

Bodystorming as Embodied Designing

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An emerging design practice developed by natural extension of the mode of participatory design known as “bodystorming” is often considered a form of prototyping in context, and is enacted instead as a technology directly supporting collaborative embodied cognition. This “art form” of bodystorming, which departs radically from ideational methods, is referred to as “embodied storming” to distinguish it from other forms called bodystorming that are already contested and because it is supported by theories of embodied cognition.

Our emphasis on immediacy and tacit experience breaks with the ideational and theatrical modes of acting out technology scenarios. Embodied storming posits that we ought to first create the experience of physical performance, not to ideate but to enact experiential awareness. This orientation postpones the particulars of designed forms, functions, and even ideas. We believe that “premature ideation” exposes participants to the problems of groupthink, the fixation bias known as following Klein’s “gar-

den path” of sense-making [1]. The goal of embodied storming is not just the instrumental formulation of better experience ideas in the context of their use, but we also aim to enact a tangible understanding of the entanglements and actions of human activity in possible future situations. We have found this generative, enacted mode of participant observation creates the conditions for the collective expression of working out problems, of sense-making situations and unmaking them, by performing actions in simulated settings and occasions in real time.

History

To date bodystorming has been used in three main ways. The first of these is the idea of working the space or place in which the product you are designing will ultimately be used. Let’s say you have been hired to build a new food-order and table-management system for a local cafe. In accordance with bodystorming, you should go to the cafe and do your work there. Not analysis, but work—all your design and coding. The

idea is that just being in the environment where the product will be employed results in a better user interface. You will be exposed to real-world situations such as loud environments, the rush crowd, work-role conflicts, all of which impact design decisions.

A second bodystorming methodology is what we call “strong prototyping” in the space or place in which the product or service will be used. Let’s say you have been hired to build a new handheld device for use on submarines. You should construct and model the hallways, spaces, and structures (out of cardboard perhaps) to simulate a submarine environment. The idea is to test your handheld in the “replicated” environment. Perhaps it doesn’t have all the properties of the actual field setting, but it should consider the more important aspects. Then you can change constraints such as lighting, or how easy it is to walk through differently sized doorways/passageways while trying to use the handheld.

The third methodological variant and most popular form

[1] Klein, G., Moon, B., and Hoffman, R.R. “Making Sense of Sensemaking 1: Alternative Perspectives.” *IEEE Intelligent Systems* 21, 4 (2006): 70–73.

of bodystorming is what we call “use-case theater” [2]. This involves prototyping the space and place of your product’s use by employing living personas or “actors” and “props.” Say you have been hired to build a new hot-dog vendor stand: You should find three or four people and have them act out the different roles. One person is the vendor. Another person orders a hot dog. The third person waits in line to order next. Perhaps you have them run through dialogue for a couple of takes so you can watch and see what happens and perhaps change things up to explore different options. You can model the length of time needed to service 10 people with one vendor versus two vendors, or test the usefulness of an order form instead of ordering with the vendor. This method is used to simulate experiences that a new product will be designed to enhance, and is more oriented toward evaluation.

[2] Oulasvirta, A., Kurvinen, E., and Kanjaunen, T. “Understanding Contexts by Being There: Case Studies in Bodystorming.” *Personal Ubiquitous Computing* 7, 2 (2003): 125–134.

[3] Drucker, P. *The Essential Drucker*. Oxford: Elsevier Ltd., 2007.

[4] Cooper, A. *The Inmates are Running the Asylum*. New York: Macmillan, 1999.

Experiential Experiments

We are concerned that these forms are somewhat limiting, for three reasons. The first is we are simply creating simulations that do not express the elements of experience design. The second is we are not addressing the core problems of today’s “Design Thinking” methods, which we find not only ineffective at enabling rapid communication between people but also lacking in the ability to quickly generate forceful ideas. The third is that we tend to believe in the fit of our conceptually brainstormed ideas when they are generated in a synchronous group setting.

We fall prey to the socialization of groupthink and complete these ideas within a fixed universe of assumptions.

Embodied storming addresses these weaknesses by requiring us to act first, as physical actors in a situation, not as conceiving designers distanced from things. Embodied storming does not attempt to “describe” experiences in terms of how a computer would understand them; rather, it deploys the strengths of humans acting together. The computer is a logic machine that only makes visible the conditions that existed before it. People, on the other hand, are illogical but perceptive, aware, and self-correcting. We argue that we are becoming increasingly blind to our perception (i.e., experiencing the event), choosing to focus on the facts of representation (i.e., after the event).

Peter Drucker, whom we recognize as a social philosopher, warned the tremendous volume of computerized experience and sheer immersion in disembodied information may shunt our access to reality [3]. Reality has to be perceived and shared, because our representations will always fail to capture experience and fail to communicate anything but a snapshot to others. We suggest that experience designers refocus their attention on the events happening and the reality of what is being done.

The Anatomy of Embodied Storming

Embodied storming enables rapid communication between people, as well as the speedy

generation of unjudged, uncompromised design proposals and scenarios. We use the term “scenarios” rather than “ideas,” because the performative mode tends to create sequences, themes, and conceptual continuity. They are like scenes, composed by a “design troupe,” rather than discrete ideas attributed to individuals. While ideas might be elicited from the embodied storm, to do so individually may tend to break the continuity of the scenario.

As a new mode of bodystorming, embodied storming helps to create stories or themes out of the things we observe around us, the things we perceive. It enables translation of this tacit knowledge into rapid communication and the generation of ideas, contributing to an envisioned scenario. It lets people act as people, by collaborating in tight “generate-do-learn” cycles. Participants engage one another in simulating experiences and processes that are designed through joint acting and improvisation.

Forget Personas— Do Embodied Storming

Personas offer a structured characterization of significant but fictional individuals that are used as types in interaction design problems [4]. Personas were popularized over the past decade and deployed rampantly, as they replaced earlier forms of user profiling used in the decades prior to Alan Cooper’s presentation. However, they can be a crutch in service-design situations. Services must be designed and specified to enable an unforeseeable range of individuals

to interact readily, easily, and fairly with a given service system. Focusing on personas too closely skews the consideration of need states and responses that are prompted as behaviors required to satisfy defined goals and service conditions. While scenarios portray the interaction, information flows, and touchpoints of service, they do little to demonstrate the human responses to a service-system design. The emotional and behavioral responses to a time-pressured, human-system need state can be played out as theater, with the impact of immediate and shared insights into the situation.

Embodied storming focuses on need states and can be applied as a design-research method that helps identify gaps and opportunities. Need states are conditions of a situation that require satisfaction or reveal a breakdown. A typical scenario finds design teams sitting around the table and talking about users as if they were segments “out there” waiting for us to discover their so-called needs. We classify customers by demographics like age or gender, psychographics like lifestyle, and behaviors like purchasing patterns that we believe to be real enough to measure. If well funded,

we go “out there” and conduct research on these different segments. Instead, or in addition, the projective role-play of embodied storming forces a team to attend to perceivable need states.

A single product or chain of service events might generate multiple need states. Because a product cannot serve all needs, we use embodied storming to focus on the needs that matter. If performed with a reasonably informed troupe, the successful embodied bodystorm will demonstrate the satisfaction of the conditions of these need states that matter most. Because it is physically rich, and closely maps to real conditions where those need states matter, bodystorming forces a focus on what John Maeda calls “the meaningful” [5]. An effective bodystorm is one that captures the need state, highlights the breakdowns, and shows how the change in process (the designed aspect) satisfies the perceived problems. A good bodystorm has an immediacy and intimacy that engages clients and participants at a direct level of experience with respect to the real-world situation for which the team is designing.

We need to focus more on the different usage occasions with

the product and service and the needs that define them. That is exactly what bodystorming does. But it goes even further because it allows both us as designers and business owners to see and understand what is working and what’s not working so that we can interpret design opportunities.

Embodied storming takes advantage of the enactive approach to cognition and engagement in the world, described by Francisco Varela as “perceptually guided action” [6]. Contrasting the information-processing view of the world with an enactive view, Varela shows people, as fully engaged perceivers, essentially “act first” and learn (in rapid cycles of action and perceptive feedback) from their actions. Human perception is constrained by our embodiment—we only learn to perceive physical objects by interacting with them. We must act first to know reality.

But because bodystorming is done as a group with more than one person, there is “communication” that occurs at the level of body language, kinesics, gesturing, and proxemics. It is high-context group communication. The result is not just faster and better collaboration with participants, but also fast-

[5] Maeda, J. *The Laws of Simplicity*. Cambridge: The MIT Press, 2006.

[6] Varela, F. *Ethical Know How: Action, Wisdom, and Cognition*. Stanford, CA: Stanford University Press, 1999.

[7] Simsarian T. K. “Take It to the Next Stage: The Roles of Role Playing in the Design Process.” In *Proc. of CHI 2003* (2003): 1012–1013.

DESIGN STAGE	MODES OF INQUIRY
Understand: “Where to look”	Issue discovery and identification
Observation: “Re-creations”	Sharing observations from the field
Visualization: “Bodystorming”	Doing generative work; exploring contexts to develop new ideas and uses
Evaluation and Refinement: “Debugging”	Building scenarios for use, discovering hidden nuances
Implementation: “Informance”	The practice of creating physical performances to communicate developed ideas

► Table 1: Typical Phases of Design and Research

BODYSTORMING	EMBODIED STORMING
User-needs centered	Rapid communication and generation of ideas around an envisioned scenario
Product-design driven	Developing people, developing cultures through shared understanding
Creative problem-solving/design-thinking on-site to enhance understanding of the problem domain	Rapid communication and generation of ideas around what the problem domain should be
Focus on physical problems	Problems are not always technological, also sociopolitical, socioeconomic
Reenacting everyday people's performances and living with data in embodied ways by performance	Envisioning how people would respond to future scenarios that are presented without extra data
Quality of design ideas is heavily dependent on the quality of documents	Quality of exercise dependent on the quality of interactions and breakdown of cognitive and emotional barriers
Participants are researchers and industry representatives	Participants may not know anything about the subject area
Success measured by uptake of ideas by industry representatives	Success is measured by participants' willingness to explore together, building shared meaning around issues
Empathy toward users	Shared experiences and collective memory
Role playing and following script	Free flow, not-directed aside from presented scenario
Forced innovation of proper solutions	Not solutions-driven, more experimental and exploratory

► Table 2: Comparing Types of Bodystorming

er and better communication with clients and sponsors.

Fitting the Practice to Design

Traditional bodystorming fits a design process as a simulated flow of interactions well-defined in design research. Table 1 (from Simsarian) illustrates the structure of design and modes of inquiry, suggesting that generative bodystorming fits the process well after field observations [7].

In contrast to the typical stages of design and research (Table 1), we argue that bodystorming should be one of the first steps taken in the problem-definition stage. It should be pre-ideation, to take advantage of the collective's unique ability to distribute cognitive facility in the tangible, physical performance of activity. In

other words, we act it out to prevent us from overthinking it.

Embodied storming should be considered for new purposes, which may result in changing the contexts of participation. As Table 2 shows, we are aiming to move this powerful technique from an approach of defining user needs to a communicative mode of rapidly expressing ideas and proposals. Participants experience the generation of a service or concept in rapid collaboration with others, allowing them to see and literally feel and explore new uses for things in the context of the performed situation.

Practice Makes Practice

Bill Buxton reminds us that "innovation in process trumps innovation in product" and that innovation in both trumps

either [8]. We believe embodied storming innovates both: Because there is no fixed way of performing the embodied storm, each experience is uniquely performed for the possibilities of learning. And while Buxton also recommends traditional forms of bodystorming as processes for innovative design teams, we would like to contribute to the canon a simple set of steps and considerations for experience designers.

Presented are guidelines for embodied storming and not rules, as the technique is still exploratory and remains in continual practice. Based on our own experience, we suggest the following:

1. Select groups of five to eight participants in a troupe.
2. Every player must have a role; there should be no "trees"

[8] Buxton, B. *Sketching User Experiences*. San Francisco: Elsevier, 2007.

that are just for background.

3. Props can have feelings, thoughts, and the ability to speak.

4. Use large cards that label the roles people are playing.

5. Use thought-bubble cards to show what a participant is thinking versus saying. They may say, "How can I help you?" while someone holds a thought-bubble card above their head showing they are really thinking, "Jerk."

6. Have a narrator or color commentator who explains things to observers.

7. The narrator can pretend the scenario is like television, using a remote to stop action, rewind, or fast-forward.

8. When your group is working through its presentation, try to approach it with the spirit of improv acting: "Yes, and..." rather than "No, but..."

9. Do two skits, showing a before and after.

10. Split larger groups into two or more teams that bodystorm the same scenario.

Embodied Storming in Action

Ontario College of Art and Design sponsors a monthly community of practice, Design with Dialogue, where the authors held bodystorming experiences for 15 participants in three groups. Dennis Schleicher led his own March 2010 sessions. The videos are viewable at <http://designwithdialogue.com/>.

Teams generated bodystorms for two different problems, presented as long-horizon future situations. Participants planned and enacted a scene together within a brief (five- to 10-minute) period, pressuring

the generation and collaboration of uncensored ideas. Rapid cycles of divergent and convergent thinking and experiencing occurred so rapidly people abandoned the rationality of a deliberative process. By having to think and speak spontaneously, the value of avoiding initial ideation was recognized, with an increased focus on acting first and "thinking last." Groups were able to harness a connection among people from different disciplines, ignoring role preferences or disciplinary differences and leading to communication about the problem area, not to premature solutions.

Conclusion

Embodied participation engages a different level of empathy from its typical sense of understanding the experience of others. By acting before understanding, we approach the possibility of learning in our bones the experience of another person as if we were the person experiencing the situation for which we are designing.

Since embodied storming engages participation at a physical level of experience, the process enables the expression and exchange of tacit knowing, which is knowing more than we can tell. Like Polanyi's view of tacit knowledge [9], Varela also insisted knowledge is literally the capacity to act; embodied storming establishes the context to experience that capacity in an enacted scenario.

Finally, as interaction and experience designers, we often explain the need to design from an empathic understanding of envisioned users in their con-

text, but we rarely can truly enter their world. Embodied storming is a movement toward enacted and empathic communication about situations of use within design teams. Further, by performing visions of user engagement, with no technologies other than our own bodies, we move toward a new mode of communication in design that allows everyone to literally play a role in the design process.



ABOUT THE AUTHORS

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[9] Polanyi, M. *The Tacit Dimension*. Gloucester, MA: Peter Smith, 1966.