

Leveraging Color in Workplace Design

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ABSTRACT

Workplace environments present an opportunity to act as contexts for positive experience for their inhabitants. In times when companies undergo tremendous change and need to adjust to industry volatility and uncertainty, where employees often experience negative emotions of fear and anxiety and become resistant to change, making work environments ‘emotionally-correct’ is of critical importance. Currently however workplaces are designed to functionally support organizational performance needs rather than the emotional needs of their members. Our conceptual work discusses the conscious inclusion of color as a design lever in building work environments that enable individuals’ emotion management in times of change.

1. THE WORKPLACE DESIGN CHALLENGE:

The quest to design work environments conducive to the needs of their inhabitants has long been the central challenge for architects and designers. Still, existing workplace research offers limited guidance to the question of how can workplace design enable organizations and people in coping with emotions of uncertainty and fear that accompany change, an emerging dilemma of critical importance to the business and architectural communities.

In an era where managing change becomes a central management activity, when the failure rate of companies’ change initiatives is now assumed to exceed 70 percent, and where the ‘recipients of change’ are emotionally distressed and cognitively disoriented, understanding how to facilitate emotion management during times of change becomes key to individual well being and organizational success. More specifically, one of the key challenges involves overcoming employees’ resistance to ‘own’ the change and bear the associated emotional and cognitive burden [Huy, 1999] especially when so many develop symptoms of anxiety, fear, aggression, confusion, and frustration [Marks, 1991].

While this is a classic managerial and psychological dilemma, designers and architects have tried to respond to the challenge by designing work environments that support change presenting workplace solutions that enable flexible and effective adaptation of organizations to the changing conditions of their environments. For example, as collaboration becomes key to successful high performance, workplace designers embrace open spaces and communal solutions [Lohr, 1997; Ferguson, 2001; Duffy, 1997] as design vehicles that enable emergent interactions and serendipitous communication to take place among people [Becker and Steele, 1995]. These open spaces are often furnished with mobile team office furniture that allow flexible configuration of continuous roundtable interactions [Wheeler, 2001]. While these design considerations are clearly important, they solely address the organization’s change needs while neglecting to attend to the well being of individuals reacting to and coping with change [Vince and Bourssine, 1996].

2. MANAGING INDIVIDUALS’ EMOTIONS:

Clearly, the emotional undercurrents of change have profound consequences to individual performance in organizations and so ignoring these emotions when redesigning work environments is unlikely to enable the desired performance levels. Psychoanalysts insist that there is a universally primitive, pre-social, pre-linguistic, and pre-cognitive level of emotions which might be experienced or repressed, expressed or controlled, dominant or diffused, but never ignored and obliterated [Gabriel, 1998; Craib, 1998; Hopfl and Linstead, 1997].

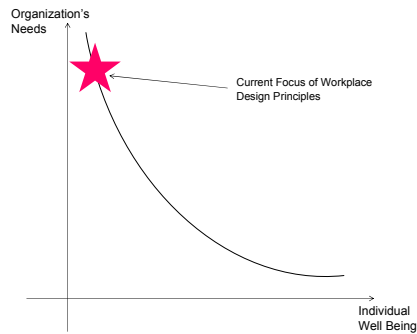


Figure 1: Current Focus of Workplace Design

The question we wrestled with was centered on identifying design levers that can be employed through workplace design to better address emotions that individuals experiences in time of change. Within this context we were especially intrigued by the role that **color** can play as a design lever in designing work environments sensitive to and accepting and enabling of individual emotions as will be addressed here later.

In general our view of the physical design of the workplace as enabling the management of a wide variety of individuals' emotions builds off contemporary thinking in the field of design that views designing as a *possibility-creating activity* focused on the *relationship* between the user and the design [be it designed products, objects or environments] and creates a context for *experience* [Hekkert, 2001]. According to this view design should shift from creating products to creating *contexts for experience* where the user is seduced to experience the designed object or reality with all senses [Overbeeke et al., 1999]. By designing contexts for experience instead of simply products, objects and/or environments, the focus shifts from the '*result of interaction*' towards the '*involvement during interaction*' [Hummels, 1999]. This person-design interactive experience is affective in nature and involves a great variety of emotions, moods, and feelings.

As design creates a context for experience that elicits personal emotions, the emotions evoked convey meaning and enable or hinder adaptation to change. This link between emotion and adaptation to change that is central to our discussion was studied extensively in the past decade. Take for example the work of Fredrickson [2000] who pointed to the significant role of positive emotions [specified in Fredrickson's research as joy, contentment and interest] in broadening a person's thought-action repertoire and building that individual's enduring resources that promote adaptation and survival. To further support this point, Isen [1993] showed that the positive affective system seems to change the cognitive parameters of problem solving to emphasize breadth-first thinking, and the examination of multiple solutions and courses of action. Conversely, anxiety has just the opposite effect: it biases the processing to be depth first, focused, concentrated and overall it narrows the thought process. In general, negative affect enables one to focus upon a specific threat or problem, but is likely to prevent adaptive and creative problem solving that is usually required under conditions of change and uncertainty [Mills and Kleinman, 1988]. In line of this view it is especially valuable to identify design levers that can enhance positive emotions and override negative emotions of fear, anxiety and anger that often accompany change.

What is the role that emotion should play in our approaches to design? "How do we design for emotion?" Good question, but it implies that one can identify emotion as a design target, then craft an artifact (an application, a device, a thing, for example) that meets this target.

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3. COLOR IN THE WORKPLACE:

And so, if emotions can be influenced by the deliberate designing of contexts for experience, and if we ought to strive to enhance positive emotional experiences for those individuals exposed to change, what particular levers can designers employ to carefully design such desired experience in the workplace? While contemporary workplace design often emphasizes communal and team spaces as

design enablers of communication, knowledge development and idea generation, these do *not* necessarily elicit a positive emotional experience for people that are coping with change. As argued earlier, such design considerations are more focused on generating *results* than *affective experience*. The answer is likely to be found in employing different design levers, but what are they?

Mahnke [1996] takes us on such different route discussing the affect of *color* in designed environments on the emotional well being of their inhabitants. Mahnke presents his and others' color-emotion association studies and points to significant relationship between specific colors and specific emotions. For example, his summarizing discussion of the color Gray suggests that:

Pure Gray is conservative, quiet, and calm, but also dreary, tedious, passive and without life...in the Gray zone there is no clarity in any direction – it is neutral...Gray lacks energy; it has no will of its own. It does not want to get involved and make any definite statement. In color design it takes on the characteristic of the adjacent color [p.66]

Alternatively, Yellow according to Mahnke enjoys a very different set of characteristics:

Reflective and luminous, Yellow is the happiest of all colors. In its positive associations and impressions it is cheerful, high-spirited, and suggestive of the life-giving sun. It represents a bright future, hope, wisdom and it is expansive -not earthbound... Yellow is used in packaging and advertising to express activity and cheerfulness.

While Yellow is associated with happiness, Gray is correlated with mourning and sorrow across a number of studies. Why is it then that the interior of offices in the corporate world is so heavily decorated with Gray? What affective experience is created by totally 'Gray-ing' cubical walls and office furniture? Research shows that persons subjected to under-stimulation showed symptoms of restlessness, excessive emotional response, difficulty in concentration, irritation and in some cases, a variety of more extreme reactions [Mahnke and Mahnke, 1993, p5]. At the same time, totally 'de-Gray-ing' the workplace environment may not be the solution either. Kuller collected measurements during the 1st, 2nd and 3rd hours of exposure to multi-color environment and found that subjects generally experienced a lack of emotional control in the colorful room. Subjects EKG (heart rate) was slower in the colorful room than in the Gray one, which is in agreement with a hypothesis of other researchers [Lacey et al, 1963] that intense attention might be accompanied by cardiac deceleration. Mahnke and Mahnke, 1993, p.6]. Thus, studies have demonstrated that coloring of the interior space might have a profound physiological and psychological effect on inhabitants' emotional experience of that space.

4. LEVERAGING THE COLOR- MOTION LINK:

From a design standpoint the question of color selection becomes crucial in designing contexts for desired affective experience [Ellinger 1963]. Such consideration presupposes the existence of color-emotion associations as identified in our research as well as the research work of others [Birren, 1978; D'Andrade & Egan, 1974; Guilford, 1934; Hemphill, 1996; Kwallek, 1996]. While these studies on color-emotion associations vary in complexity of colors tested, methodologies and demographics, there is an overall support to the argument of color as an emotional language, where colors evoke emotional meanings in a consistent way [see our work on Is Color a Language – paper # 062 in this Proceedings]. Such findings of the kind presented in Figure 2 below suggest that some colors enjoy a strong emotion association.

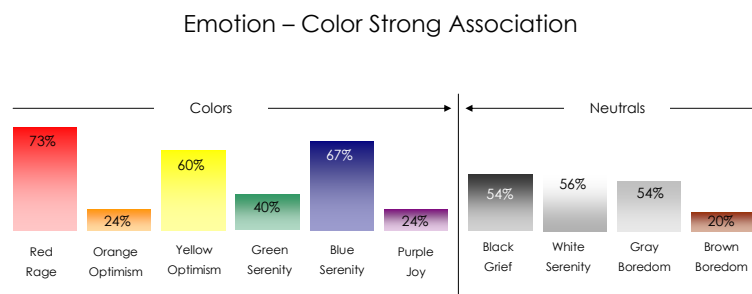


Figure 2: Our Research Results for Color - Emotion Associations

Together with the excitement that these results generate the question of 'knowledge in application' emerges almost instantaneously; Are we to assume that just because Green is significantly linked to the emotion of serenity, the presence of green in product or designed environment will invariably create the experience of tranquility for persons coming in contact with the design? Indeed, this is where our theories fall short of explaining and validating utilization methods of our color knowledge in designing workplace environments among other designs.

This knowledge gap is a critical one to note. The transition from understanding the implicit Color Language where color is associated with emotional meanings to creating realities and/or experiences where certain emotions are expected to be influenced or present is non-trivial and is likely to be mediated by other variables. For example, while in Mahnke's work the influence of Gray on performance seems direct it is not clear whether we witness here an emotional response [as the emotion associated with the color in our research for example is boredom and dullness in Mahnke's research] or a physical one [due to under-stimulation] that generates the performance behavior.

5. CONCLUSION AND FUTURE RESEARCH:

For designers to be able to effectively use color in work environments to create a context for positive emotional experience the applied facet of the Color-Emotion link has to be further established. Future research should explore the embodiment and leveraging of color-emotion associations in relationship to performance and productivity. Such knowledge could be particularly useful in times where organizations and their citizens are confronted with increasing levels of turmoil and uncertainty and need to attend to negative emotions while at the same time creatively construct sense and direction. Color as a design lever seems to provide an emotional value that may take us one step further towards understanding how to affect such emotions and consequently performance through workplace design.

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