

## Community-Based Design Partnerships: Examples from a New Generation of CHAT/DBR

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**Abstract:** There has been great interest recently, across research communities, in the intersection of formative interventionist methodologies (originating in cultural-historical activity theory, or CHAT) and design-based research (originating in the learning sciences). A recent special issue of the *Journal of the Learning Sciences* was dedicated to exploring “CHAT/DBR” from multiple perspectives (Penuel, Cole & O’Neill, 2016). Beyond the similarities and differences between these methodologies, this scholarship also imagines new possibilities and orientations drawing on the two traditions – new roles for researchers and collaborators, alternative “argumentative grammars” (Kelly, 2004) underlying these approaches, and even new conceptions of *learning* itself. This symposium highlights the work of emerging scholars whose research employs variations of CHAT-inspired DBR in collaborative, community-grounded work oriented toward social change. The session offers innovative perspectives on how we conceptualize learning; rethinking design in our methods; what constitutes a learning environment; and rethinking relationships among researchers, partners, learners and interventions.

### Focus of the symposium

There has been great interest recently in the intersection of formative interventionist methodologies (originating in cultural-historical activity theory, or CHAT) and design-based research (originating in the learning sciences). A recent special issue of the *Journal of the Learning Sciences* was dedicated to exploring “CHAT/DBR” from multiple perspectives (Penuel, Cole & O’Neill, 2016). Beyond the similarities and differences between methodologies, this scholarship also imagines new possibilities and orientations drawing on the two traditions – new roles for researchers and collaborators, alternative “argumentative grammars” (Kelly, 2004) underlying these approaches, and even new conceptions of *learning* itself.

The JLS special issue offered case studies of CHAT-DBR projects that, while diverse in methods and theoretical framing, suggested a set of “family resemblances.” For one thing, the learning environments tend to be removed from the familiar learning-sciences context of the classroom. In the words of Cole & Packer (2016), “although the learning sciences may have escaped from the laboratory, it has not escaped very far. Rather, it has escaped to the school classroom, a (very) artificial setting that gave shape to laboratory procedures in the first place” (Cole & Packer, 2016, p. 505). By contrast, the CHAT/DBR cases in the special issue moved notably farther from the “container” of the classroom (Leander, Phillips & Taylor, 2010), out to urban gardens, flooding favelas, programs for migrant youth, and other complex and evolving contexts. With this “escape” came more diverse conceptualizations of learning itself, decoupled from the strictures of curriculum and assessments.

Also, as noted in the introduction to the special issue, another common feature of CHAT/DBR work is “a concern with *praxis*, or practical human activity to transform the world” (Penuel et al, 2016, p. 490). While DBR has always had an intent to effect change in real-world learning environments (Brown, 1992), the concept

of *praxis* moves further from a linear model of (for example) researchers effecting change in teachers' and students' environments. Instead, it is concerned with the ways learners identify contradictions between the realities of their lives and the imagined futures they desire (Freire, 1970); collaborative design becomes a means of internal transformation of the activity system that has both theoretical and practical implications (Gutierrez & Vossoughi, 2010). Rather than assume that transformation must be positive or "successful" in obtaining pre-determined outcomes (cf. O'Neill, 2016), this stance offers lenses for examining the ways tensions and contradictions in activity systems evolve with change, potentially both transforming and reproducing issues of equity/inequity and agency/oppression.

These features of CHAT/DBR projects – engagement with more diverse learning environments, and a focus on *praxis* or expansive learning – point to some fundamental theoretical and methodological shifts that were evident in the case studies and the commentaries in the JLS special issue, and extend through the papers in this symposium. We use the symposium to explore a handful of these issues more deeply, through the lenses of emerging scholars whose research employs variations of CHAT-inspired DBR in collaborative, community-grounded work oriented toward social change.

By highlighting the work of junior scholars, the symposium provides a window on directions this work is moving in the learning sciences community. The Discussant role in this symposium will be played by an intergenerational pair of scholars with intimate knowledge of these research traditions: Drs. Susan Jurow and Rogers Hall. The discussion will be in the form of a conversation about the ways these papers advance the exploration of CHAT/DBR in the learning sciences; trends that are visible in the work of these emerging scholars; and challenges for the LS community in moving this line of research forward.

## Major issues illustrated by the collective work

The issues arising from the JLS special issue that organize this symposium are:

1. Re-conceptualizing research-design partnerships – who designs, who researches, who learns
2. Re-examining the research endeavor itself, including the life cycles of research projects and designs
3. Studying learning processes at different scales of time, space, social organization, and units of analysis
4. Historicizing learning processes and design work
5. Embracing power struggles as central to learning and research

In this section we review some of the key implications of each of these interconnected issues, and preview how they are illuminated in the papers in the symposium. Descriptions of the individual presentations follow.

### Re-conceptualizing research-design partnerships

In the studies shared in this symposium, the term "participants" refers to a collective whole that includes community members, organizational representatives, educators and researchers (including those who engage in multiple capacities, e.g. participant action researcher). Community residents and others are not differentiated in their capacity to enact change in their communities, while researchers are not positioned as external entities coming to a community to provide answers or solutions. Key defining features of these projects are the way collaboration is structured, the way divisions of labor are negotiated, and the way designs for learning are co-created. This is the central focus of the paper by Meléndez & Radinsky, and is addressed in different ways in each of the papers.

This process of co-design and co-research inevitably surfaces tensions and contradictions. The exercise of agency by one partner can elicit push-back or resistance from another. The insights afforded by CHAT/DBR include revelation of underlying relationships of power, and opportunities to re-mediate these relationships (#5 below). Importantly, the division of labor – who designs, who constructs goals – is explicitly negotiated, as part of the design itself. This is a focus of the paper by Phillips et al, through the lens of "mutual appropriation." The assumption is that hierarchies of power and agency are to be confronted and negotiated, with a focus on the needs, histories, and possible futures of members of historically disenfranchised communities.

### Re-examining the research endeavor itself

This focus on collaborative design and shared ownership of the three key aspects of any DBR project – research, design, and learning – upsets some of the traditional underpinnings of university-based research projects. For example, grant cycles, generally channeled through a university (with indirect costs accruing to the university partner), lock into place a number of constraints on collaborations that tend to disempower partners outside the university. Processes of expansive learning and iterative co-design may take many years to evolve, and so may not fit neatly into these funding cycles, as is the case for the design circles discussed by Marin, Bang & Nolan.

The nature of academic publications and conferences can reinforce assumptions that the important intellectual work of the project resides with academics, undervaluing the contributions of community partners. The assumption that published research should reflect “successful interventions” can distort the narratives that are produced from a project (O’Neill, 2016).

Each of the projects here struggles to re-mediate and reconfigure these assumptions and norms of research. The languages of CHAT and DBR offer different affordances for constructing practices that afford longer-term and more equitable collaborations around research and design. The projects seek to identify the longer histories and trajectories of each of the learning environments engaged in the partnership, beyond an individual design that may emerge within a given project -- an explicit focus of Vossoughi’s “sister-spaces,” which evolve from project to project, extending the life cycle of particular concepts, ethical groundings and analytic foci. Each paper in the symposium reveals the ways multiple voices are brought to bear, and the ways the structures of the partnership mediate these negotiations.

### Studying learning processes at different scales

As noted above, researchers have highlighted the need for analytical approaches that take into account different scales of time to study learning in practice (e.g., Engeström, 2011; Lemke, 2000; Sannino et al., 2016). These researchers have made the argument for longer scales of time in studying learning in analytical units beyond the individual – collective- and system-level learning that opens up new possibilities of what the learning processes themselves can be. Supra-individual units of analysis are found in each of the papers here.

As the learning sciences branch out into more naturalistic and less formalized settings, some of the distinctions between teaching and learning break apart. In these settings, the collaborative design process includes a negotiation of what is to be learned -- a conceptualization that can shift during the life of a project, across cycles of design and analysis. Participants from different communities bring different assumptions about learning, such that initial intentions and goals are subject to change: “[t]hese intentions ... are seen as only the starting point, which a truly expansive learning process typically confronts and deviates from if the learners are to produce their own collective designs”, with their own learning goals (Sannino, et. al, pg. 3).

This “deviation,” as learners collectively come to new awareness, facilitates participants’ agentic engagement in activity, producing collective-level learning (Roth & Lee, 2007). Changes to practices are conceived of as learning processes, entailing an “expansion in the object or subject ... of activity” (Greeno & Engeström, 2014, p. 5). Rather than documenting the obtainment of pre-existing objectives, “[e]xpansive learning is a creative type of learning in which learners join their forces to literally create something novel, essentially learning something that does not yet exist” (Sannino et al., 2016, p. 5). These processes are seen in symposium papers by Meléndez & Radinsky (as system-level learning), Vossoughi (as evolving subject-subject relations), and Phillips et al (as learning on the move).

### Historicizing learning processes and design work

The papers in this symposium, in different ways, attempt to meet the challenge of more deeply historicizing the learning processes and designs at the heart of each project. One way in which this is accomplished is in attending to learning phenomena not just as present-day challenges, but as grounded in longer-term historical processes: settler-colonial epistemologies and work to desettle those conceptions (Marin, Bang & Nolan); movements for critical literacies and political education (Vossoughi); and participatory budgeting as a movement for democratic empowerment (Meléndez & Radinsky).

Another aspect of historicizing this work is in extending (and attending to) the histories of the design processes themselves. Longer term engagements with co-designers require “a degree of knowledge and legitimacy” among the partners (O’Neill, 2016, p. 499) that is beyond what has often been the norm in learning sciences work in the past. Shared histories of collaborators plays a key role in establishing deep levels of trust, reciprocity, and local knowledge of practices and context (Penuel, Cole & O’Neill, 2016). In these more extended histories of co-design, learning scientists, along with other participants, engage in “joint learning activity to identify and refine the goals of the intervention and make visible the historical dimensions of a community’s practices” (Gutiérrez & Jurow, 2016, p. 5).

As such, the emphasis is on how participants engage with history not as disjointed events of the past, but as “resources and understandings of the past into the future” which support new forms of learning, agency, and imagined possibilities (Gutiérrez & Jurow, 2016, p. 7). This involves attending to complex relationships among present, past and future. In Vossoughi’s paper, a critical lens is brought to the analysis of histories to provide structural critiques of normative hierarchies of power and imagined possible futures, while taking a *prefigurative* stance that attends to consequential impacts in the here and now (Bang & Vossoughi, 2016). In

Meléndez & Radinsky's paper, learning outcomes include a hybrid space where political imaginaries of the future emerge alongside critical reflections on the past.

## Embracing power struggles as central to learning and research

Research incorporating the political realm is a relatively new focus for the learning sciences (Radinsky & Tabak, 2017). The Politics of Learning Writing Collective calls for more explicitly political theorizations of learning (Philip et al, 2017), to “address the powered and politicized contexts and consequences of learning in ways that make it possible for children, families, and communities to create thriving, self determined lives” (p.4). There is a need for research not only that attends to power as an abstract term, but more importantly, that shows how it manifests itself in practice, in relationship to learning. The papers in this symposium document a variety of contexts where questions of “diversity, inequality, conflict, complementarity, cooperation, and differences of power and knowledge are socially produced, reproduced and transformed” (Lave, 1988, p. 10).

The papers in this symposium study designs from the perspective of how they engage power relations, including ways that they perpetuate or transform these relations. The papers dialogue with the concept of *historical agency* (Gutierrez & Jurow, 2010), illustrating the ways in which agency is at the heart of designing learning environments where equity and social justice are front and center (Philip et al, 2017). Recognizing the power relationships inherent in the practices of research, the papers in this symposium use CHAT-DBR to trouble those relationships, aiming to re-mediate hierarchies of epistemology and pedagogy.

One way to operationalize power is through identifying tensions and contradictions in the activity for which we design. “Historically formed contradictions” (Sannino et al, 2016) necessitate historical analysis of these tensions. Yet, even when tensions and contradictions are resolved, if we take an activity system to be an evolving and complex unit, new crystallizations of practices and innovative pathways of participation should be expected to yield new tensions and contradictions in future design cycles. The papers in this symposium all cast a different light on contradictions that emerge and evolve over the course of collaborative design partnerships.

## From stunted limitations to awakened imaginaries: Expansive learning among Latino immigrant participants in participatory budgeting

José W. Meléndez and Josh Radinsky

The authors provide a three-year case study of the Participatory Budgeting Process in the 49<sup>th</sup> ward of Chicago. Since the 1970s, local demands for more direct and meaningful participation in government processes that have direct impact on communities and individuals' lives have been growing. The communicative turn in participatory planning (Habermas, 1996) and the rise of social movements pushing for re-definitions of citizenship identity (Dagnino, 2003; Ellison, 1997; Flores, 2003) have resulted in a growing number of participatory, deliberative, democratic processes. The focus of this paper is one example of this movement, called *participatory budgeting*, originating in Brazil and studied here in Chicago's 49th Ward (PB49), the first ever PB process in the U.S. Processes such as PB49, which can have meaningful impact in communities, often are not representative of all constituents who are impacted by the decisions, either in participation levels or in who is at the decision making table. This study examined three iterations (which we positioned as designed) of the PB49 process to investigate contradictions in how democratic practices (both direct and representational) played out *in situ* for a historically under-represented community: Latino immigrants.

Using a CHAT/DBR approach, the study revealed expansive learning related to civic engagement, and the development of civic capacities. As a case of *praxis*, the enactment of (and reflections on) designed innovations to PB49 over three years led to changes in the structures of participation, as well as new political imaginaries of future possible selves for members of the ward's predominant-Spanish speaking Latino immigrant community. These expansive learning processes were documented at the collective and systems levels: at the collective level participants demonstrated qualitative changes in their agency, both over their involvement with the PB49 process but also over the designed interventions that were being created in the name of, for, and by participants. Evidence of collective learning also included figuring out how the city bureaucracy works; conceptualizations of the needs of the Latino immigrant community; and emergent political imaginaries.

At the system level of learning, this was noticed through changes in practices (new language and tools), activity structures, and greater incorporation of new participants - not just in numbers, but also in a change in the object of activity. Three distinct system level learning findings were: the inability to support predominant Latino immigrants participants involvement in the first iteration; the expansion of the object of activity in the second iteration, resulting in the creation of new activity structures; and the eligibility of predominant Latino immigrants participants to join the leadership committee. With the push to expand participatory processes, this

CHAT-inspired community-based design research partnership is an example of how a democratic process itself is up for re-designing for social justice and equity learning environment.

## **Sister-spaces: Participatory design research as a tool for studying learning as collective, historical and prefigurative activity**

Shirin Vossoughi

Participatory Design Research (PDR) refers to a family of interventionist methodologies that include formative interventions (Engeström, 2011), Social Design Experiments (Gutiérrez & Vossoughi, 2010), and Community Based Design Research (Bang, Medin, Washinawatok, & Chapman, 2010). Methodologically and conceptually, PDR works to interweave structural critiques of normative hierarchies of power with imagined possible futures, taking a proleptic or prefigurative stance that attends to consequential impacts in the here and now (Bang & Vossoughi, 2016). This paper aims to further theorize the collective, historical, and prefigurative dimensions of learning within PDR through an analysis of *sister-spaces*.

Sister-spaces are educational contexts separated by physical space and/or historical era that embody parallel values (Espinoza, Vossoughi & Rose, Under Review). Sister-spaces can also be thought of as the settings that *grow from* settings, often through individuals who experience possible forms of activity and then draw from that experience as a resource for design within a distinct context (what Zavala [2016] refers to as the repetitions of practice across space that embody developmentally new activity).

The sister-spaces that form the primary objects of analysis in this paper include: a summer academic program for high school-aged migrant students (The Migrant Student Leadership Institute, or MSLI), which understood itself as *a student* of historical models of political education and critical literacy, and two recent cases in which core principles from MSLI served as guides in the development and study of an after-school tinkering setting and a summer bridge program. Information sources include key design documents, participant reflections, and ethnographic and interactional analysis of teaching and learning across the three settings.

Findings elucidate the three dimensions—collective, historical and prefigurative—introduced above. One way of conceptualizing **collective learning** within DBR/CHAT projects is to move beyond individual views of subject-object relations to treat the community or collective itself as the subject who designs, iterates and studies a given setting. Recent work on PDR has also argued for foregrounding subject-subject relations as a domain of learning in itself (Bang & Vossoughi, 2016). Building from these perspectives, I consider how relations *across activity systems* may constitute a distinct realm of learning and resource for pedagogy and design. As Gutiérrez and Arzubiaga (2012) argue, “the relations among and contradictions that exist between activity systems are central to the analysis of human activity” (p. 205). Studies of multiple activity systems often consider how people move and participate across distinct settings (home and school, for example), or analyze object-oriented activity across two or more settings to develop more adequately complex views of human activity, and to identify transformative potentialities.

Taking a slightly different lens, I foreground the dimension of time, and consider what it means to treat particular settings as *learners* in relation to other settings, be they present or past. This **historical dimension** of learning raises new questions: how is learning mediated across time and space? If settings can be learners and teachers, what kinds of collective zones of proximal development might emerge between and across activity systems? How might attention to longer time-scales productively shift how we define the “outcomes” or “fruits” of learning? What role does memory play in the ways individuals and collectives draw from past experiences to design present and future activity? Lastly, **prefiguration** refers to forms of social change-making activity that seek to *enact* or *inhabit* the kind of future they are working to bring into being, to express the political ends of their actions through their means (Yates, 2015). To better understand the **prefigurative** qualities of designed sister-spaces, I argue that we need views of present activity that account for historical traces (echoes of principles and practices in other times and places), and views of activity systems past that attune us to the ways they sowed seeds for future action and possibility.

## **Community based place designing: Innovations in design practices for expansive science education**

Ananda Marin, Megan Bang, and Charlene Nolan

The socio-ecological challenges of the 21<sup>st</sup> century will mark an important time in the evolution, adaptation, and reimagining of human communities and our relations with more-than-human life and the natural world - what we call nature-culture relations. Developing forms of education that prepare children to engage in problem solving that also cultivate decolonial social and ecological justice is critical. In our work, we have engaged and

explored the heterogeneity of human-nature relations that structure forms of learning with young people, their families, and communities as the central object of inquiry in the design and implementation of learning. Increasingly scholars are studying the ways in which constructions of relations between humans and the natural world shape cultural practices and impact knowledge, reasoning, and learning about, in, and with the natural world in cultural ecologies (e.g. Bang, 2015; Medin & Bang, 2014; see also: Lee, 2008; Rogoff, 2003). We have focused on the relational construals between natural and human worlds, and have broadly referred to this orientation as relational epistemologies. We suggest that observing and creating human-nature relations (e.g. relations with land, water and more-than-human life) is a routine, though deeply under-explored, part of human learning and activity that impacts what is learned, how learning happens, and why it is consequential.

In this paper we present findings focused on designing early science learning environments for Indigenous children and their families. This study is part of an iterative community based design project which involved community members, researchers, and graduate students to design and implement land-based early science learning programs that facilitate and support Indigenous ways of knowing and western science. Land-based science education refers to science learning that is designed in places with critical historicity, engages Indigenous ways of knowing and responds to the affordances of such places. The program was committed to employing and reinforcing relational epistemologies (Bang & Marin, 2015; Bang & Medin, 2010). A foundational activity in the program was remaking plant and animal relatives, by which we mean youth learned about culturally salient plant and animals as well as the cultural practices, histories and stories about them.

The data for this study included 12 design meetings and 24 implementations in which community members and scholars came together to design early science learning environments which we called “Little Ones.” Each of the design sessions and implementation were audio and video recorded. Field notes were taken as well and facilitator debrief meetings were audio recorded as well. This data was content logged and thematic analyzed across all data sets. Drawing from this broader analysis this paper focuses in on how design practices evolved over the course of the project and how it expanded core understandings of culture, learning, and teaching practices across the practice.

Overall we find that designers developed Indigenous pedagogies of walking, reading, and storying land (Cajete, 2000; Kawagley, 2006) through what we call place designing practices. Walking, reading, and storying land was comprised of at least three dimensions: coordinating attention and observation, generating explanations and finding evidence, and creating a story about the perceptual field. Importantly, these dimensions are all assembled through the layering of discursive, embodied, and ambulatory micro-practices (questions and directives, pointing gestures, shifts in movement) that involve a kind of onto-epistemological navigation where participants weave their way through emergent understandings of local phenomena. In this paper we trace how these pedagogical foci came to be and how design practices took shape as this pedagogical vision solidified. For example, we trace the evolution of design practices that began inside buildings in which the content and practice of learning was talked “about” to a shift in which designers and teachers engaged in place designing in which they were both engaged in the learning activities they were planning with young people and their families as they were planning – what we call witness planning (see Shotter, 2012). Importantly we trace how critical decolonial reflections on meanings of culture, learning, and land led to innovative design practices and ultimately learning and teaching practices. These practices enabled transformative learning and ecological systems in ways that were culturally robust. We draw implications from this work for how place based designing practices made new semiotic landscapes (e.g. Goodwin, 2013) and specifically geo-semiotic (Scollon & Scollon, 2003) landscapes, available to educators in ways that expanded opportunities for learning and could be utilized across other teaching and learning contexts. Further we draw implications about how the innovating design practices may be a critical site of innovation to create more equitable and just learning opportunities.

## **Migrations, persistence, and mutual appropriation: Research/practice on the move**

Nathan C. Phillips, Virginia Killian Lund, Wendy Gonzales, Shawndra Allen-Hegbe, David Bild, Ilana Bruton, Ani Schmidt, Jaelyn Carmichael, and Emma Martell

We report on an ongoing research-practice partnership among university-based researchers and community partners from museums and cultural institutions in Chicago. We draw on ethnographically-documented shared experiences researchers and community partners have had over four years as we have worked to develop and distribute tools for documenting, assessing, and reflecting on “learning on the move” (Taylor, 2017). We continue to design and iterate tools/activities intended to be easily implemented by both novice and experienced educators to guide program participants, educators, and staff in educational settings (e.g., zoos, schools, museums, after-school programs) in identifying their own learning on the move, reflecting on that learning, and

considering implications and intersections of learning taking place everyday across people's lives with learning from/in formalized settings.

Our approach to partnership and collective design and iteration is one of "mutual appropriation" (Downing-Wilson, Lecusay, & Cole, 2011), in which concepts, curricular materials, and activities take root within the communities of our partnership but also within organizations outside of our partnership as we share and distribute them. We view our partnership as both focused on better understanding and reflecting on teaching and learning "on the move" but also recognizing that, simultaneously, the objects, structures, curricula, and concepts created by/in the partnership are also mobile. The movements of initial innovations can be described as "*migrating* and *persisting* over time, but participants *appropriate* these ideas and concepts, reshaping and deploying them in unpredictable ways through personal interpretation and experience" (Downing-Wilson et al., 2011, p. 658; emphasis original). We view this as productive and healthy mutual appropriation, as all participants "are doing their best to achieve the common goals that anchor [our] continued interactions, while staying focused on [our] individual activities, which may or may not mesh perfectly with those of the other participants" (Downing-Wilson et al., 2011, pp. 658-659).

In this paper, we explore intersections of CHAT and DBR in the context of this particular research-practice partnership, highlighting voices from across our partnership. We approach this analysis of distributed means and meaning making through the lens of transliteracies (Stornaiuolo, Smith, & Phillips, 2017) to observe and account for the ways that research-practice partnerships construct meaning and practice that *migrates*, *persistent*, and is *mutually appropriated* at various scales (of time, participation, organizational structure) and along (sometimes) intersecting trajectories with participants and practitioners.

Our findings include the following: With respect to **migration**, conceptual movement is central to the project's goals, but we have found that migratory pathways, destinations, and adaptations are challenging to track especially as generations of sharing spreads. With respect to **persistence**, we have found that some ideas, concepts, and activities do persist across scales of time and space. As some ideas migrate and assimilate to new contexts, other ideas retain their character as they are taken up by new participants in new places for new purposes. In our partnership, we have been purposeful about attending to persistence, consistently (re)calibrating around our emerging understandings of learning on the move. With respect to **mutual appropriation**, we have found that sharing our appropriations openly with each other has led to succeeding cycles of appropriation. We have found that openness around mutual appropriation does not mitigate frustration, disarticulations, and questions around commitments to persistence amidst migration but rather that openness allows us to better understand each other's' positions, commitments, and values with respect to key concepts in ongoing iterations and cycles of conceptual production and meaning making.

## Significance of the contributions

The papers in this symposium offer a coordinated attempt to move the conversation about CHAT/DBR forward in our field. By focusing on the work of junior scholars and their collaborators, the symposium offers a view not only of the state of the field, but of the near horizon of work that engages these methodologies and concepts. The five threads identified, running across the papers, offer a framework for engaging with the affordances, possibilities and challenges of CHAT/DBR. The great diversity of the learning contexts, designs for collaborative work, and critical questions across the papers offers a promising opportunity to explore the boundaries of where CHAT/DBR might take us as a field.

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