

11. Organizational Behavior

Interactive Session

A Framework for Understanding Connectedness, Instrumentality and Aesthetics as Aspects of the Physical Work Environment

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A Framework for Understanding Connectedness, Instrumentality and Aesthetics as Aspects of the Physical Work Environment

Abstract

Both practice and theory have devoted increasing attention to the physical work environment (i.e., the constructed spaces in which employees work, including buildings, furniture and spatial design). In practice, there has been a great deal of change and experimentation; however these efforts have been implemented in idiosyncratic ways. Similarly, while there have been multiple studies of environmental effects on employees, this work lacks consistency or any underpinning theoretical framework. In this paper, we outline such a framework, characterising physical work environments in terms of Connectedness, Instrumentality and Aesthetics. We then consider how this framework helps us to better understand previous findings, and particularly the mechanisms linking the physical environment to creativity and job satisfaction.

Organisational Design, Creativity, Attitudes,

INTRODUCTION

The ways in which we work have changed (Oldham & Hackman, 2010; Tannenbaum, Mathieu, Salas, & Cohen, 2012), and these changes are perhaps most clearly revealed in the evolution of our work environments (Morrow, McElroy & Scheibe, 2012; Fisher, 1997; Felstead et al., 2003). Space is no longer viewed as just an unrelated context for work to occur in (Backhouse & Drew, 1992); rather, organizations are exploring ways of using the environment to support performance and innovation. The influence of the physical environment has been recognized since at least the time of the Hawthorne experiments (Roethlisberger & Dickson, 1939), but the practical and theoretical attention paid to the environment has increased greatly in recent years (Davis, Leach, & Clegg, 2011; Elsbach & Pratt, 2007).

Physical workspace is the second largest overhead for most organizations (McCoy, 2005), and has potential to increase productivity by up to 20% (Leaman & Bordass, 2005). As a result, many organizations are introducing alternative forms of workplace design (Morrow, McElroy & Scheibe, 2012) (Spinuzzi, 2012). Billions of dollars are spent annually

on office design and fit out (IBISWorld, 2012). For example, Google is currently constructing a \$1 billion UK headquarters (Goldhill, 2013). Academic attention has mirrored this practical concern, with recent research examining the effects of spatial layout (Backhouse & Drew, 1992; Brennan, Chugh, & Kline, 2002), building materials (McCoy & Evans, 1992), decorations (Bringslimark, Hartig, & Patil, 2009), windows (Aries, Veitch, & Newsham, 2010), privacy (Sundstrom, Burt, & Kamp, 1980), noise (Sundstrom, Town, Rice, Osborn, & Brill, 1994), lighting (Zhong & House, 2012) and opportunities for personalization (Elsbach, 2004).

Unfortunately, despite this significant investment of money and time, researchers argue that we currently know no more about how the work environment influences performance than nineteenth-century physicians knew about disease transference prior to epidemiology (Myerson & Ross, 2006; Duffy, 2007). Consistent with this concern, as few as 1 in 4 workers report working in an optimal workplace environment, and more than half report being disturbed by others when trying to focus (Gensler, 2013). The mixed practical results and the diversity of research studies reflect the fact that there is currently no organizing framework for the study of the physical work environment. Practice and research adopt idiosyncratic approaches, and the results are not contributing to a cumulative body of knowledge (Elsbach & Pratt, 2007).

Our aim in this paper is to provide a step toward addressing this problem. Essentially we describe a three-part framework for understanding workplace environments, one which encompasses the diverse perspectives of previous work (Chan, Beckman, & Lawrence, 2007) and which recognizes the many roles that the environment must play (Elsbach & Pratt, 2007). Below, we briefly summarize current research on the physical work environment and then move on to explain the theoretical framework we propose. We conclude by considering the mechanisms linking this framework to the outcomes most influenced by one's work environment.

Prior research on the physical work environment

Space has been suggested to act like the body language of the organization, with context representing content (Broadbent, Bunt, & Jencks, 1980; Doorley, Witthoft, & University, 2011; Rapoport, 1982), and meaning conveyed through environmental cues such as the availability and placement of furnishings and objects to help form beliefs about the organization (Bitner, 1992). Further, subtle environmental cues can cause us to be different versions of ourselves (Alter, 2013) with researchers suggesting that there are multiple channels through which individuals connect with elements of their environment, for example beauty, and that this cognitive appreciation results in emotional involvement and deep engagement, leading to an expansion of the self and perspective taking (Gusewell & Ruch, 2012).

This is important in understanding the ability of the physical environment to influence beliefs, attitudes and behavior (Bitner, 1992), and critically, how the physical environment can influence organizational outcomes beyond what may be explained by job design itself. As such, the physical design of the workplace should be contingent upon the desired behaviors of its occupants (Bitner, 1992). In a study of 54 teams engaged in a creative task, Knight & Baer (2014) found that the use of stand-up desks, rather than more sedentary, traditional office furniture, increased arousal levels, decreased idea territoriality and led to better information elaboration, and indirectly, team performance. This emergent research empirically demonstrates the influence of the design and layout of furniture on overall organization outcomes such as organizational strategy or job role requirements for outcomes such as creative performance, which though directed by the organization, may be negatively constrained by the design of the physical environment. The actual conditions of the physical environment result in a perceived workspace that evokes cognitive, emotional and physical responses that result in either approach, such as affiliation, exploration, staying longer and commitment to carrying out plans, or avoidance behaviors (Bitner, 1992).

Elsbach and Pratt (2007) define the physical environment in organizations as including material objects and stimuli (e.g. buildings, furnishings, equipment and ambient conditions such as lighting and air quality) as well as the arrangements of those objects and

stimuli (e.g. open space office layouts and flexible work team spaces) that people encounter and interact with in organizational life. As such, these characteristics of the physical environment at work make it distinct from other physical environments such as the social environment (e.g. the surrounding human social structures and norms) as well as urban environments, community environments and the purely natural environments (Elsbach & Pratt, 2007).

Research on the physical environment at work and its impact on work performance lacks a unifying theoretical framework (Davis et al., 2010). Many researchers have focused on specific aspects of the physical environment at work such as light and number of enclosures (Oldham & Fried, 1987) or interior design elements (McCoy & Evans, 2002). As well, various approaches have been proposed to explain these disparate findings, including social interference theory (e.g. Baum & Paulus, 1987; Oldham, Cummings, & Zhou, 1995), the environmental comfort model (Vischer, 1989) and socio-technical systems (e.g. Cherns, 1976, 1987; Clegg, 2000, Davis et al., 2010). Nonetheless, recent reviews of the field have noted the need for more work (Morgeson, Dierdorff, & Hmurovic, 2010; Oldham & Hackman, 2010), with the physical work environment a potential situational factor that may contribute to work performance in organizations (Bamberger, 2008).

Space constraints in the format of the interactive session prevent us from including the complete literature review here. Please contact the first author for a copy of the complete literature review. In the next section we outline a framework of the physical work environment focussing on three dimensions we have identified as being important in our initial review of the literature: connectedness aspects, instrumental aspects and aesthetic aspects of the workplace.

A Framework for considering the physical work environment

To understand the physical work environment, we draw on the three-part framework proposed by Vilnai-Yavetz and Rafaeli (2005) and extended by Elsbach and Pratt (2007). This framework offers a parsimonious way of describing the environment, while still recognizing the multiple functions the physical environments must fulfil. Specifically, we

propose that workplace physical environments are best understood in terms of three dimensions: connectedness, instrumentality and aesthetics.

Connectedness

Earlier researchers (Elsbach & Pratt, 2007; Vilnai-Yavetz, Rafaeli, & Yaacov, 2005) have defined symbolism as the extent to which the physical environment elicits meaning or association. We include this as part of a broader dimension of connectedness defined as the extent to which the physical environment facilitates a sense of connection to other people and the organisation. The success of modern workplaces is now often driven by the way in which individuals are able to connect with each other, with their teams, with their managers and the organisation and with economy generally (Oldham & Hackman, 2010). The materiality of physical space has social meaning and how individuals experience space defines the potential of social construction (Rosen, Orlikowski, & Schmahmann, 1990). The ability of the physical environment of the workplace to promote social aspects of connection is important, as greater contact with others in the workplace and more opportunity to communicate with others assists in bounding and clarifying individual roles (Alderfer & Smith, 1982; Tuckman, 1965), providing opportunities for feedback (Graen, 1976), obtain insight into tasks, and that these interactions increase job satisfaction (Ryan & Deci, 2001). The nature and effect of the socially active space reflect not only the actors and interactions in it, but also the physical space in which it occurs, with some suggesting that the physical context affects all social interaction (Bennett & Bennett, 1970). The nature of the physical environment influences when, how and for how long people interact, and so its role in work behavior is increasingly being recognized (Bitner, 1992; Golledge, 1987; Kaplan & Kaplan, 1982). The spatial layout of the workplace has been found to increase the likelihood of users being able to avail themselves of other resources such as creative coworkers and role models, as workplaces that have a spatial configuration that encourage unplanned movement increase the chances of incidental proximity and availability to engage in conversations that utilize these resources (Backhouse & Drew, 1992).

Instrumentality

Earlier researchers (Elsbach & Pratt, 2007; Vilnai-Yavetz et al., 2005) have defined instrumentality as the extent to which the physical environment influences how people pursue task performance. All aspects of the physical environment could influence instrumentality including the layout of the overall space, the variety of different work zones and the placement of furniture in it, as well as the degree to which the physical environment affords flexibility, customizability and a variety of work zones and settings. Instrumentality allows individuals to reconfigure furniture in the setting to suit their mood or task, and also to select the work setting that best suits them for a particular purpose. There are potential downsides in any workplace environment such as distraction and lack of privacy, and recognising that environments influence behavior is important in establishing the relevance of instrumentality. Potential negative effects in relation to general occupancy of workplaces, as well as broader concerns regarding privacy and distractions may be overcome by providing occupants the ability to personally control elements of the workplace (Lee & Brand, 2005). Further, personal control has been found to moderate the relationship between environmental conditions and employee reactions to the environment (Evans, Johansson, Carrere, & others, 1994; Lee & Brand, 2010; Paciuk, 1989; Veitch & Gifford, 1996).

Aesthetics.

Aesthetics is defined as the ability of the physical environment to evoke a sensory response (Rafaeli & Vilnai-Yavetz, 2004). Aesthetics is the extent to which the physical environment is perceived to be beautiful and stylish. Aesthetics includes the dimensions of beauty and style, as well as the degree to which the physical environment represents an attractive environment in terms of use of furniture, materials and design. The aesthetics of the space includes the complexity of visual design detail including such things as books, artwork, installations and overall design, and various finishes on the surfaces within the workplace (McCoy & Evans, 2002). Aesthetics includes design elements of the physical environment such as colors, construction materials, and the availability of nature like materials (e.g., McCoy & Evans, 2002). We argue that beauty and aesthetics are fundamental human needs

that play significant roles in human life, communities, and in the workplace (Danielsson & Bodin, 2008; Dickie, 1997; Florida, Mellander, & Stolarick, 2011).

CONCLUSION

In response to the critical need to better understand the role the physical environment plays (Davis et al., 2011), we have proposed a unifying multi-dimensional model of the workplace environment, one which incorporates the cognitive, affective and relational aspects of work. This perspective provides wide-ranging opportunities for research that provides insight into the design of more effective workplace design. We hope that this paper served to inspire others to the possibilities of the three-part framework of the physical environment.

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Interactive Session

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Focus and Beauty**

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11. Organizational Behavior
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**A Framework for Understanding how the Physical Work Environment fosters
Connectedness, Focus and a Sense of Beauty**

Abstract

Both practice and theory have devoted increasing attention to the physical work environment (i.e., the constructed spaces in which employees work, including buildings, furniture and spatial design). In practice, there has been a great deal of change and experimentation; however these efforts have been implemented in idiosyncratic ways. Similarly, while there have been multiple studies of environmental effects on employees, this work lacks consistency or any underpinning theoretical framework. In this paper, we outline such a framework, characterising physical work environments in terms of how they foster Connectedness, Focus and a Sense of Beauty. We then consider how this framework helps us to better understand previous findings, and particularly the mechanisms linking the physical environment to creativity and job satisfaction.

Organisational Design, Creativity, Attitudes, Physical Environment, Job Satisfaction

INTRODUCTION

The ways in which we work have changed (Oldham & Hackman, 2010; Tannenbaum, Mathieu, Salas, & Cohen, 2012), and these changes are perhaps most clearly revealed in the evolution of our work environments (Morrow, McElroy & Scheibe, 2012; Fisher, 1997; Felstead et al., 2003). Space is no longer viewed as just an unrelated context for work to occur in (Backhouse & Drew, 1992); rather, organizations are exploring ways of using the environment to support performance and innovation. The influence of the physical environment has been recognized since at least the time of the Hawthorne experiments (Roethlisberger & Dickson, 1939), but the practical and theoretical attention paid to the environment has increased greatly in recent years (Davis, Leach, & Clegg, 2011; Elsbach & Pratt, 2007). This increased attention reflects the need for better theory and new data, as both work and the

environments in which it is conducted have altered dramatically (Oldham & Hackman, 2010).

Physical workspace is the second largest overhead for most organizations (McCoy, 2005), and has potential to increase productivity by up to 20% (Leaman & Bordass, 2005). As a result, many organizations are introducing alternative forms of workplace design (Morrow, McElroy & Scheibe, 2012; Spinuzzi, 2012). Billions of dollars are spent annually on office design and fit out (Windle, 2012). For example, Google is currently constructing a \$1 billion UK headquarters (Goldhill, 2013). Academic attention has mirrored this practical concern, with recent research examining the effects of spatial layout (Backhouse & Drew, 1992; Brennan, Chugh, & Kline, 2002), building materials (McCoy & Evans, 1992), decorations (Bringslimark, Hartig, & Patil, 2009), windows (Aries, Veitch, & Newsham, 2010), privacy (Sundstrom, Burt, & Kamp, 1980), noise (Sundstrom, Town, Rice, Osborn, & Brill, 1994), lighting (Zhong & House, 2012) and opportunities for personalization (Elsbach, 2004).

Unfortunately, despite this significant investment of money and time, researchers argue that we currently know no more about how the work environment influences performance than nineteenth-century physicians knew about disease transference prior to epidemiology (Myerson & Ross, 2006; Duffy, 2007). Consistent with this concern, as few as one in four workers report working in an optimal workplace environment, and more than half report being disturbed by others when trying to focus (Gensler, 2013). The mixed practical results and the diversity of research studies reflect the fact that there is currently no organizing framework for the study of the physical work environment. Practice and research adopt idiosyncratic

approaches, and the results are not contributing to a cumulative body of knowledge (Elsbach & Pratt, 2007).

Our aim in this paper is to provide a step toward addressing this problem. We describe a three-part framework for understanding workplace environments, one which encompasses the diverse perspectives of previous work (Chan, Beckman, & Lawrence, 2007) and which recognizes the varied roles that the environment must play (Elsbach & Pratt, 2007). Below, we briefly summarize current research on the physical work environment and then explain the theoretical framework we propose. The framework offers a comprehensive and consistent lens through which the physical environment can be viewed and measured. The framework will allow future researchers to compare studies, identifying patterns and differences, thereby accumulating a body of knowledge in the field.

Prior research on the physical work environment

Elsbach and Pratt (2007) define the physical environment in organizations as including the nature and arrangement of all the material objects and stimuli that people encounter in their organizational life (also see Carnevale, 1992; Davis, 1984, Hedge, 1982; Sundstom, Bell, Busby & Asmus, 1996; Davis et al., 2010). The physical environment includes buildings, furnishings, equipment, and ambient conditions such as lighting and air quality. The physical environment at work is thus distinct from other environments, such as the social environment (e.g. the surrounding human social structures and norms), urban environments, community environments and the purely natural environment (Elsbach & Pratt, 2007). It is also a vitally important part of organizational life, one that conveys meaning through cues such as the availability and placement of furnishings and objects to help form beliefs about the organization (Bitner, 1992). These signals are important because we know that

even subtle environmental cues can influence our self-concept and our behavior (Alter, 2013; Gusewell & Ruch, 2012). For example, in a study of 54 teams engaged in a creative task, Knight and Baer (2014) found that the use of stand-up desks, rather than traditional, sedentary office furniture, increased arousal levels, decreased idea territoriality and led to better information elaboration, and ultimately greater team performance. As this example shows, the physical environment evokes significant cognitive, emotional and physical responses among employees (Zhong & House, 2012; Knight & Baer, 2014; Dul & Ceylan, 2014, Aries et al., 2010).

While there have been many studies of the physical environment at work and its influence on work performance, this work lacks a unifying theoretical framework (Davis et al., 2010). In most cases, researchers have focused on specific aspects of the physical environment at work such as light and number of enclosures (Oldham & Fried, 1987) or interior design elements (McCoy & Evans, 2002). As well, various theoretical approaches have been drawn upon in these disparate studies, including social interference theory (e.g. Baum & Paulus, 1987; Oldham, Cummings, & Zhou, 1995), the environmental comfort model (Vischer, 1989) and socio-technical systems (e.g. Cherns, 1976, 1987; Clegg, 2000, Davis et al., 2010). Despite this volume and diversity of research, recent reviews of the field have noted the need for more work (Oldham & Hackman, 2010; Morgeson, Dierdorff, & Hmurovic, 2010). In part, these calls for more work reflect the importance of the physical work environment (Bamberger, 2008), but they also reflect the fact that in the absence of a unifying theoretical framework, cumulating knowledge is more difficult. A key requirement for advancing the field is developing a theoretical framework that can organize existing findings and guide future studies. In the next section we outline such a framework, focusing on the three dimensions identified as being the most important in

the literature: connectedness aspects, functionality aspects and aesthetic aspects of the workplace.¹

Framework for understanding the physical work environment

To understand the physical work environment, we draw on the three-part framework of Elsbach and Pratt (2007) who suggest three dimensions to encompass the physical environment. The first of these is aesthetics, being the extent to which the physical environment evokes sensory or aesthetic experiences. The second is instrumentality, defined as the impact of the physical environment on performance. Thirdly, they identify the symbolic, the way in which the physical environment represents other concepts or images, including on meaning relevant concerns of employees such as culture, identity and reputation.

“In extending this framework, Elsbach and Pratt (2007) emphasized interplay of these dimensions and that changes to accommodate one dimension may have an impact on another. In other words, the three dimensions are distinct, but may have quite different effects when operationalized simultaneously (Capetta & Gioia, 2006). For example, a Danish organization’s use of potted and portable birch trees as a means of creating flexible boundaries was symbolically and aesthetically effective in that it created boundaries and a pleasant ambience, but failed in terms of instrumentality as the trees were unable to block noise (Elsbach & Bechky, 2007).

While the Elsbach and Pratt (2007) model provides a solid foundation for considering the physical environment at work, we do not feel it is comprehensive in considering the ways in which the physical environment influences an individual’s experience of that environment. As such, we propose an alternate framework suggesting that the physical environment of the workplace is best understood in terms

¹ Space constraints in the format of the interactive session prevent us from including the complete literature review here. Please contact the first author for a copy of the complete literature review.

of three dimensions: how it fosters Connectedness, Focus and a Sense of Beauty. This framework offers a parsimonious way of describing the environment, while still recognizing the multiple functions the physical environments must fulfil. It clarifies some aspects identified in previous models and provides greater structure around aspects of the physical environment that have been overlooked. We explain our definitions, and how they differ from prior work below.

The Environment Fosters a Sense of Beauty.

Rafaeli and Vilnai-Yavetz (2004) define aesthetics as the sensory response elicited by an artifact, or by the physical environment. In extending the framework of Rafaeli and Vilnai-Yavetz (2004), and Elsbach and Pratt (2007), we suggest that by incorporating the dimension of beauty into consideration of the physical environment we can assess an individual's broader perception of the physical environment, rather than specific features of the environment itself e.g. office chairs. We propose that individual perception is important, as it is the response of the individual to that environment that will influence their subsequent behavior and performance. We argue that beauty and aesthetics and generate emotions that address fundamental human needs that play significant roles in human life, communities, and in the workplace (Danielsson & Bodin, 2008; Dickie, 1997; Florida, Mellander, & Stolarick, 2011) The existing research uses the concept of aesthetics and discusses it as eliciting sensory responses. This framework does not refer to any specific elements of the physical environment that may elicit sensory responses, nor what responses are desirable. As such, we alter the dimension of aesthetics to sense of beauty, that is, the extent to which the physical environment promotes a visceral sense of beauty. An experience of beauty in physical environments has been shown to lead to greater feelings of pleasure, comfort and task engagement (Maslow & Mintz, 1956). Sense of beauty

includes both beauty and style, as well as the degree to which the physical environment represents an attractive environment in terms of use of furniture, materials and design. The aesthetics and beauty of the space includes the complexity of visual design detail including such things as books, artwork, installations and overall design, and various finishes on the surfaces within the workplace (McCoy & Evans, 2002). A sense of beauty is conveyed by design elements of the physical environment such as colors, construction materials, and the availability of nature like materials (e.g., McCoy & Evans, 2002). Beauty as a construct asks for an overall holistic assessment of an employee's perceptions of a workplace.

The Environment Fosters Focus.

Earlier researchers (Elsbach & Pratt, 2007; Vilnai-Yavetz et al., 2005) have defined instrumentality as the extent to which the physical environment contributes to performance. In altering the label in our framework from instrumentality to focus, as with our first dimension sense of beauty, we add the mediating effect or reaction that explains the performance effects. The ability to focus, or concentrate attention is an important pre-cursor to a range of desired behavioural and performance outcomes (Lee, Sheldon, & Turban, 2003), The inability to focus effectively is a critical issue, as few as one in four workers report working in an optimal workplace environment, and more than half report being disturbed by others when trying to focus (Gensler, 2013).

All aspects of the physical environment could influence the ability to focus, including the layout of the overall space, the variety of different work zones and the placement of furniture in it, as well as the degree to which the physical environment affords flexibility, customizability and a variety of work zones and settings. Physical

environments that are perceived to facilitate focus allow individuals to reconfigure furniture in the setting to suit their mood or task, and also to select the work setting that best suits them for a particular purpose. There are potential downsides in any workplace environment such as distraction and lack of privacy, and recognising that environments influence behavior is important in establishing the relevance of focus (O'Neill, 1994). Potential negative effects in relation to general occupancy of workplaces, as well as broader concerns regarding privacy and distractions may be overcome by providing occupants the ability to personally control elements of the workplace (Lee & Brand, 2005). Further, personal control has been found to moderate the relationship between environmental conditions and employee reactions to the environment (Evans, Johansson, Carrere, & others, 1994; Lee & Brand, 2010; Paciuk, 1989; Veitch & Gifford, 1996).

The Environment Fosters Connectedness.

Earlier researchers (Elsbach & Pratt, 2007; Vilnai-Yavetz et al., 2005) identified the importance of symbolism for the work environment and defined it as the extent to which the physical environment elicits meaning or association. We include this as part of a broader dimension of connectedness defined as the extent to which the physical environment facilitates a sense of connection to other people and the organization. The success of modern workplaces is now often driven by the way in which individuals are able to connect with each other, with their teams, with their managers and the organization and with economy generally (Oldham & Hackman, 2010). The materiality of physical space has social meaning and how individuals experience space defines the potential of social construction (Rosen, Orlikowski, & Schmahmann, 1990). The ability of the physical environment of the workplace to

promote social aspects of connection is important, as greater contact with others in the workplace and more opportunity to communicate with others assists in bounding and clarifying individual roles (Alderfer & Smith, 1982; Tuckman, 1965), providing opportunities for feedback (Graen, 1976), obtain insight into tasks, and that these interactions increase job satisfaction (Ryan & Deci, 2001). The nature and effect of the socially active space reflect not only the actors and interactions in it, but also the physical space in which it occurs, with some suggesting that the physical context affects all social interaction (Bennett & Bennett, 1970). The nature of the physical environment influences when, how and for how long people interact, and so its role in work behavior is increasingly being recognized (Bitner, 1992; Golledge, 1987; Kaplan & Kaplan, 1982). The spatial layout of the workplace has been found to increase the likelihood of users being able to avail themselves of other resources such as creative coworkers and role models, as workplaces that have a spatial configuration that encourage unplanned movement increase the chances of incidental proximity and availability to engage in conversations that utilize these resources (Backhouse & Drew, 1992).

CONCLUSION

In response to the critical need to better understand the role the physical environment plays (Davis et al., 2011), we have proposed a unifying multi-dimensional framework of the workplace environment, one which incorporates the cognitive, affective and relational aspects of work. The framework offers a comprehensive and consistent lens through which the physical environment can be viewed and measured. The framework will allow future researchers to compare studies, identifying patterns and differences, thereby accumulating a body of

knowledge in the field. We hope that this paper served to inspire others to the possibilities of the three-part framework of the physical environment.

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