

WHY SPACE MATTERS TO CREATIVITY

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In the 1980s, at the apex of the first wave of cognitive science, the mind-as-computer was the ascendant metaphor. While researchers in artificial intelligence (AI) were exploring creative processes by building systems designed to replicate creative human behaviors, Jean Lave, an anthropologist, was studying creativity in what she called “just plain folks” (Lave, 1988). She wanted to understand how people made decisions and solved problems on a daily basis as members of communities such as Weight Watchers, midwives and tailors.

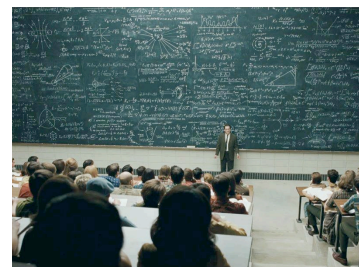
In one vignette recounted in her book, *Cognition in Practice: Mind, Mathematics and Culture in Everyday Life*, a member of Weight Watchers is trying to fix a serving of cottage cheese that is three quarters of a two-thirds cup. Instead doing a fraction conversion, he dumps two-thirds of a cup of cottage cheese onto the counter, flattens it, marks a cross on it and then removes one quadrant, a creative solution to his immediate problem that is novel, surprising, and certainly valuable to him at that moment.

This vignette illuminates how the immediate physical and material environment—the measuring cups, the countertop and the cutting knife—can be essential to creative responses and activities. It challenges the notion of the mind as a central processing unit cut off from and not needing the environment to be creative. And it argues for the idea that the creative mind is “stretched across mind, body, activity and setting” (Lave, p. 18)—a good starting point for understanding why space matters to creativity.

This work, and the work of many others, spawned a second wave of cognitive science, which shifted its gaze from the isolated, symbol-manipulating mind to the situated mind, from individual activity to larger systems of cognitive agents interacting with their environments and others in those environments. The *distributed* cognitive (human) system leverages and blends the internal representations and mechanisms with external physical and material representations. It is this mind-space distribution that enhances both problem solving and creativity.



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In 2012, with support from the Alfred P. Sloan Foundation, the LSC undertook a project focusing on Cognition and Context: How Space Affects Learning and Creativity in the Undergraduate Setting. Newstetter was a member of the project team.

E.J. Gibson (1988), the father of ecological psychology, coined the term *affordances* to denote the kinds of ambient information in the environment, its properties, its surfaces, and its resources that are perceived as useful to achieving a particular activity and to certain functions. The design of a large-staged lecture hall affords a certain kind of activity that differs greatly from a design studio with high tables and stools. Environmental affordances set up the possibility for certain kinds of behaviors and activities while precluding others. Spaces are rarely neutral.

We naturally attach meanings to space, based on prior activities that have occurred there. Thus, when entering a space, we quickly surmise the kinds of social and interactional patterns with others, and with the artifacts present, that are permitted and encouraged. **The environmental conditions evoke antecedent actions, activities and procedures that can be performed in that space.** This is because regularized forms of participation in a space result in individual *attunements* to the environmental constraints and affordances (Barwise and Perry, 1983).

Writers go to their writing lofts and artists go to their studios to unleash their creative aspirations because these spaces carry specialized meanings and possibilities for their inhabitants. Of course, humans can disregard attunements to spatial conditions and even choose to violate them—a situation that regularly occurs when faculty try to turn a lecture hall into an active-learning classroom. Students might be asked to get out of their chairs, sit on the floor on the stage or even leave the room for a while and come back.

Space is never neutral. It whispers messages about what can and will happen here and, being attuned to the affordances and constraints, we are obliged to follow antecedent regularized forms of participation and action found in such a space.

Another useful way to understand the importance of space as it impacts creative activity is through the lens of *positioning theory* (Harré, & Van Langenhove, 1992; 1999). The notion of positioning has been visited and interrogated from a variety of disciplinary perspectives, including sociology, linguistics, psychology, and educational anthropology. In all cases, the focus is on the kinds of activities, interactions, individual contributions and responses that are *entitled*, *expected*, and perhaps *obligated* in a particular setting.

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What is acceptable?

What is allowable?

What can happen here and what cannot?

What should happen here?

We scan the environment, which in its design/structure/furniture helps us produce inferences that allow us to come to provisional answers to these questions.



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Bringing this concept of positioning into discussions of creative spaces opens up new and novel avenues for understanding how space matters. We want to make the case that space is not inert; rather, it positions certain configurations of use and exploitation while vigorously resisting others.

Spatial positioning imposes a storyline or narrative of constraints and potentialities of the space. In another essay included in this report, this positioning capacity of space is cast as "press." Working with the positioning pressures of the space makes activities unproblematic, easy; working against them slows, impedes, and inhibits activities, interactions, and behaviors. To achieve the flow described by Csikszentmihalyi (1996) that accompanies creative activity, space needs to be a partner, not an adversary.

This quick tour through decades of research on situated cognition and action strengthens the case for why we need to pay attention to the spaces we offer "just plain folks" if we aspire that they develop and engage their creative capabilities.



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