

Peer Review Article

# Studies in Radical Biocracy:

## Flows from Relational Being to Relational, Autonomous Decision-making

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### Abstract

Work to improve the health of a system should look at decision-making because decisions propagate throughout a system, shaping system dynamics. This is especially true for decisions by those with more power, resources, and relationships in a system. Usually, human collective or group decision-making is conducted from an individualist, objectivist perspective. What happens when we allow the system to sense itself and make group decisions instead of deliberating, negotiating, and voting between individualist positions? What happens when we use an approach based on the radical relationality of Radical Participatory Design and Relational Design? Is it possible to experience a type of relational political ecology in group decision-making? The term political ecology carries multiple meanings. Here, we use the term political ecology to denote the power dynamics within any ecological system—a geographical population, a community, an ecosystem, etc. We describe three special ingredients or nutrients for a relational political ecology—relationality, emergence-conducive principles, and relational autonomy. On a team of people working for system health, these three ecological nutrients support a relational way of being which then transforms the team's way of knowing, decision-making, and thus, political ecology. The fourth-

person being that emerges from these three ecological nutrients leads to a fourth-person knowing in which individuals do not deliberate and vote on various decisions. Instead, the system senses itself and the social field makes the decisions resulting in emergent and symbiotic design. Emergent design refers to design that emerges from consistently following a few basic principles. Symbiotic design occurs over time when deeply, relationally embedded entities or groups retain autonomy and indirectly or directly co-evolve, creating a design that would not have occurred through an individualist, consciously explicit design process. Using two situations from social and service design, we describe three examples of relational, autonomous decision-making or political ecologies. The three examples illustrate participatory futures, service, and systems work that lead to emergent and symbiotic designs.

## Keywords

decision-making, biocracy, emergence, symbiotic design, emergent design, relational autonomy

## Introduction

I inhabit multiple spaces of privilege and lack of privilege. I am a Black, disabled Nigerian in the United States from an immigrant family. I am also a cisgender, male, heterosexual, Christian U.S. American. I am from the African Indigenous people group Ibibio from the southeast of Nigeria in the Delta region. My people group is known as the first people to enter into present-day Nigeria. Our names are often phrases, sentences, or stories. In Ibibio, my name *Anietie* is a shortened version of the question “Who is like God?” When I work from an Indigenous perspective, I tend to work from an African indigenous lens which is different from indigeneity in North America, Europe, or Australia. Both pluriversal and colonial ways of being are inside of me. In all my work, I try to work towards the relational parts of me and the worlds I inhabit, in a way that peacefully co-exists with other worlds and systems. Sometimes, peace means calming, healing, and restoring harmful systems.

One of the key ways to calm, heal, and restore systems is through decisions. Decisions can seem small and unimportant; however, decisions are crucial parts of system interactions. One common myth in certain systems mythology is that the system purpose arises as an emergent phenomenon without anything in the system ever intending for that purpose to be (Meadows, 2008). In socio-human systems our experience has been different. Because power is distributed unevenly in systems, there are entities, often people, who wield great power in a system, power over all other life in a system. Often these people intend for the system to function the way it functions: because of their power, they can align the system purpose to their purpose. It is this contestation of visions of system functioning that creates the need for system healing work. If all life, including humans, were aligned in goals for system functioning or hopes for system purpose, there would be no need for system healing work. If we were all aligned,

what we visibly see, the system outcomes, system patterns, our behavior, actions, and thoughts would arise from our shared common interior values—common hopes, goals, dreams, metaphors, mythologies, stories, worldviews (Inayatullah, 1998).

Awareness-based systems change methodologies work at the deeper level, yet, one weakness is that many of these methodologies are working with people who already share a common hope or dream (Udoewa, 2022b). We need more awareness-based system change methodologies specifically for groups that still exhibit this contestation of goals, hopes, and dreams. How do such groups make decisions? How do the power dynamics between individuals affect such group decision making? To what extent are group decision making processes governed by power dynamics?

Given the profound effect and impact of human and group decisions on themselves, others, and the environment of which humans are a part, the politics of decision-making in systems remain an underemphasized part of systems change work. Many communities have lived out various decision-making practices since living communities have existed (Blunden, 2016; Deneubourg & Goss, 1989; Nitzan & Paroush, 1985; Udoewa, 2024). This paper builds on the exploration of various community decision-making practices and a radically biocratic (relationally autonomous decision-making modeled after certain biological systems) political ecology found in the fourth paper in my *Radical Participatory Design* series (Udoewa, 2024).

Political ecology is a term that others have used to convey the intersection of the environment and ecology with politics, society, and economics (Robbins, 2019; Watts, 2017). The term also highlights the socio-political and economic dimensions of environmental and ecological issues (Forsyth, 2003). I use the term to speak about the way that different conditions, components, or ingredients, similar to water or soil, can be protected and nourished in the terrain of decision-making and how certain ingredients can create the conditions for decision-making to emerge, similar to life and the relationships between lives in an ecological landscape.

Relationality is not always beneficial or helpful. I seek relationality that is mutually beneficial in a political ecology. Often socio-human political ecologies are filled with contested positions in which people with different opinions or desires must compete, deliberate, negotiate, or vote to determine whose individual will, desire, or volition will decide the path forward. This is a type of competitive political ecology where nutrients are distributed unevenly or one plant may choke another, preventing it from receiving nutrients or growing.

Instead, mutually beneficial relationality creates decisions that are not made from individualist positions but from the emergent wisdom of the social field of a community or group or team. I do not imply only awareness-based decision-making. I am ultimately describing a relational way of being of a community or group or team. A relational way of knowing, or the emergent fourth-person knowing (the knowing of the social field) that creates a particular way of

decision-making, is simply a result of a group of people embodying a mutually beneficial, relational way of being (Scharmer & Pomeroy, 2024).

What politically ecological ingredients can interact to create such a different, relational way of being that results in relational decision-making and avoids negotiating individual perspectives? Through systems practice, community work, and reflection, we have uncovered three important ingredients—relationality, autonomy, and emergence. With these three ingredients, different kinds of designs and design decisions emerge without groups ever making explicit group decisions. This type of decision-making is an example of the system sensing itself to make the best decision, or an example of fourth-person knowing that comes out of fourth-person being. I call this relational autonomous approach to decision-making a Radical Biocracy (Udoewa, 2024).

In this paper, “I” refers to the author. “We” either refers to the combination of the readers and the author, or “we” refers to systems practice or design teams that have used a radical biocratic approach to decision-making. This paper briefly recapitulates Radical Participatory Design (RPD) because this paper is the fifth in a series of RPD papers in which the first two papers introduce RPD (Udoewa, 2022a, 2022b), the third explores a subset called Relational Design (RD) (Udoewa & Gress, 2023), and the fourth introduces Radical Biocracy (Udoewa, 2024) upon which this paper builds. This fifth paper briefly summarizes the analysis of different decision-making models using an RPD framework. Then we explore three key ingredients of a relational, autonomous approach uncovered through lived experience and reflection—relationality, autonomy, and emergence. We discuss each ingredient and what it means. Then, we share a being-based decision-making approach called Radical Biocracy, that emerges from relationality, relational autonomy, and emergent principles, producing emergent and symbiotic design. Lastly, we look at two example projects. One autonomous design project, designing a socially equitable and racially just Parent-Teacher Association at a school in Washington, DC, embodies emergent biocratic decision-making through relational autonomy. The second project is a NASA service design project to redesign a service that offers technical and financial assistance to small businesses and research institutions. The NASA project is still working towards biocracy as the research and design teams try to embody relational autonomy in a larger organization that has low relationality and low autonomy.

## Radical Participatory Design

Radical Participatory Design (RPD) is not research and testing participation, a method, a way of doing a method, or a methodology similar to other Participatory Designs (PDs). RPD is an approach, an orientation, a meta-methodology (Udoewa, 2022a, 2022b). RPD can be used with any methodology. The word radical does not mean extreme. Radical comes from the Latin word “radix” which means root. Radical Participatory Design, then, is a PD whose participation is to the root, all the way down, from beginning to end, A to Z. Nothing happens apart

from the community members for whom the designers are designing because the community members are full members of the research, design, and implementation teams.

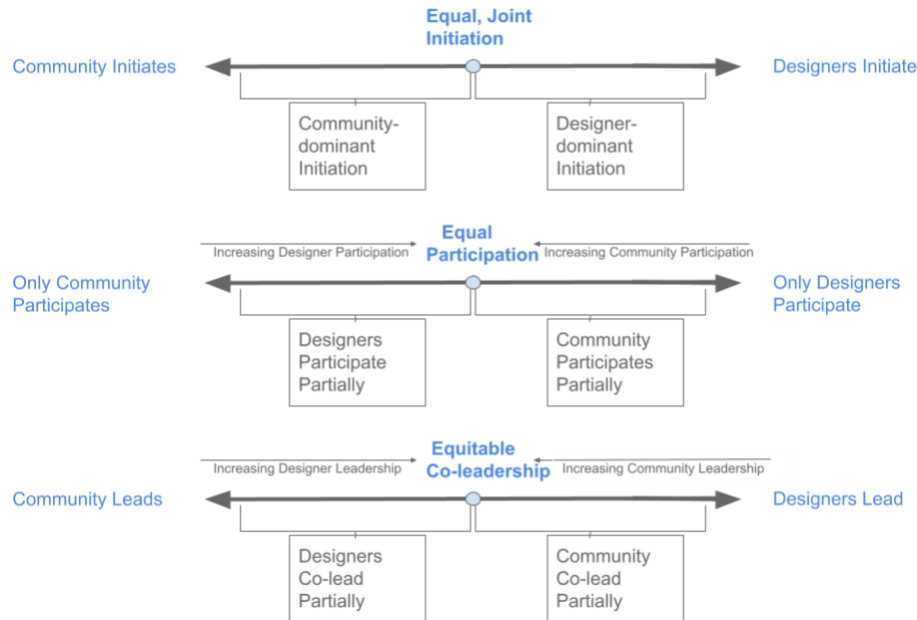
Participatory Design uses various models for the role of a designer such as designer-as-facilitator, designer-as-translator, designer-as-interpreter, designer-as-mediator, designer-as-agonizer, or something similar (Sciannamè, 2022; Zingale, 2016; DiSalvo, 2015; Wetter-Edman, 2014). In all of these models, the professional, researcher, or designer is facilitating. Though these PD models focus on empowering community members, facilitation is power, and they reinforce the hierarchy they seek to subvert (Udoewa, 2022a).

Unlike PD where the focus is on empowerment of community members, RPD focuses on professionals, researchers, and designers letting go and giving up power, including facilitation. The community will assume power and can empower themselves. This changes the role of the designer and the community member in multiple ways. First, RPD uses the model of designer-as-community-member. This means that the professionals, researchers, and designers sit equal to and alongside all of the other community members, and that the skills of facilitation, design, and research of the designer or researcher sit equal to and alongside all of the other giftings, talents, and resources of the other community members. Instead of the professional, researcher, or designer pushing their skills to the group, a pull model is used when the community calls on the specific skills of a specific person. Second, RPD uses the model of community-member-as-researcher and community-member-as-designer. This may seem obvious, but there are PD and Participatory Research (PR) toolkits and guides that do not require the community members to do any research, design, or implementation. Third, RPD uses the model of community-member-as-facilitator. If you change who facilitates, you change the outcomes.

RPD has three main characteristics. First, community members are always participating and leading. There are no phone calls, briefings, planning, or evaluation apart from them because they are full-fledged members of the team. Second, community members usually outnumber the professionals, researchers, or designers. Third, community members own the artifacts, outcomes, and data as well as the narratives around the data, artifacts, and outcomes.

RPD uses a participation framework in which three questions are asked: who initiates, who participates, and who leads (Figure 1)? Community design, community-driven design, Colonial Participatory Design (CPD), and RPD can be mapped along the three spectra or questions (Udoewa, 2022a). In the previous paper, I analyzed various types of decision-making models using the RPD participation framework (Udoewa, 2024). In Authoritarian models, no matter if it involves individual consultation, group consultation, or delegation, regardless who initiates, the authority or authoritarian is leading (Udoewa, 2024). Depending on how much consultation or delegation happens, participation can widen to include more people, but the authority, often a team lead, professional, facilitator, or executive, leads and makes the decision. Delegation seems to be

different as the authority delegates the decision to someone else, but the authority retains the right to overturn it, and ultimately scopes what and how much is delegated.



*Figure 1. Three axes of participation: initiation, participation, and leadership.*

Voting is similar whether voting on numerical or categorical options. Regardless of who initiates, everyone participates. Depending on the voting decision rules, the majority, supermajority, or plurality may be the one that leads the decision-making especially when collusion, cheating, conspiring, or suppression occurs (Udoewa, 2024). In certain cases when using representative forms of democracy for decision-making, minoritarian rule can occur when a minority decides; though in this case, the minority are a power majority in that the majority of the power lies with them due to disproportionate representation.

Consent-based and consensus-related models can suffer from similar political ecologies. The consensus achieved through Delphi methods, techniques that create consensus through synthesis and sharing of iterative rounds of expert panel responses or surveys, is initiated by a funder or facilitator. Only experts participate, and the facilitator leads by conducting synthesis alone and interpretively deciding (Udoewa, 2024). In sociocracies, consent-based decision-making models, and consensus, anyone may initiate a decision and everyone participates. However, in a consensus, minorities, even of one person, have a high amount of power to stop a decision by refusing to go along with a choice. Minorities have less power to do so in sociocracies and consent-based decision-making because the threshold for an objection is set high. In those consent-based

decision-making situations, the person who first suggests an idea to go through the consent-process has more power because people are not voting between options, they are deciding whether to consent to the first presented option.

In all these decision-making models, there is individualist contestation in the political ecology where some choices, needs, or opinions do not survive. Consent-based and consensus-based models include at least some movement in the direction of holism and consideration of the group in that they attempt to find an option that everyone is willing to choose (consensus) or to which no one is actively opposed (consent).

In RPD, teams first decide how to decide. They choose a decision-making process whose outcomes all team members agree to follow if the process is used. For full agreement, they use unanimity, consent-based decision-making, or consensus to decide how to decide. However, all of these various decision-making models still carry a deeply embedded individualism, fundamentally conceiving of group decision-making as a balancing act, selection, or power play between different individualist positions (Poznic et al., 2020; Rahman et al., 2020; Sharma et al., 2021; Singh et al., 2022; Tan et al., 2017; Vermillion et al., 2017). What might a decision-making process fully based in the radical relationality of RPD look like?

As a subset of RPD, Relational Design (RD) uses a design-as-relationship-building model and provides an example of how to apply relationality to a new space (Udoewa & Gress, 2023). When I say RD, I do not mean designing in relationship, where design is done with people with whom you have an existing relationship and builds on that relationship. RD is not designing with relationship, where people build new relationships and relate to one another while designing. RD is not designing for relationship, where the goal or objective of the design process is to affect, create, or improve relationships. RD may involve all of those types. RD specifically means design-as-relationship-building (Udoewa & Gress, 2023). RD is a meta-methodology that uses relationship-building methodologies as design, itself, through which design emerges. It applies the same relationality of RPD to the actual methods and methodology used by the design team so that community members do not use extractive, transactional methods against their own people. How, then, can we further extend this relationality to the political ecology of decision-making among a group? Through practice, embodied wisdom, and lived experience, we have induced three key ingredients for a relational political ecology of decision-making.

## Ecological Ingredients of a Relational Approach to Decision-Making

### Relationality

A relational approach to the political ecology of decision-making can imply different kinds of relationality contrasted with individualism. Let us explore four levels of relationality.

One level of relationality is oppositional dualism. Oppositional dualism takes a structuralist view of the world and describes two separate, individual opposites—mind/body, nature/culture, emotion/reason, man/woman, etc. Each of the two opposing entities are distinct and independent of each other. They may relate in various ways like the mind telling the body what to do or the body influencing the mind to act out of passion.

Another level is complementary dualism in which two entities reciprocally interact to bring about a type of homeostasis or balance. This can be seen in the Chinese philosophical concepts of yin and yang in Taoism and Confucianism and the Yanantin in indigenous Andean cosmology (Girardot, 1988; Webb, 2012). Instead of opposition, there is a harmony between the two entities resulting in an outcome—balance—that cannot be achieved by either one alone. Again, each of the two opposing entities are still distinct and independent of each other, independently pre-existing and outside of the dualistic relationship, though their sum is greater than their parts.

Systems and network theories highlight another level—interconnectedness (García, 2017; Goodchild, 2021). There are many, not just two, interconnected entities. They are independent and interdependent, influencing one another, and creating system level behavior and purpose. Every entity is connected and affects every other entity. Still, all entities in this web of interconnectedness exist independently before or outside of the system relationships in which they participate.

A fourth level is radical relationality in which nothing exists outside of the relationships that constitute it (Escobar, 2018; Escobar et al., 2024;). For example, a flower can be thought of as a separate entity that exists independently from its surroundings. Through a radically relational lens, we realize that the flower cannot exist apart from the soil that supports its substrate and roots, the water that strengthens its form and nutritional delivery, and the sunlight that fuels its survival and journey upward. In other words, without the soil, sunlight, nutrients, and water and their interactions and relationships, the flower does not exist. The flower can truly be considered its relationships, an emergent property of those relationships. In relational, autonomous group decision-making, it is this level of relationality and emergence we seek.

## Emergence

Justice worker adrienne maree brown describes emergence as “the way complex systems and patterns arise out of a multiplicity of relatively simple interactions” (brown, 2017, p. 17). There are many examples in which individual animals follow simple micro behavioral rules in certain situations. Schooling fish are an example. Another is murmuring starlings who follow three rules:

1. Move in the same direction as your nearest six/seven neighbors.
2. Stay comfortably close to your nearest six/seven neighbors.
3. Avoid collisions at all costs.

The three rules have a purpose in helping the starlings move together with agility as one unit, quickly avoiding threats and responding to opportunities. In following those three basic rules, starlings create some of the most beautiful multi-dimensional shapes, flows, and movements, interpreted by humans to appear like shapeshifting, recognizable objects—a shoe, a tiger, a giraffe, a gavel, etc.

It is the set of micro behavioral rules, or emergence-conducive principles, or emergent strategy principles, that are another ingredient to a relational political ecology and approach to decision-making. For human political ecologies, the principles should not be randomly selected. In the starling example, the three rules all have the joint purpose of cohesion (rules 1–2), agility (rules 1–2), and ultimately safety (rules 1–3). Though a group of humans may choose any set of behavioral principles to follow, RPD and RD groups usually use principles aligned to the purpose of justice, as RPD and RD serve as a means to design, research, and data justice. For this reason, RPD and RD teams usually use brown’s (2017, 2021) six elements of emergent strategy. She associates five of them with emblems or symbols.

1. Ferns (dandelions, broccoli, etc.)—Fractal awareness: *Be the change you want to see*. Small scale work impacts the whole system. Start small with ourselves to build change at all levels and scales. Any outer change we want to see in the world, we first embody at the small scale. The large is just a reflection of the small.
2. Starlings (schooling fish, water, etc.)—Intentional adaptation and collective leadership: *Always be responding to your environment and the movements of others in your group*. Without a single leader dictating or orchestrating choices, respond to your environment and those around you. A single member can transform the movement of the whole group.
3. Mycelium (ants, trees, etc.)—Interdependence and decentralization: *Rely on each other by delegating and distributing power and functions*. Like oak trees that bind their

roots below ground or birch, ash, and mangrove trees that arise from one root below, practice collective sustainability. Like ants, we rely on each other in order to do our own work (cooperative work).

4. (Spirals, fiddleheads, compost, etc.)—Nonlinearity and iteration: *Always be learning*. Growth is always nonlinear and passes through learning pains. Everything, every (mis)step is part of the process. Find the lesson. Always ask how we learn from this.
5. Dandelions (starfish, mushrooms, etc.)—Resilience and transformative justice: *Create time to recover, restore, rebuild, and heal. Transformation will follow*. A caterpillar does not immediately become a butterfly but spends time in the cocoon in a process of metamorphosis. If the cocoon process is destroyed, the transformation never occurs. With resilient medicinal properties, dandelions transform in time from a flower head to a seed head, each seed using its parachute mechanism to spread far and wide, growing and establishing strong taproots in new locations that are hard to uproot. Move at the speed of trust. Move at the pace of community. Focus on resilience, relationship, and critical connections over critical mass.
6. Wavicle—Create more possibilities. *Always create more possibilities embracing diversity in the work and ways of being*. When faced with a binary choice, create more options, a third, fourth, fifth, etc. Always be experimenting. Embrace a diverse movement with diverse ways of doing, knowing, and being. The wavicle represents the dual nature of matter as both wave and particle. Uncertainty and mystery will always be with us. Value both natures of our work—the process and the outcome.

## Autonomy

The third emergent strategy principle, interdependence and decentralization, is related to the third ecological ingredient for relational decision-making—autonomy. From an individualist perspective, autonomy is the right or condition of self-governance, self-determination, and self-authorization (Mackenzie, 2014). In workshops, when asked to map their group or organization on a spectrum between high relationality and high autonomy, leaders will attempt to mark the location characterizing their group. However, it is a false choice because relationality and autonomy can coexist within a group. A group can demonstrate low, medium, or high autonomy within itself, while expressing any level of relationality (low, medium, or high), creating a simplistic 2D, 9-cell matrix.

The individualist understanding of autonomy fails to account for decision-making as an ongoing process; non-Western understandings of the self as interconnected and a part of community and nature; non-Western understandings of identity that are group-based; a bigger, non-ableist vision of personal identity for those who may invite communal help especially when incapacitated; collectivist decision-making; and decision-making in consideration of others, that is affected by others and affects others (Gómez-Vírseda et al., 2019). We strongly define relational autonomy as collaborative self-determination that fundamentally emerges from constitutive relationships, or fundamentally exists in relation to others, balancing interdependent entities in community, or with overlapping projects (Donchin, 2000). The third emergent strategy principle hints at relational autonomy because it does not seek decentralization and independence (individualist autonomy), but interdependence.

## Pluriversal Design

When the three ecological ingredients of relationality, emergence-conducive principles, and autonomy are mixed together, they can produce different kinds of design. Design in these situations may be unrecognizable to design in certain Western, academic contexts.

Indigenous scholar, Shawn Wilson, writes that:

Indigenous epistemology is all about ideas [like design] forming through the formation of relationships. [Design] cannot be taken out of its relational context and still maintain its shape . . . it is not possible to know exactly both the context and definition of [design] at the same time. The closer you get to defining [design] the more it loses its context. Conversely, the more [design] is put into context, the more it loses its specific definition. (2020, p. 8)

Wilson is writing about any idea or concept; here we apply it to design. The Indigenous Uncertainty Principle is a perfect statement of pluriversality. There is no single definition of design. There are many designs (Udoewa, 2022a). If we define design, we do not know the context. If we define the context, we lose the universalist definition of design.

In other words, given any single definition of design, I can point to a context or world where that definition falls away. For instance, according to designer Victor Papanek, design is the conscious attempt to impose order (2005). However ontological design's first principle states that we design the world and the world designs us back (Willis, 2006). In other words, everything we design around us, designs us. Even though architects consciously think about how buildings design us, so that one could say it is really the architect acting through the building, there are many fields of design that do not think about or plan for designed objects designing us. Our phones and chairs do not consciously impose meaningful order, and yet they design. Or let us use designer Lella Vignelli's

definition of design as its own discipline that creates solutions and simplifies lives (Vignelli, 2010). In contrast, there are many worlds in which design is not problem-solving at all. For Māori designer Huhana Smith, design is a reciprocal relationship with the environment and ecosystems (2020; Allan & Smith, 2013). For certain Indigenous communities in Latin America who practice *buen vivir*, design is living in harmony with the land, ecosystem, and community (Escobar, 2017, 2018; Lang, 2022).

## Emergent Design

With a pluriversal lens, we can experience different kinds of design that result from the ecological ingredients of relationality, emergence-conducive principles, and autonomy. Let us start with emergence. As mentioned earlier, following a minimal set of behavioral rules can lead to the emergence of design which allows us to create a definition for emergent design within the political ecology of decision-making on a team. Emergent design is a type of unplanned design that emerges when all individuals in a group consistently follow the same minimal behavioral rules. This type of emergent design is in contrast to the various individualist or network-based group decision-making models such as authoritarian, voting, consent-based decision-making, or even consensus. In emergent design, there is no group voting or deliberating between different individual positions. Due to shared behavioral principles, design emerges from the group's way of being and the resulting way of knowing—the fourth-person knowing, the knowing of the social field (Scharmer & Pomeroy, 2024). This is an example of one of the five shifts of emerging presencing approaches, from a focus on ways of knowing to a focus on ways of being (Gunnlaugson, 2023). For certain groups, especially Indigenous and hyperlocal groups, this shift is not emerging, nor new, but quite ancient (Goodchild, 2021). The decision-less decision-making that emerges is not from focusing on a new way of knowing, it simply comes out of a relational way of being that includes relationality and group principles of behavior toward a purpose.

Ecology and biology can provide inspiration for what decision-less decision-making and leaderless leadership could be. Let us look at the example of the human body's response to a bone fracture and how it exemplifies emergent design (Bartold & Ivanovski, 2024; OpenStaxCollege, 2013). In the inflammatory phase, the blood vessels broken by and across the fracture continue doing what they do: they pass blood which fills the cavity. The blood platelets in the blood immediately join together forming a clot eventually creating a fracture hematoma, achieving hemostasis. The disruption of blood flow to the bone causes the bone cells around the fracture to die. The platelets also release pro-inflammatory cytokines, chemicals to attract bone healing, neovascularizing, and fibroblast-recruiting cells to aid healing. Due to released chemicals, other pro-inflammatory mediators arrive that form granulation tissue (Bartold & Ivanovski, 2024; OpenStaxCollege, 2013).

In the soft callus formation phase, chondrocyte cells from the endosteum, the membrane lining the internal surface of the bone, secrete a fibrocartilaginous, protein-rich matrix between the two ends of the bone while osteoblast cells and chondrocytes in the periosteum, the membrane of vessels and nerves wrapped around bones, create an external callus of cartilage and bone around the outside of the break. This stabilizes the fracture for further ossification and remodeling. The platelets continue releasing growth factor chemicals that, for example, induce stem cell migration and multiplication.

In the hard callus formation phase, osteoclast cells break down and resorb dead bone cells. The proliferating stem cells differentiate into osteoblasts which, as stated before, continue forming new bone, this time harder, spongy bone at the site of the break.

In the final remodeling phase, an iterative process of osteoclast bone resorption and osteoblast-driven bone deposition occurs, each doing their specific job. After attaching to the bone surface with a special membrane structure and releasing a protein to aid in resorption, the osteoclasts experience cell death. The bone demineralization and degradation releases chemicals that stimulate bone formation creating the iterative loop. Through this process, the internal and external callus unite, and the spongy bone is replaced with harder, compact bone at the fracture site.

This is one of countless examples of emergent design within our plant and animal biologies. This healing process occurs without competing individualist concerns, voting, or debating between different cells.

There are four important components that we see in the political ecology of cells in the body around a fracture. First, there is differentiation of roles. Each cell has a certain purpose. Even pluripotent stem cells transform their potentiality into a specific purpose at a point in time. Second, there is strong relationality. The cells relate to one another, communicate with one another, send chemicals which are picked up and interpreted by others, continue work where others stopped working, etc. Third, there is high autonomy. No cell is forced to do anything; each cell simply does its own task, always doing its job, never conferring or deliberating what it should do. Fourth, there is emergence through adhering to simple principles. Each of the six high-level biomimicry design principles out of the 26 principles is followed (Baumeister et al., 2014). For example, they follow the rule “be resource efficient” with neutrophils, macrophages, and osteoclasts removing and resorbing dead cells and debris or even osteoclasts undergoing cell death themselves when no longer needed. They follow “be locally attuned and responsive” with pro-inflammatory mediators and other cells responding to the cytokines and other chemicals released by platelets. They follow “adapt to changing conditions” where osteoclasts and osteoblasts adapt to the amount of chemicals released by processes induced by the other. In following simple rules, still in their full autonomy, the autonomy of the entire body—the social field of the cells and tissue—emerges as if designed by group decision (Pomeroy & Herrmann, 2023).

It is important to note that this is different from other uses of the term emergent design. Emergent design has been used to indicate design created when researchers or designers use a flexible approach, intentionally adapting or responding to new or unanticipated learnings, concepts, and ideas (Cavallo, 2000; Hammersley, 2022; Pailthorpe, 2017; Thompson & MacDonald, 2005;). The emergent design described in the bone fracture is different. It is also different from the type of emergent design used in architecture and urban planning (Almazán et al., 2022; Brown, 2006; Brown et al., 2024; Dark Matter Labs, 2023; Porqueddu, 2022). In urban, regional, and architectural planning, emergent design is the result of individual designers consciously designing minimalistic, inciting, contagious, or activating interventions or designs that catalyze systemic forces for ongoing design that proliferates without further intervention, sometimes in predicted, sometimes in unpredicted ways. In this way, like a conductor of an improvisational orchestra, designers are facilitating emergence (Brown et al., 2024). In the emergent design I describe here, there are no designers intentionally activating emergence or introducing designs to specifically cause, direct, or facilitate emergence.

## Symbiotic Design

There is another type of design that occurs when relationality and autonomy interact over periods of time. Symbiosis is the interaction between two organisms living in close physical proximity to each other, to the benefit of at least one. Though symbiosis may connote mutual benefit, there are many kinds of symbiosis including parasitism where one species is harmed, or commensalism where one species is neither harmed or helped.

When multiple organisms living in close physical proximity relationally co-evolve in mutually beneficial ways, design can occur that would not have resulted from a planned design process. Indigenous scholar Yunkaporta calls this symbiotic design (Yunkaporta, 2019). Let us examine the symbiotic relationship of humans and the Greater honeyguide bird.

The honeyguides eat eggs, beeswax, and larvae from bee nests, but have great difficulty accessing those sources due to the bees. The wild honeydew has evolved over time to have a demanding call that leads other animals to the bee nests to do the hard work. For example, when the Hazda people group of Tanzania hear the demanding call of the honeyguide it indicates that the honeyguide has found a bee nest. Over generations, the Hazda have learned to respond to the honeyguide call with a response call, and they begin to follow the honeyguide. When the honey-searching Hazda follow the honeyguide and reach the nest, they remove or capture the bees with smoke and eat the honey. Certain scientists have estimated that 8–10% of the Hazda diet is acquired with honeyguide help (Wood et al., 2014).

There are many more examples of mutually beneficial symbiotic, even tribiotic relationships we can examine. Similar to this example, they highlight three important components. First, just as in emergent design, there is strong

relationality. The humans and the honeydew live in close proximity and respond to each other, even communicate with each other, and eventually help each other. Second, there is high autonomy. No one is forced to do anything. Each animal makes their own decisions and continues pursuing its own goals without sacrificing those goals. Third, and lastly, there is time. Symbiotic relationships are relationships that have evolved over time, so time is required to reach a state where each species has responded and continues responding both to the other species and the full environment, in ways that bond them to each other beneficially. In other words, without individualist planning or decision-making, relational autonomy between organisms in close proximity, over time, leads to symbiotic design.

Different from emergent design, symbiotic design does not require a set of emergence-conducive principles everyone follows. It just requires relationality, autonomy, and time. For now, we will not discuss the emergent design precondition of the differentiation of roles and the symbiotic design precondition of time. Most organizations and teams have a differentiation of roles. Role differentiation is not the main hindrance to a more relational political ecology on a team or in an organization. And the precondition of time for symbiotic design is simple. Though we cannot define the amount of time needed, we can say at least enough time is needed for evolution of relationships or entities, or both.

## Radical Biocracy

The term biocracy is used in multiple ways: the exploitation of life by the political economy or workplace, the power and influence of life sciences on society and politics, and political models that include non-human nature as constituents with rights (Caldwell, 2016, 2019; Fleming, 2012; Muray, 2017). In 1933, Walter Cannon introduced the term biocracy as the most efficient and stable human society in which all the various cells are organized into functional tissue and organs producing a vibrant, dynamic, and cooperative democracy in which dictatorships lead to decline and collapse, a type of death (Cannon, 1933).

Using the emergent strategy principle of fractal awareness, we apply biocracy at the mesoscale level to organizations and specifically teams. Because organizations are complex, adaptive, living systems similar to human bodies, public health researcher Bloom (2020, 2023) applies characteristics of healthy human bodies to healthy, biocratic organizations, which I then apply to teams.

1. *Healthy teams have a vision and purpose.* Like the body, systems manifest a purpose. It is better to explicitly build a shared vision and purpose rather than let unconscious dynamics determine them. Also, emergent strategy principles a team uses should have a common purpose.
2. *Healthy teams maintain homeostasis.* The body maintains homeostasis in order to survive. Teams must be able to restore balance when faced

with disruptions and challenges that cause stress and destroy cohesion and purpose.

3. *A healthy start is helpful.* Like plants, ecosystems, and animals, teams who have healthy starts to their life/team experience are more likely to adapt and be resilient to challenges in maturity or adulthood.
4. *Healthy teams have continual checkups.* There are sub-functions that are constantly checking on the body's health and responding immediately. Problems found earlier are easier to address for teams.
5. *Healthy teams create safety cultures.* One purpose of the human body is to preserve life and maintain safety. The body distributes safety work and reduces risk or harm through preparation, learning, and healing. Teams cannot have full participation without safety.
6. *Healthy teams distribute power through radical participation.* The body is a deeply relational, participatory system with each cell doing its relationally autonomous part.
7. *Healthy teams are learning teams.* Like memory cells, the body learns, the brain is always rewiring. It is difficult to create a safety culture or make checkups useful without learning. Learning is an important part of evolving which is conducive for symbiotic design.
8. *Healthy teams have healthy digestion.* The body uses food for energy and cell repair while eliminating waste. Healthy teams continually let go of wastes for proper growth.
9. *Healthy teams have healthy circulation.* Healthy teams, like the body, exhibit deep relationality. They are full of constant communication and feedback loops in order to function, grow, and learn.
10. *Healthy teams have a healthy immune system.* Like the body, we cannot predict when harmful agents, processes, or forces will enter team communities. Healthy teams have processes, roles, and subsystems that automatically neutralize harmful forces.
11. *Healthy teams recover after injury.* Healing processes and work must be a function of a team or organization; otherwise, injuries will worsen and destroy it.
12. *Healthy teams have a collective autonomous brain.* This is the emergent design and symbiotic design that arises not from individual sentience but from collective, leaderless leadership like the starlings in emergence theory.

Cannon (1933, 1954) and Bloom (2020, 2023) envision biocracy as a means to democracy, or as a societal, organizational model that includes actual people in decision-making leadership roles. We go further, to envision a Radical Biocracy which also affects decision-making itself using a leaderless leadership model similar to the “involuntary” autonomous systems of the human body. In this model of Radical Biocracy, assuming there is differentiation of roles, decision-making is an emergent or symbiotic process that emanates from three ecological

ingredients—relationality, emergent strategy principles, and relational autonomy. Emergent design depends on all three while symbiotic design only requires relationality and relational autonomy, along with time.

As long as all members of a group of people are deeply engaged in relational practices, fully autonomous, and practicing the same set of behavioral principles aligned to a purpose, design decisions can emerge without the group using any traditional, individualist decision-making process. Similarly, as long as all members of a group are deeply engaged in relational practices and fully autonomous, with enough time, designs can evolve due to mutually beneficial relationships that slowly form. These symbiotic designs also occur without any negotiation, deliberation, voting, or any other individualist decision-making. When these types of leaderless leadership and collective knowing become the default way collective decisions are (not) made, a Radical Bocracy or radically biocratic system has been formed.

## **Designing an Equitable, Racially Just Parent-Teacher Association**

I work on a project to design an equitable, racially just Parent-Teacher Association/Organization (PTA/PTO) at one location of a two-campus, bilingual, public charter school in Washington, DC. The school has three foundational pillars—biliteracy, sustainability, and expeditionary learning. There is an established history of socioeconomically and racially unjust dynamics in PTAs across the U.S. where voices and expressed needs of certain caregivers are prioritized over those of others (Anderson & Huron, 2023; Joffe-Walt, 2020; Levy, 2018; Nisbet, 2021; Posey-Maddox et al., 2016; Schaller & Nisbet, 2020; Syeed, 2018). Our goal is to create an equitable PTA across linguistic, socioeconomic, and racial lines. The social design project is also service design because the PTA provides services to teachers, students, administration, and the school community. In this example, the design team refers to the caregivers who are actively involved in shaping and forming the PTA. All caregivers are automatically members of the PTA, but only a subset are actively involved in tactically shaping its direction and doing PTA work.

### ***Relationality***

We began with an RD orientation. In small groups of 10-12 caregivers and staff, we began practicing sustained dialogue to deepen our relationality, the first ingredient (Udoewa & Gress, 2023).

### ***Emergent Strategy Principles***

Some of us were reading the book *Emergent Strategy* and shared it with the rest of the team. We adopted the emergent strategy elements as our principles for emergence, the second ingredient. These principles served as guides because our goal for this project was equity and justice—we want to create a racially just,

socially equitable PTA. The emergent strategy elements from the book work well because they come from social justice work.

### ***Autonomy and Self-Organization***

Lastly, we desire to see a world where various groups have relational autonomy. Following the emergent strategy principle “be the change you want to see,” we wanted to exemplify the relational autonomy we seek in the world, at the small scale within our group. Therefore, we embody relational autonomy, the third ingredient.

The design team also practices autonomous design. Autonomous design is design as part of a communal struggle for autonomy or to strengthen autonomy in pursuit of group projects or life plans (Escobar, 2017). One way to understand relational autonomy is the autonomy groups pursue and express in the context of and in negotiation with multiple actors and groups in local, national, and global situations (Ulloa, 2011). We are struggling for autonomy in pursuit of our life plan for an equitable and racially just school community, starting with the PTA designing itself. We do this work in relationship and negotiation with multiple actors and groups—students, teachers, other school staff, administration, the DC Public Charter School Board, the DC State Board of Education, equity design consultants, school community residents, etc.

### ***Preparing for Individualist Decision-Making***

The first two design choices we wanted to make to realize an equitable PTA were the design of the organizational structure and the fundraising model, components of PTAs in the United States that traditionally disenfranchise Black, Brown, poor, and non-English-native caregivers and students (Syed, 2018). Before designing the organizational structure or fundraising model, we wanted to decide how to decide. In RPD projects, we first decide how to decide before making design decisions. Usually this is done through consensus or unanimity so that all design team members consent to decisions even if the outcome was not each person’s choice because each person supported the way of making that decision. Our team used consensus to choose the ranked-choice method of decision-making. Strangely, in the past five years of this experiment, we have never used this decision-making process, and yet we now have an organizational structure and fundraising model! The design of the fundraising model and organizational structure emerged from our relational autonomous approach to decision-making: emergent and symbiotic design.

### ***Emergent, Symbiotic Organizational Design***

Instead of a traditional design methodology of conducting research, analyzing needs, brainstorming structures that would address our equity needs or visions,

and holding a decision-making process on the structural options, people autonomously just worked on what they wanted to do in the PTA. There was no plan, no group decision-making, no traditional design. People self-organized, signing up to work on what interested them. Because one of the groups was a planning group, we thought a hub and spoke model had emerged with the planning group as the hub, and the other groups as the spokes. Originally we had six groups:

- *Celebrate*: organize and implement celebrations of various cultural groups, important days, and festivals
- *Communicate*: communicate information externally and internally
- *Include*: improve inclusion, equity, and belonging
- *Plan*: lead and facilitate the work of the entire team
- *Resource*: recruit resources (human, financial, etc.) to facilitate teacher, school, or student goals
- *Sustain*: improve and incorporate sustainability into school programming, student activities, education, etc.

We began operating autonomously. However, unlike the human body, each group was made of individuals with opinions, desires, and volitions. What emerged was not deliberations between those individual desires and opinions. Following the first characteristic of biocracies, we all had a singular purpose—equity. If your role is to fundraise or communicate, you only fundraise or communicate in equitable ways or for the purpose of equity or exposing and healing inequity. This had the effect of creating a community-wide, relational purpose within our PTA design team system, regardless of the autonomous goal of the particular spoke or person.

Embodying relationality, autonomy, and emergent design principles with a deeply shared purpose of equity had two emergent design effects. First, the biocratic ingredients led to the equitable structure we have today, a hubless spoke model. Second, the biocratic components stopped the creation of the typical government-registered nonprofit structure with an elected executive team, all without using any traditional decision-making framework.

We started our work. Like the nervous system, Communicate worked with each spoke proactively to communicate work done by each spoke to another spoke or the administration and vice versa. There were people in Communicate who were also Plan members, so Plan never needed to meet with any spokes. Communicate wanted to also communicate to caregivers through the Classroom Liaisons (CLs), parents who liaised with teachers and each classroom's caregivers. CLs were consistently communicating to caregivers information coming from Communicate, effectively becoming a spoke. Plan wanted to meet with the principal regularly, but the team members had other work, needed help, and wanted to embody decentralization. Caregivers not part of the design team

(not in any spoke) who were in relationship with Plan members, volunteered to meet with the principal, effectively becoming principal liaisons, like muscles, for collaborative work. The same thing happened when Plan wanted to meet regularly with the PTA (called *Padres*) of the other school campus. Again, embodying decentralization, people in relationship with Plan volunteered to be *Padres* liaisons. Similar processes repeatedly happened, creating new groups, changing functions of current groups, and changing the structure.

The process of adaptation over time in close relationally autonomous proximity, while embodying emergent principles, resulted in an emergent, symbiotic design—a hubless wheel with many more spokes.

- Celebrate
- Communicate
- Include
- Plan
- Resource
- Sustain
- Classroom Liaisons
- Principal Liaisons
- Padres Liaisons
- Safe Bikes & Traffic
- Caregivers of Black Students
- Caregivers with Special Needs
- Native Spanish Speaking Caregivers

We (the PTA) have fully and relationally autonomous decentralized groups that have a focused goal and communicate with whom they need to do their job. The role of the Plan spoke never became the hub, facilitating the work of the entire group. Instead, the role of Plan was really planning the meetings with the full caregiver body. In five years, we have never had a single meeting of all the spokes like one would expect with committees or offices in an organization. It is important to note that the other campus of the same school built a PTA that became incorporated as a 501(c)3, a government-recognized nonprofit structure. That campus designed a structure that has traditionally disenfranchised lower-income, Black, Brown, and non-native-English caregivers.

The relational autonomy has also served the group well. For instance, during a period when teachers were quitting due to a lack of support during COVID, a caregiver organized a petition delivered to the administration demanding changes in support of teachers and the teacher union. The *Padres* non-profit PTA organization could easily sign it without representing the full body of caregivers of the other campus due to the inequity often introduced by such an organization

making decisions and the acceptance by the administration that such decisions speak for the entire caregiver body. On our campus, due to the hubless spoke model, it takes a much longer time to reach a consensus with the caregiver body about whether we want our PTA organization, called Comunidad, to sign. This was a problem as the petition was going to be delivered in a few days. Due to the relational autonomous structure, however, individual spokes could sign the petition as a Comunidad spoke without (mis)representing all of Comunidad caregivers. Sustain and Include signed the petition as two Comunidad spokes; in that way Comunidad had organizational representation on the petition without pretending to represent all caregivers. Another example is faster communication and work. Normally, organizations have a point of contact for initial external inquiries. In Comunidad, if you know which spoke relates to your query, you can contact the spoke directly, if you chose. Due to our relationality, we all learn about the contact or request.

Our biocratic system also prevented a traditional structure from being created. Throughout the five years, there have been people who did not participate in the sustained dialogue groups but who wanted to participate in designing our PTA. A majority of this group approached the creation of a PTA from a traditional lens—creating a group to fundraise lots of money for certain priorities, not prioritizing equity. At various points, a majority of this group has voiced a desire to create a government-registered nonprofit like other PTAs at other schools. Through response and conversations in relationship, those members learned about the bad past experiences certain caregivers have had in that traditional structure, how it privileges certain voices, and how people feel unrepresented by them. Every time, the people advocating for the creation of a nonprofit have chosen to move at the pace of community and not to push further due to relational autonomy, autonomously making a decision that factors the effect on others and the collective well-being and leadership. They have opted not to call for a vote, even though it is within their power, and even when they actually believe it is possible to have a 501(c)3 that is run equitably. This symbiotic design works both ways. The design team members who participated or are participating in sustained dialogue groups also have worked to find ways to address the concerns of those who want a traditional structure. In relationship and conversation, the dialogue members uncovered that the members who wanted a traditional structure were looking for accountability and fundraising revenue. The accountability was addressed by building an understanding of other models of accountability outside corporations, models of shared, mutual co-accountability, mutual aid, and mutual care. Over time, team members who did not participate in dialogue groups began to understand these models through the experience of the hubless spoke, relational model. Every spoke has a team and co-facilitators that rotate, and each spoke takes collective responsibility for the work and outcomes. The fundraising model that evolved is an example of emergent, symbiotic design.

### ***Emergent, Symbiotic Fundraising Design***

Similar to conversations about starting a 501(c)3 non-profit, certain non-dialogue Classroom Liaison team members ran or intended to run classroom-based fundraising campaigns for individual classroom needs. In conversation and relationship, they continuously learned how this introduced inequity as some classrooms had access to more resources, supplies, materials, and curricula than others based on different fundraising capacities and fundraised amounts. To create more possibilities, dialogue team members then ran a campaign that was not just campus-wide, but district-wide, across both campuses to which caregivers at either campus could donate. Then the money was split evenly by all teachers. We still use this resilient principle today: we fundraise for people at both campuses and split revenue equally. To this day, Classroom Liaisons can still run an individual classroom campaign if they so choose. They are autonomous. However, none has chosen to do so because, due to relationships, those dialogue members wanted to create more possibilities to address the fundraising concerns of those who wanted to bring in money for the school. In healthy relationships, each member attends to the concerns of the others (Udoewa & Gress, 2023). The dialogue-based team members created an alternative that addressed those concerns.

This same process repeated multiple times by embodying emergent strategy principles such as transformative justice, resilience, moving at the speed of trust, learning always, and creating more possibilities. Certain caregivers wanted to collect dues to raise funds, but that would alienate caregivers who did not have the money. Because of that potential effect and in order to move at the speed of trust while always learning, the caregivers that wanted it never asked for a vote on it; all caregivers are automatic members without paying any dues, and active participation and monetary contribution do not equate with voting rights. Membership is an identity of all our community caregivers. At our campus, ideas for an auction were never implemented because it prioritized caregivers who could donate in financial ways over those who could not. It is important to note that Padres, the other campus PTA not focused on equity, has implemented an auction. To care for the concerns of those who want more money for the school and create more possibilities, the dialogue-based team members worked with the administration to secure tens of thousands of dollars dedicated for the PTA from the school's development department. This allows PTA members to focus on giving in ways to which more people have access (time, volunteering, knowledge, language, etc.) instead of raising funds. In fact, the spoke that works on fundraising is named Resource because they search for and organize all kinds of community resources, not only money. Without group decision-making negotiating between different individualist desires, the fundraising model evolved over time as a result of different groups mutually responding to and caring for each other's concerns.

## **Service Design at NASA**

My team at the National Aeronautics and Space Administration (NASA), works on a service that helps innovators in small businesses or research centers to advance and mature their technologies by offering them financial and technical assistance (Gopalkrishnan et al., 2023; Udoewa, 2023). The goal is to transition the technologies and technologists to other funders—private investors and public investors, program managers at NASA and other government agencies (OGAs). The ultimate goal beyond transition is commercialization or infusion into a government project or mission at NASA or an OGA.

Service design is the design of a service and the mechanics behind a service in order to improve both the customer and employee experience across all interactions/touchpoints, online and offline (Udoewa, 2023). We conduct service research and design through participatory employee teams and separate participatory customer teams. I am the sole “professional researcher-designer” using the model of designer-as-community-member as we practice RPD (Udoewa, 2022a, 2022b).

### ***Relationality***

We embody relationality through regular relational experiences with different numbers of group members. These include but are not limited to 1:1 conversations, meditation, meals, facilitated awareness-based activities, retrospectives, critiques, socials, etc.

### ***Autonomy and Self-organization***

We embody relational autonomy through decentralization of our research and design team (Udoewa, 2023). The various research teams are below.

- Experiential team
- Quantitative team
- Customer interview team
- Employee interview team
- Asset-based competencies team
- Futures research team
- Market research team
- Analogous research team
- Positive deviance team
- Customer observation team
- Employee observation team
- Secondary research team

Though I report the research work to executives, internally, no one leads the overall research and there is no collective group decision-making about direction. There is a project manager who facilitates sharing. All groups are autonomous. They choose their own research questions and methods. Each team invites help and other perspectives when they would like it. We are united by the purpose of equity so that no matter what research you do, you do it for the purpose of improving the service equitably for all employee and innovator customer groups, especially for women-owned and minority-owned businesses as well as minority-serving institutions (Udoewa, 2023). The relational autonomy is evident when teams choose to work together or use each other's work. For example, through frequent interactions, feedback sessions, demos, critiques, reviews, and more, the futures research team used and built upon the findings of the market research, customer interview, and employee interview teams to aid in uncovering both market-based and ethnographic futures signals. The participatory employee team working on customer interviews, compared their customer journey map to the participatory customer team's customer journey map. The differences sparked conversation that led the participatory team working on customer interviews, to reanalyze their findings and conduct follow-up interviews helping to improve the customer experience.

### ***Symbiotic Design of Employee Experience***

One example of symbiotic design is an example of improved employee experience design. While working on the customer experience, the customer interview team developed a customer journey map and shared it through various relational share-outs. The project manager, focused on making sure people had the most up-to-date information, shared it with others. A team member who had been on the team for eight weeks was focused on trying to conduct synthesis of employee interviews but was finding he was misinterpreting words and phrases in transcripts due to a lack of context. When he saw what the project manager shared, he asked "Why wasn't this customer journey map shared before?" The project manager told the team member that the customer interview team had just created it. Others had a similar reaction. The team members who saw this for the first time mentioned it to some people who had only been on the team for less time, four weeks, who were focused on understanding the program while still in orientation. A month later, two teammates who were focused on getting another teammate up to speed quickly to help in their work, shared this journey map which helped orient the new teammate quickly after only 3 weeks on the new autonomously chosen assignment to help the two teammates. This happened multiple times. Then a month later, a teammate who autonomously focuses on team cohesion organized a bonding session for new interns on their first day. Having learned about the map when quickly onboarding to help the employee interview team who requested extra help, this teammate mentioned the customer journey map to the new interns on day 1. The new interns then asked about it during day 2 of their orientation. The teammate who organized the

bonding session then introduced it into the orientation session. We immediately noticed that within a week, those interns understood the complicated program better than people who had been on the team for 6 months. In fact, it dropped the average time to feel comfortable with the details of the complicated program from 1 year to 1 month, and over a year, it improved the employee onboarding experience for service design employees by 50%. The customer journey map became a part of the onboarding for all service employees.

It is crucial to note that the customer interview team was not working on improving the employee experience; their goal was to improve the customer experience. Improved employee experience was the job of the employee experience research subteams. The use of an improved customer journey map to illuminate a previously complicated and esoteric program was a type of symbiotic design related to the relational autonomy of various groups relating, focused on their autonomous goals in consideration and collaboration with others. There was no plan, traditional design, nor collective group decision-making.

## Conclusion

This is the fifth paper in a series of papers describing Radical Participatory Design (RPD) and Relational Design (RD). This fifth paper focuses on the decision-making dynamics, Radical Biocracy, found in certain RPD or RD processes. This paper shares two example cases.

Using the RPD participation framework, we summarized the analysis in the previous paper of the multiple group decision-making models, noting their basis in individualism. They can fail to address all competing desires, such as in a disappointed minority after a majority-based vote. We explored how we can apply the relationality of RPD not just to the design methodology as in RD, but also to the decision-making process.

We noted three ingredients for a relational political ecology and approach to decision-making—relationality, emergence-conducive principles, and relational autonomy. With differentiation of roles, all three ingredients can lead to emergent design, while relationality and relational autonomy, along with time, can lead to symbiotic design.

We learned about example situations that involve relationality, emergent-conducive principles, and relational autonomy, like a bone fracture healing in the human body. By studying how the cells interact, operate, relate, and function, we noted that there is a design that exists for the healing of a bone fracture, a design that did not occur based on a contested political ecology—a group decision-making process of negotiation, deliberations, or voting between cells. Instead the design emerged—emergent design. Similarly, we studied symbiotic relationships between organisms like the human-honeyguide relationship. We noticed a design that had evolved without any contentious or multipolar political ecologies, no group decision-making processes based in individualist positions. This is an example of symbiotic design.

Biocracy uses human biology as inspiration for democratic organizational governance and decision-making. Radical Biocracy goes further using human biology as inspiration in a leaderless leadership model in which there is leadership but not from an individual making final decisions or collective negotiation between individual stances. Instead, the collective leadership is an emergent quality when groups allow the design to emerge from relationality, emergence-conducive principles, and relational autonomy. We shared two examples, designing a racially just PTA and service design at NASA.

In the design of a racially just PTA, I work as a community member at a school to create an equitable and just PTA across linguistic, economic, and racial lines of difference. We engaged in RD building healthy relationality through sustained dialogue groups; we pursued relational autonomy allowing individuals and subgroups to make their own decisions in PTA work; and we adopted emergent strategy principles to guide our PTA work. We discovered that the design of an equitable organizational structure and fundraising model emerged from our radical biocracy without using an explicit decision-making process inside the design process. Team members chose what work on which they wanted to focus, and through relational interactions our groups changed, grew, started, and joined to create our hubless spoke model. Likewise, a fundraising model emerged in which we always fundraise across both campuses and equitably divide the funds among teachers, classrooms, and campuses, while avoiding events that prioritize caregivers who can give financially. We also negotiated a financial support model where we receive revenue from the school development department, allowing us to focus on non-financial ways of giving, opening up more access to caregivers of all economic backgrounds.

The symbiotic evolution still continues. We are learning and applying more principles from our relationships to use for fundraising. And we are now looking at the design of our meetings and engagement because we do not want to lionize one stereotypical image of an engaged caregiver—someone who has evenings and weekends free for meetings and events, as well as workday times available to go to the school. Everyone does not fit in that description. How do we create an organization that has inclusive meetings and inclusive ways to engage caregivers in all different situations? Those designs are in the process of emerging as we build relationships with those who cannot engage in stereotypical ways.

In a second example at NASA, a team experimented with relationality and relational autonomy inside of an agency with low relationality and autonomy. The service design team used relationality and relational autonomy to create multiple research groups that pursued their own agenda with a common goal of equity and improving transitions of small businesses in the program. Without anyone focused on designing an improved employee experience, a symbiotic design for an improved employee onboarding experience developed over time through various subgroups naturally sharing, reacting, and adjusting to each other.

A Radical Biocracy allows relationality to transform decision-making explicitly to an emergent or evolved phenomenon. This is a relationally autonomous approach to decision-making, decision-less decision-making, a knowing and deciding by the social field and its health. More work is needed to see it extended to larger scales and groups.

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