfulness result when college administrators explain low student morale as admitting a bad class (Ray et al., 2011: 192), a donor reneging as a result of a bad economy (192), move slowly when star faculty depart (192), and only put stock in opinions of those at that top of the organization (193).

Ray and colleagues' (2011) measure of organizational mindfulness assesses the extent to which administrators enact practices and structures that work to ensure more mindful ways of acting, thinking, and organizing. Specifically, their survey items ask about the "COLLEGE's [*their emphasis*] atmosphere and how the college approaches problems and challenges. Thus, these questions focus on the management of your college, not your specific department" (194). Items representing preoccupation with failure ("The leaders in our college seek out and encourage information that may be considered 'bad news'"); reluctance to simplify interpretations ("People in this college are encouraged to express different views of the world to college administrators"); sensitivity to operations ("We have access to resources if unexpected surprises crop up"); commitment to resilience ("This college encourages challenging 'stretch' assignments"); and deference to expertise ("It is generally easy for us to obtain expert assistance when something comes up that we don't know how to handle") reflect this focus. Ray and colleagues (2011) provide a useful measure of the strategic and organizational aspects of mindfulness. At the same time, by taking this focus, they highlight the need for a more detailed understanding of how mindfulness is enacted at the department and workgroup levels. The resulting gap is filled by work that captures the acts of organizing constituting mindfulness.

Mindful Organizing

Mindful organizing, as contrasted with organizational mindfulness, represents a dynamic process comprising specific ongoing actions rather than an enduring organizational characteristic. That is, mindful organizing is a social process (McPhee, Myers, & Trethewey, 2006) that relies on extensive and continuous real-time communication and in-

teractions that occur in briefings, meetings, updates, and in teams' ongoing work (Schulman, 1993; Weick et al., 1999). Research on mindful organizing makes three different claims (Vogus & Sutcliffe, 2007a; Weick & Sutcliffe, 2007): (1) it results from bottom-up processes; (2) it enacts the context for thinking and action on the front line; and (3) it is relatively fragile and needs to be continuously reaccomplished. As such, mindful organizing is a function of the behaviors carried out by organizational members, especially those on the front line. For example, preoccupation with failure manifests as articulating the mistakes you don't want to make (Weick & Sutcliffe, 2007). Reluctance to simplify interpretations is an ongoing discussion of what's being ignored and taken-for-granted (Weick et al., 1999: 95). Developing an integrated big picture of operations in the moment (i.e., sensitivity to operations) is a shared accomplishment grounded in social and interactive processes (Roth, 1997). Mindful organizing is also more fragile than organizational mindfulness, in part because organizing routines unfold in slightly different ways each time they are enacted (Feldman & Pentland, 2003; Weick et al., 1999). This means processes of mindful organizing must be continuously reconstituted (Weick & Sutcliffe, 2007).

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Vogus and Sutcliffe (2007a, 2007b) assessed and validated a single-factor scale of mindful organizing in a study of hospital nursing units. Their measure consisted of nine items that assessed the degree to which members of a workgroup collectively engaged in behaviors representing the five processes of mindfulness (e.g., preoccupation with failure: "When giving report to an oncoming nurse, we usually discuss what to look out for," see Vogus & Sutcliffe, 2007a for all nine items). In addition to establishing the measure's reliability and validity, they also demonstrated the collective nature of the construct by assessing the extent to which individual responses could be aggregated to the unit level. They further demonstrated criterion validity by finding that higher levels of mindful organizing were associated with fewer medication errors and patient falls over time in 95 nursing units.

The literature on mindful organizing suggests it only exists to the extent that it is collectively enacted (Levinthal & Rerup, 2006; Vogus & Sutcliffe, 2007a, 2007b; Weick & Sutcliffe, 2007). One way to assess the extent to which a set of behaviors are customarily enacted is whether there are shared perceptions regarding the prevalence of the behaviors (Morgeson & Hofmann, 1999). Behaviors and perceptions of them can converge and coalesce for at least two reasons. First, bottom-up attraction–selection–attrition processes (Schneider, 1987) can increase the similarity in members' mindful organizing by favoring the selection and retention of new members who engage in similar levels of the behaviors. Second, task interdependence or even time working together can facilitate the homogenizing effects of social influence and social learning by offering ongoing opportunities for work-related interactions (Ryan, Schmit, & Johnson, 1996; Salancik & Pfeffer, 1978). Thus, mindful organizing and the perception of it are more likely to emerge as shared throughout a workgroup or department. Conversely, fragmented perceptions of ongoing behavior on the front lines provide strong evidence for low levels of mindful organizing (Vogus & Sutcliffe, 2007a). In other words, fragmentation suggests that richer thinking is not "activated more quickly among a greater number of people all of whom try to update what they know regardless of its source" (quoted in Ray et al., 2011: 188; Weick, 2009).

WHERE IS ORGANIZATIONAL MINDFULNESS MOST IMPORTANT?

Ray and colleagues (2011) provocatively encourage us to revisit the issue of where mindfulness is most important. Weick and colleagues (1999) initially argued that organizational mindfulness is necessary "where ugly surprises are most likely to show up" (90). In business schools, ugly surprises seem to be most visible and relevant to top administrators (Ray et al., 2011). As such, they are the group for which mindfulness is most important. They argue, for example, that top administrators ensure reliability by engaging in thoughtful action to develop programs consistent with the college's unique circumstances and identity rather than simply mimicking other "top" programs (Ray et al., 2011: 199). Their argument implies that top administrators should engage in more "mindful scanning" that entails an expanded search that is relevant to current organizational conditions but seeks out contradictory information and scans on the fringes of current operations (Fiol & O'Connor, 2003). Such scanning could result in fewer "bandwagon" changes (e.g., adopting management fads; Fiol & O'Connor, 2003). In addition, practices such as constructing teams comprised of individuals

with the ability and willingness to contradict the dean or otherwise provide candid feedback can help to overcome "Dean's disease" or the tendency to develop a sense of superiority that silences dialogue and dissent (Bedeian, 2002).

However, an unintended consequence of restricting organizational mindfulness to the upper echelons may be that the organization overall becomes less mindful. Perceptions of organizational mindfulness (especially mindfulness of the top administrators) can specifically undermine front-line employees' mindful organizing. This was evident, for example, in the Cerro Grande wildfire outside of Santa Fe New Mexico, where many wildland firefighters on the front line ignored signals of disaster and failed to defer to their own expertise. Instead "the sheer power of [legendary firefighter Paul] Gleason's expertise led others on the scene to let up in their monitoring of the situation in the belief that if something were amiss, a person of Gleason's stature would surely catch it" (Weick & Sutcliffe, 2007: 16). Barton and Sutcliffe (2009) similarly found that deference to reputation or experience actually made wildland firefighting crews less mindful by suppressing discussion and rendering them less able to detect and correct unexpected events (see Blatt, Christianson, Sutcliffe, & Rosenthal, 2006, for similar dynamics in health care). Excessive deference to authority can also be a consequence of the Dean's disease, as the inner circle of top administrators unintentionally creates a protective cocoon around the dean that shields out reality (Bedeian, 2002).

Ray and colleagues (2011) recognize this limitation of centralized organizational mindfulness and ask "might there be a unique role for middle managers in the development of organizational mindfulness?" (198). This question is critical and one that Paul Schulman and Emery Roe have been grappling with in recent years. Roe and Schulman (2008) find that "reliability professionals" (i.e., midlevel managers such as technical department heads) play a crucial role in creating organizational mindfulness by reconciling the need for anticipation and careful causal analysis with the need for flexibility and improvisation in the face of unexpected change (64). These middle managers operate in a unique space, driven by the combination of pattern recognition (i.e., sizing up a situation and connecting it to broader models and schema), and scenario formulation (i.e., developing flexible protocols that encompass a range of potential situations). That is, they act as the bridge between organizational mindfulness and mindful organizing by translating real-time data from the front lines for top administrators and creating structures that can guide front-line action.

Traditionally, research on organizational mindfulness and high reliability has focused on front-line operators as especially critical in creating organizational mindfulness. Weick and Sutcliffe (2007) captured this sentiment when they noted that "HROs make an effort to see what people with greasy hands know" (77). The people with greasy hands and maintenance crews (Weick et al., 1999) have been seen as so important because they are the ones most likely to observe the early, weak signals of problems to come. Vogus and Sutcliffe (2007a) have also demonstrated that mindful organizing by front-line employees (registered nurses) has a significant positive impact on organizational reliability. In the business school context, admissions staff at recruiting events might be best positioned to be preoccupied with failure and look out for early warning signs that a college's offerings no longer resonate with new applicants.

Where and how mindfulness is most important depends upon the potential sources of the "ugly surprises." That is, those areas in the organization's environment posing the greatest threats to reliability. For example, when the surprises are most likely to be strategic issues (e.g., new competitors, raising money) organizational mindfulness is especially crucial. When issues at the intersection of strategy and operations (e.g., losing faculty) loom large, the middle managers (i.e., department heads) who work with the dean's office need to be especially mindful. When operational issues (e.g., student satisfaction) pose the largest threat, mindful organizing on the front lines of the classroom and the day-to-day administration of the college would be most necessary.

However, for mindfulness to produce strategic and operational reliability, it needs to operate across organizational levels. That is, both organizational mindfulness and mindful organizing are necessary. In other words, it is not enough to focus on senior managers, middle managers, or front-line employees in isolation. Organizational mindfulness must be created by top administrators, synchronized across levels by middle managers (Ocasio, 2011; Rerup, 2009), and translated into action on the front line.

HOW SHOULD ORGANIZATIONAL MINDFULNESS BE MEASURED?

Ray and colleagues (2011) have carefully developed and validated their measure of organizational mindfulness. It stands out for its ability to differentiate the five processes that constitute or-

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ganizational mindfulness and their validation stands out for its testing of multiple models. We noted earlier that Vogus and Sutcliffe (2007a) previously validated a 1-factor measure of mindful organizing as well as demonstrated that it is perceived similarly by members of a workgroup. A single-factor model has a theoretical basis from the earliest work of Weick and colleagues (1999), asserting that mindful organizing is a joint function of all five processes.

Rather than asserting that there is an "ideal" index of organizational mindfulness, we argue that each of these measures captures important nuances that distinguish organizational mindfulness and mindful organizing, respectively, and presents unique strengths for explaining organizational outcomes. Ray and colleagues' (2011) measure of organizational mindfulness should be especially useful for investigating the strategic and organizational outcomes of mindfulness such as reputation (e.g., business school rankings), endowment growth, and market innovation (developing new degrees and programs). More specifically, the relationship between organizational mindfulness and business school reputation might entail more careful attention to stakeholder concerns that results in earlier detection of emerging signs of dissatisfaction (e.g., concerns with the ethical implications of the business school curriculum). In a related manner, organizational mindfulness may also result in a business school not only attending and responding to rankings, but also focusing on "higher order goals," such as simultaneously creating wealth and well-being for students and society (Giacalone, 2009). As a measure of each of the five constituent processes of organizational mindfulness, Ray and colleagues' (2011) measure is well suited to assess the relative impact of each subcomponent, and, as they suggest, optimal configurations of these components (198). It may also be a useful measure for tracking the impact of organizational mindfulness on more fine-grained outcomes. Specifically, preoccupation with failure,

reluctance to simplify interpretations, and sensitivity to operations should result in business schools that are able to avert crises because they are closely connected to relevant stakeholders and are more likely to be early adopters of programmatic innovations that bolster reputation and revenue. Commitment to resilience or deference to expertise would be well-suited to assess the speed and depth of the action taken in response to unexpected changes in the composition of business school rankings or a school's relative position in the rankings. Further empirical investigation of organizational mindfulness in business schools would also be useful because it could help clarify when all five aspects of organizational mindfulness are needed (as in traditional HROs), when subsets are needed, or when a single aspect is sufficient.

Prior research has linked Vogus and Sutcliffe's (2007a, 2007b) measure of mindful organizing with operational outcomes in health care, specifically with fewer medication errors and patient falls. With respect to business schools, we would expect mindful organizing to similarly affect operational outcomes. For example, mindful organizing could be associated with anticipating changes in recruiter or student preferences such that enrollment targets continue to be met, or regular curricular innovation occurs to ensure student and recruiter satisfaction. Mindful organizing should also enable swift responses to unexpected events (e.g., a 1-year drop in enrollment or student placement). At the same time mindful organizing should facilitate closer attention to student learning (and concern about what students fail to learn) and engaging in practices that ensure it, such as collaborating across courses, questioning the assumptions made in the curriculum, and building in mechanisms for feedback within courses (e.g., midcourse evaluations) or a curriculum (e.g., town hall meetings) that enable organizational learning and grow capabilities.

In sum, we have used Ray and colleagues' (2011) development and validation of a measure of organizational mindfulness as an occasion for rethinking the domain of research on mindfulness as well as variations on the construct and its implications. We have argued specifically that organizational mindfulness creates the context for mindful action through leader-driven top-down processes that inhere in relatively stable organizational structures and practices. Middle managers serve to translate this strategic-level organizational mindfulness into more operational terms. In turn, organizational mindfulness shapes the behaviors of employees in the form of more mindful organizing.

Organizational mindfulness and mindful organizing have strategic and operational benefits, respectively. Organizational mindfulness means leaders signal the importance of mindfulness to employees, which, in turn, motivates them to act more mindfully. Madsen and colleagues (Madsen, Desai, Roberts, & Wong, 2006) offer suggestive evidence from a pediatric intensive care unit that supports these arguments. They found leaders' practices of organizational mindfulness (e.g., interdisciplinary rounding) resulted in mindful organizing and more reliable patient care. We further argue that mindful organizing on the front line creates a feedback loop to organizational mindfulness such that higher levels of mindful organizing reinforce the structures and processes of organizational mindfulness. Mindful organizing can also increase organizational mindfulness by refining processes, routines, and structures that are then provided to and implemented by an organization's top administrators. These proposed relationships are illustrated in Figure 1.

FUTURE RESEARCH

We have offered a model that attempts to integrate the emerging literatures on organizational mindfulness and mindful organizing, but many important conceptual and empirical questions remain. We now turn to outlining a research agenda to guide future development. A number of research questions follow from our analysis. For example, what are the individual and organizational antecedents of organizational mindfulness and mindful organizing? In other words, why might non-HROs such as business schools pursue organizational mindfulness and mindful organizing? How do organizational routines influence organizational mindfulness and mindful organizing? How do Eastern or Western forms of individual mindfulness affect organizational mindfulness and mindful organizing? How does organizational mindfulness affect a range of organizational outcomes? What are the effects of mindful organizing on individual employee outcomes? In the following paragraphs, we consider these questions and offer suggestions for
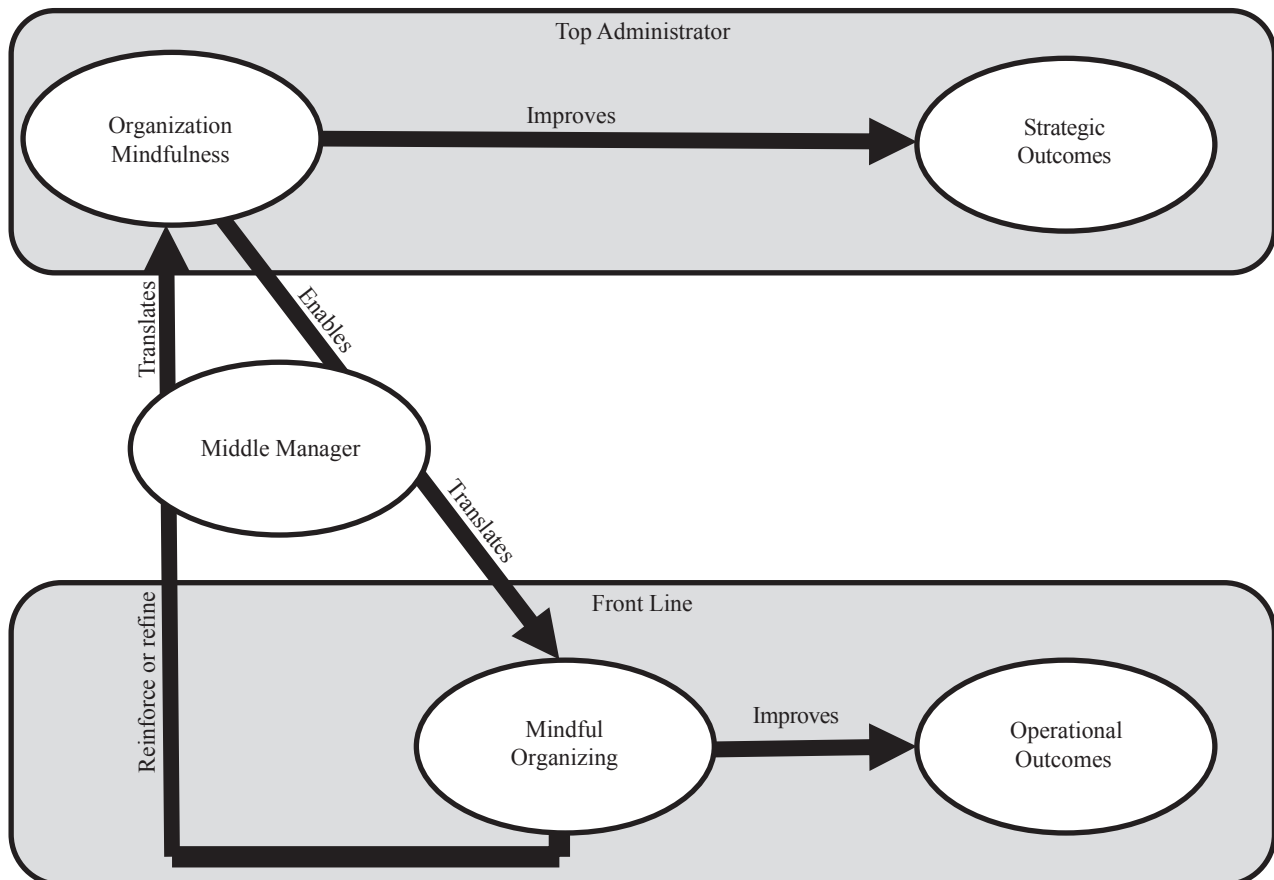

FIGURE   1
Reconciling Organizational Mindfulness and Mindful Organizing

how one might investigate them within the context of business schools.

What Are the Individual and Organizational Antecedents of Organizational Mindfulness and Mindful Organizing?

Organizational mindfulness and mindful organizing are potentially costly strategies because they require broader and deeper attention to weak signals (Levinthal & Rerup, 2006; Ray et al., 2011; Rerup, 2005; Vogus & Welbourne, 2003). For HROs and other organizations in high-risk industries, mindfulness is worth any cost because the costs of failure are often catastrophic. However, business schools are unlikely to cause harm on the scale of an oil spill or nuclear meltdown. In other words, the costs of lapses in mindfulness are much more diffuse. Given these conditions, why would a business school or other reliability-seeking organization choose to be mindful?

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Weick and colleagues (1999) postulate "the choice by mainstream organizations to pursue [mindful] organizing in the absence of obvious threats may ultimately be an issue of identity and appropriateness (who do we want to be and how do we want to go about our business), rather than an issue of reality and consequentiality" (March & Olsen, 1989: 114). That is, organizational mindfulness may be an important expression of organizational identity for business schools. And leaders can play a key role in imprinting or altering such an identity (Gioia & Chittipeddi, 1991). Transformational leadership is a leadership style that specifically holds potential for imprinting organizational mindfulness and influencing mindful organizing. The commitment to employee welfare and empowerment characteristic of a transformational style enables employees to think, apply their knowledge (e.g., speak up), and learn by doing. For example, in a study of trauma units, Yun and colleagues found that applying an empowering approach during low-to-moderate-severity trauma events resulted in greater learning by team members without compromising patient safety (Yun, Faraj, & Sims, 2005). As such, empowering transformational leadership may both create a context of organiza-

tional mindfulness and enable the processes of mindful organizing. In addition, high-quality leader–member exchange (LMX) relationships are likely to create contexts like organizational mindfulness with a richer and more elaborate set of role behaviors for employees to enact (Hofmann, Morgeson, & Gerras, 2003). High-quality LMX relationships also make it more likely that the more open and constructive communication of mindful organizing will result (Hofmann & Morgeson, 1999).

Thus, it would be useful to explore what leads a business school to embrace organizational mindfulness. One way to answer this question would be to survey business school deans on transformational leadership and LMX and assess their impact on organizational mindfulness and mindful organizing. To discover additional factors that might contribute to organizational mindfulness, one might qualitatively examine business schools with high and low levels of organizational mindfulness by interviewing deans to ascertain why the schools engage in these practices. In addition, it would be interesting to look at the backgrounds of deans of business schools with high levels of organizational mindfulness. Weick and Sutcliffe (2001) assert that generalists (e.g., people with operational and managerial experience) are more likely and better able to cultivate organizational mindfulness. An example of such a generalist might be a dean who has managerial experience in the business world as well as a doctorate and experience as an academic.

In addition to leader-driven antecedents, organizational mindfulness and mindful organizing also may be influenced by characteristics of the organization. Ray and colleagues (2011) assert that within business schools organizational mindfulness is inherently fragmented due to role specialization. Middle managers and top managers attend to fundamentally different issues (e.g., operational vs. strategic), in different ways (human vs. conceptual; Beck & Plowman, 2009; Dearborn & Simon, 1958; Rerup, 2009). Their results provide initial support for this position in that they find that deans, associate deans, and department chairs differ with respect to their perceptions of organization mindfulness. At the same time they also find some suggestive evidence of shared perceptions within roles (e.g., among associate deans; Ray et al., 2011).

Organizations exhibiting fragmented mindfulness across levels pose a special challenge to theory and research on organizational mindfulness. Weick and Sutcliffe (2007) argue that "in the worst case, the emerging picture will be fragmented, with people at certain levels or in particular functions or units giving answers that suggest they

have a rich set of mindful processes in place and others giving answers that suggest mindlessness is more the norm" (104). In other words, fragmentation challenges the level of organizational mindfulness an organization possesses. In addition to role specialization, we argue that task interdependence and organizational size can also contribute to varying levels of organizational mindfulness and mindful organizing.

First, organizational mindfulness and mindful organizing are critical when task interdependence is higher rather than lower. Low task interdependence makes the difficult and effortful work of organizational mindfulness and mindful organizing less necessary because decisions and actions don't need to be as tightly aligned and coordinated. It may be useful to recall that the original theory and principles of organizational mindfulness were derived from the highly interdependent work in HROs (e.g., Weick & Roberts, 1993) and might not generalize to more loosely coupled organizations (e.g., educational institutions, Weick, 1976, or hospitals, Sexton, Helmreich, & Thomas, 2000) or situations where task interdependence is low. Consequently, future research should consider the role of interdependence in shaping the levels of organizational mindfulness and mindful organizing. It is also possible, however, that such research might reveal that low task interdependence can result in high levels of organizational mindfulness because organizational mindfulness primarily relies on the actions of a relatively small cadre of key administrators. For example, in a loosely coupled educational organization (Weick, 1976) like a business school, the dean may be the primary driver of what the college is doing (and the only one who can assess it; see Glick, Huber, Miller, Doty, & Sutcliffe, 1990) as associate deans, department chairs, faculty and staff have much more local views and constrained roles (Hambrick & Mason, 1984).

Second, organizational size may influence organizational mindfulness and mindful organizing in similar ways. Both may emerge and persist more readily in smaller "organizations" like nuclear power control rooms, wildland firefighting crews, or airplane cockpits. In contrast, as organizations grow in size (e.g., a firefighting crew grows into an incident command system), organizational mindfulness can become fragmented and even degrade (Bigley & Roberts, 2001). Findings by Vogus and Sutcliffe (2007a) provide support for these ideas in that larger nursing units demonstrated lower levels of mindful organizing. Thus, in the absence of practices to manage the effects of size, we would expect to observe more fragmentation and lower

levels of organizational mindfulness and mindful organizing in larger organizations. For example, it would be interesting to see if there was actually variation in organizational mindfulness depending on the size of the business school examined by Ray and colleagues (2011).

How Do Organizational Routines Influence Organizational Mindfulness and Mindful Organizing?

The relationship between routines and organizational mindfulness has been a source of recent debate in the literatures on organizational mindfulness and mindful organizing (Levinthal & Rerup, 2006; Weick & Sutcliffe, 2006). Traditionally, routines have been seen as mindless (e.g., Langer, 1989). However, more recent work suggests that organizational mindfulness can be embodied in routines (Levinthal & Rerup, 2006). In other words, organizational mindfulness derives, in part, from the breadth and richness of well-rehearsed routines. More specifically, routines create a context for organizational mindfulness by setting expectations for what should occur (Salvato & Rerup, 2011). For example, Rerup (2009) describes Novo Nordisk's Novo Way of Management as a tool for creating and sustaining organizational mindfulness over time.

The Novo Way of Management—a commitment to openness, continuous learning, and dialogue— utilizes routines including regular organizational audits and "facilitation" sessions to coordinate attention to weak signals across the organization and otherwise enhance organizational mindfulness (Rerup, 2009). In a set of waste management organizations, Turner and Rindova (2012) find that routines increase organizational mindfulness to the extent they operate as general guidelines rather than exact procedures. Thus, routines seem likely to foster organizational mindfulness when they set expectations that help individuals discern threatening deviations (Rerup, 2009; Weick & Roberts, 1993) or act as general guidelines that balance mindful consideration while preserving coherence to ensure swift action.

Routines figure prominently in mindful organizing as well. Mindful organizing derives from the existence of a rich repertoire of routines that an organization or workgroup can both draw upon and recombine to respond to unexpected events (Bigley & Roberts, 2001; Christianson, Farkas, Sutcliffe, & Weick, 2009; Schulman, 1993). In addition, processes of mindful organizing can influence organizational mindfulness specifically by becoming routines that can be deployed across the orga-

nization (e.g., the audits and facilitation of the Novo Way of Management (Rerup, 2009). As Ray and colleagues (2011) suggest, business school accreditation processes provide an excellent context for examining the relationship between routines, organizational mindfulness, and mindful organizing. There is some evidence that the infrequent and highly formalized process of accreditation undermines organizational mindfulness. However, it is also possible that accreditation could provide the impetus and occasion for mindful action regarding curriculum and mission that might otherwise be neglected (Romero, 2008; Zammuto, 2008). Thus, we posit that accreditation processes are more likely to increase organizational mindfulness to the extent that accreditation is viewed as a general guideline and a mechanism for attending to weak signals. We also argue that higher levels of mindful organizing make it more likely that a business school will use its accreditation process more mindfully. In other words, business school accreditation processes tend to drive organizations toward formalization, documentation for accountability, hard data, and incremental (and surface) improvements, (Julian & Ofori-Dankwa, 2006). In contrast, we assert mindful organizing will tend to rebalance the process such that a business school retains flexibility, focuses on real-time interaction, attends to weak signals captured in qualitative data, and engages in deeper improvements that question long-held assumptions.

How Does Individual Mindfulness Influence Organizational Mindfulness and Mindful Organizing?

Our earlier discussion of individual mindfulness and its relationship to organizational mindfulness and mindful organizing suggests interesting directions for future conceptual and empirical work. First, under what conditions does individual mindfulness lead to mindful organizing? Is it a direct relationship whereby greater levels of individual mindfulness (e.g., the Mindful Attention Awareness scale [MAAS] of Brown & Ryan, 2003) lead to higher levels of mindful organizing? Or does individual mindfulness lead to mindful organizing only when other traits (e.g., extraversion) or task expertise (Dane, 2011) that facilitate the social processes that comprise mindful organizing are prevalent? Would individual mindfulness similarly result in mindful organizing only when work characteristics (e.g., task interdependence), or routines are in place (e.g., protocols for interaction) which ensure that individual insights are socially shared?

Second, how does individual mindfulness affect organizational mindfulness? More specifically, how widespread must individual mindfulness be to result in organizational mindfulness? Fiol and O'Connor (2003) suggest that organizational mindfulness is a function of senior managers that scan more broadly and question interpretations. Thus, the individual mindfulness of top administrators would seem to be especially important. What proportion of top team members (i.e., dean and associate deans) need to possess high levels of individual mindfulness to result in organizational mindfulness? Moreover, which form of individual mindfulness (Western or Eastern) has greater impact on the emergence of mindful organizing and organizational mindfulness? Answering this question would also provide an opportunity to empirically distinguish Eastern mindfulness, Western mindfulness, organizational mindfulness, and mindful organizing. If individual mindfulness is established as an antecedent of organizational mindfulness and mindful organizing, it would be useful to explore the extent to which routines of mindful practice generate individual and organizational mindfulness among top administrators. Sadler-Smith and Shefy (2007) provide some evidence that training programs could instil individual mindfulness.

What Are the Organizational Outcomes of Organizational Mindfulness and Mindful Organizing?

There is emerging qualitative (Bigley & Roberts, 2001; Madsen et al., 2006; Rerup, 2009) and quantitative (Vogus & Sutcliffe, 2007a, 2007b) evidence that mindful organizing is related to reliability and safety. However, it may be useful to expand the conceptual and empirical linkages between organizational mindfulness and mindful organizing and a wider array of outcomes. Specifically, do organizational mindfulness and mindful organizing affect opportunity (e.g., successfully entering new markets, introducing new innovations) as well as threat-related outcomes (Rerup & Salvato, 2012)? For example, an important change in the delivery of education has been the emergence of distance learning and competition from on-line and corporate universities (Julian & Ofori-Dankwa, 2006). Do schools with higher levels of organizational mindfulness incorporate new modes of instruction (e.g., distance learning) earlier and more completely? Are they able to detect and respond to market opportunities and otherwise adapt more quickly? There is suggestive evidence that organizational mindfulness is associated with innovation (Vogus

& Welbourne, 2003), but this relationship requires further and more direct examination.

Both the conceptual and empirical literatures have mostly posited and found that organizational mindfulness has a positive linear relationship with outcomes. However, there is some evidence that organizational mindfulness may have diminishing returns in particular contexts. In a qualitative study of habitual entrepreneurs, Rerup (2005) found that organizational mindfulness contributes to their success, but that too much mindfulness had negative impacts on their ability to act (i.e., too much preoccupation with failure was paralyzing). Business schools might impose a different boundary condition on organizational mindfulness in that it may be most beneficial cyclically. That is, issues that need to be addressed mindfully might be most prevalent at the beginnings and ends of semesters (when student and curricular problems become most visible) or when various rankings are released (and provide an indicator of the business school's perceived health).

We previously described how individual mindfulness might impact organizational mindfulness and mindful organizing, but it would also be worthwhile to explore the effects of individual mindfulness on performance outcomes. Is the individual mindfulness of top administrators sufficient to secure the operational benefits of organizational mindfulness? If so, what proportion of administrators needs to be mindful? Moreover, under what conditions might individual mindfulness capture all the performance benefits of organizational mindfulness and mindful organizing? For instance, individual mindfulness might be sufficient for organizational performance when task interdependence is low. Examining these questions would provide important insight into whether hiring mindful managers or selecting mindful employees are viable substitutes for mindful organizing.

What Are the Individual Outcomes of Mindful Organizing?

At this early stage in its development, little is known about the subjective experience of working in contexts with high levels of organizational mindfulness or engaging in mindful organizing. Although it is rarely acknowledged, organizational mindfulness and mindful organizing are effortful and costly (Levinthal & Rerup, 2006; Vogus & Welbourne, 2003). Mindful organizing, in particular, is costly in the sustained commitment and effort it demands from employees on the front line (Roe & Schulman, 2008). High commitment and effort coupled with the potential hazards inherent in the

work can result in employee exhaustion and turnover. However, it is possible that mindful organizing may reduce the likelihood of turnover because it provides a great deal of social support and resources that improve the experience of work and enhance performance. These competing hypotheses merit further exploration.

There may also be a reciprocal relationship between affective commitment (Meyer, Allen, & Smith, 1993) to an organization and mindful organizing over time. Affective commitment to an organization might lead an individual, and to the extent commitment is shared, groups, to engage in the types of discretionary behaviors that comprise mindful organizing. It is also plausible that, over time, mindful organizing can influence affective commitment to an organization. That is, engaging in mindful organizing and its intense focus on delivering highly reliable performance may correspond with the deeply held organizational values that inspired individuals to join the organization. As such, mindful organizing would increase affective commitment to the organization.

It is equally possible that normative commitment (i.e., feeling one ought to remain in the organization; Meyer et al., 1993) might also be an outgrowth of mindful organizing. As mindful organizing is consistent with organizational ideals and values (e.g., ensuring highly reliable educational outcomes for students and operational outcomes for schools), it is possible that it could generate normative commitment in the form of a moral duty rather than indebtedness (Meyer & Parfyonova, 2010) and lead employees to fulfil their obligations to their organization (e.g., by using all of their skills, collaborating with coworkers on curriculum changes, and staying up-to-date on new knowledge in their field and the business school environment). Mindful organizing may also generate a commitment profile—for example, simultaneously high levels of affective and normative commitment—that in turn drives subsequent discretionary behaviors like mindful organizing (Gellatly, Meyer, & Luchak, 2006; Wasti, 2005). Therefore, the effects of mindful organizing on multiple forms of commitment to an organization might also further reinforce and deepen the processes of mindful organizing over time. We summarize the research agenda in Table 1.

CONCLUSIONS

Ray and colleagues' (2011) study makes several valuable contributions to our understanding of organizational mindfulness. It begins to address underexplored and conflicting aspects of prior theo-

TABLE 1
A Research Agenda for Organizational Mindfulness and Mindful Organizing

Category	Research question	Proposed relationships
Individual and organizational antecedents of organizational mindfulness	Why do organizations pursue organizational mindfulness?	• Leader identity • Empowering transformational leadership • Role specialization • High task interdependence/Low task interdependence (competing hypotheses) • Routines that set expectations or act as general guidelines
	How does individual mindfulness influence organizational mindfulness?	• Individual mindfulness of top managers
	When is individual mindfulness a substitute for organizational mindfulness?	• Low task interdependence
Individual and organizational antecedents of mindful organizing	Why does mindful organizing emerge?	• Empowering transformational leadership • High-quality LMX • Task interdependence • Smaller organization size • Preexisting stock of routines • Affective organizational commitment
	Under what conditions does individual mindfulness influence mindful organizing?	• Individual mindfulness • Individual mindfulness[a] extraversion • Individual mindfulness[a] task expertise
Consequences of organizational mindfulness	How does organizational mindfulness affect organizational outcomes?	• Opportunity outcomes (new market entry, innovation) • Curvilinear relationship (at moderate levels) • Timing (at the beginning/end of semesters)
Consequences of mindful organizing	How does mindful organizing affect individual outcomes?	• Reduce burnout and turnover • Increase affective and normative organizational commitment • High affective and normative commitment profile

[a] Indicates multiplication as in an interaction effect between individual mindfulness and task expertise.

rizing on organizational mindfulness. Perhaps more importantly, by developing and validating their measure of organizational mindfulness, their study heightens latent tensions in the mindfulness literature and highlights avenues for future research. We have used their work as an occasion for reconciling the literature by both differentiating and reconciling organizational mindfulness and mindful organizing, establishing where organizational mindfulness and mindful organizing are most important, and clarifying how and when organizational mindfulness and mindful organizing can be most fruitfully deployed in research and practice. Clearer theorizing leads to a set of research questions that seek to clarify the construct, its individual and organizational antecedents, and its consequences for individuals and organizations. We hope our dialogue with Ray and colleagues' (2011) excellent contribution can advance the integration of organizational mindfulness into mainstream organization theory and increase its relevance for business schools.

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