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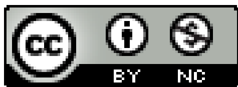

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CHAPTER ONE

Relational Rhetorics

The theories, methodologies, practices, and relationships in this project are as much a part of the study phenomenon as the acts of making I examine. This chapter accounts for how I make knowledge in relation to theoretical traditions and in relation to the communities this project engages. I begin by situating rhetoric in relation to making, because readers who come to this book from perspectives outside of the areas of rhetoric, composition studies, and technical and professional communication may be wondering what rhetoric has to do with a study of making. After all, in everyday language, "rhetoric" is usually synonymous with "razzle-dazzle style or verbal bullshittery," as Candice Rai (2016) aptly puts it (16). While there is plenty of razzle-dazzle and bullshit in the domain of rhetorics, I assemble an understanding of rhetorics in relation to making in order to provide a shared conceptual vocabulary for describing and participating in meaning-making work in and across makerspaces, classrooms, and professional and community contexts. I then assemble an understanding of relationality that works across epistemological traditions in conversation with experiences and perspectives from a makerspace. I conclude by presenting a framework of relational rhetorics that models a commitment to locating and pluralizing conceptual lenses for making—including making knowledge about making.

Rhetoric and/as Making

In situating rhetoric in relation to making, this book highlights two characteristics of rhetoric and making that are particularly salient to this study:

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that they are both more than symbolic and more than human. By more than symbolic, I mean that both rhetoric and making involve doing, being, knowing, and relating using more than just words and other symbols. Whether we are in a makerspace or a writing classroom, we persuade, negotiate, solve problems, create, and act using a combination of words, symbols, objects, movements, spaces, and relationships. By more than human, I mean that both rhetoric and making involve doing, being, knowing, and relating beyond the intent and scope of human bodies. Again, whether we are in a makerspace or a writing classroom, the work of persuasion, negotiation, problem-solving, creation, and action includes forces, histories, and relationships that come from and circulate through more than just the bodies we recognize as human.

Much of what I have observed and engaged in during this study can be described as negotiating, persuading, solving problems, creating, and getting things done through acts of making with not only words and symbols, but also objects, movements, spaces, and relationships. These observations and experiences resonate with articulations of rhetoric like those offered by Angela Haas (2012), who defines rhetoric as "the negotiation of cultural information—and its historical, social, economic, and political influences—to affect social action (persuade)" (287), and Donnie Johnson Sackey (2018), who similarly describes rhetoric as "a means (tactics/tools) whereby people come together to solve localized problems in movement that frequently oscillates between local and global foci" (156). Jody Shipka (2011) draws attention to "other representational systems and ways of making meaning" than printed, spoken, and digital words (131), and David Sheridan (2010) argues specifically for attending to rhetoric in 3D objects (like those made in makerspaces), because objects, like words and symbols, can persuade and create meanings and actions (250). And while rhetorical scholars have long engaged with more-than-symbolic rhetorics across epistemological traditions, some have also taken up interdisciplinary work in new materialism to consider, as Ehren Pflugfelder (2015) does, "what rhetoric is like as we move beyond the humanist symbolic arts" (443). All these articulations expand a traditional focus in Western rhetorics on spoken and written words by suggesting that both the processes and the products of rhetoric can and do exceed symbolic forms. Therefore, while it might be surprising—as it was to participants in this study—that a researcher of writing and rhetoric would be interested in what happens in a makerspace, where the focus is on 3D objects, I am interested (like many researchers and teachers before me) in rhetoric and/as making with more

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than words, through the relations of objects, words, spaces, bodies, technologies, and meanings.

In this way, attending to more-than-symbolic rhetorics also draws our attention to the boundaries of what counts as rhetoric, because, as Sharon Crowley (1999) argues, "Distinctions and boundaries are never disinterested: when someone is named as a witch, a factory worker, a rustic, or an illiterate, someone else profits from that distinction. When images are distinguished from texts, someone profits. . . . no body is disinterested" (363). Excluding more-than-symbolic rhetorics in the boundaries we draw has consequences: for example, scholars like Ellen Cushman (2013) and Malea Powell (2012) have argued that restricting definitions of "rhetoric" or "literacy" to the realm of the alphabetic erases Indigenous peoples whose rhetorical and literate practices have (long before the rise of the contemporary maker movement) involved multimodal, embodied ways of meaning.

And just as excluding more-than-words in our definitions of rhetoric has consequences for whom we recognize and do not recognize as rhetorical, excluding traditions of making outside of the contemporary maker movement has consequences for whom we recognize and do not recognize as makers. Silvia Lindtner, Shaowen Bardzell, and Jeffrey Bardzell (2016) observe that technosolutionism, "the view that technology can unilaterally solve difficult social problems," is "visible in promotions of making that portray it as furthering sustainability, social justice for women, economic development for the Global South, and empowerment for all" (1390). Echoing Jessamyn Hatcher and Thuy Linh Nguyen Tu's (2017) point that the maker movement is tied to the rise of neoliberalism, Lindtner, Bardzell, and Bardzell observe that technosolutionism has consequences for practices of making that may not engage technologies in the ways privileged by technosolutionist definitions of making, because such practices might be then considered less empowering and less valuable. And as is the case in rhetoric, what counts as making is inextricably related to *who* counts.

This brings us to a second shared characteristic of rhetorics and practices of making: they are more than human in ways that can both enhance and erase bodies. Candice Rai (2016) describes rhetoric as "a force that not only orders our lives but also animates our bodies. Gets under our skin. Puts things into motion through and beyond human will. Emerging from and wedded to the co-constitutive interactions of language, people, things, matter, and all other presences and forces in the world" (16). Such an expansive view of rhetoric has, in turn, expanded how I experience and describe acts of rhetoric and making in a makerspace, because as Brian

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McNely, Clay Spinuzzi, and Christa Teston (2015) observe, attending to more-than-human materialities troubles "how researchers . . . bound off and study objects and practices" (6).

Similarly, Jody Shipka (2016), drawing on the work of Laura Micciche, argues that more-than-human approaches to rhetoric help us redefine "multimodal collaborations 'as partnerships that include and exceed intentional ones established between people'—partnerships that involve the merging of 'various forms of matter' (Micciche 498)" (254). The merging of matter is particularly noticeable in a makerspace, and it echoes through a long history of making across cultures, as Tim Ingold (2013) observes: "In the act of making the artisan couples his [*sic*] own movements and gestures—indeed his very life—with the becoming of his materials, joining with and following the forces and flows that bring his work to fruition" (31). In the time I spent in makerspaces, I have seen objects and tools quite literally get under people's skin in ways that changed the outcomes of projects, and I have seen machines and materials exert as much influence on a process of making as the will and intent of humans.

And this all took place in an environment with lively and frequent conversations about human-machine integrations, often through science fiction analogies—as was the case in many of my conversations with a person I met at SoDo Makerspace who features prominently in this book: Tony Loiseleur, a writer and sociologist by training who is currently studying data science. Tony and I are both fans of the *Star Trek* franchise, and in one particular video-recorded conversation about the Borg (a cyborg collective and infamous antagonist in the franchise), Tony noted that the tools and technologies we make extend human capabilities and redefine what humans can be and do (Figure 2). "Sign me up!" Tony joked about the possibility of becoming a cyborg, but he added that he would want to be a cyborg "with feelings" (unlike the Borg).

I have learned from Tony to take a more than humanist but still human-centered approach to understanding and participating in making and rhetoric. By "more than humanist," I mean that I do not take the traditional Western humanist boundaries of who counts as "human" for granted, particularly since some bodies are recognized as more human or less human than others. And by "still human-centered," I mean that even as we dwell in the dynamic boundaries of "human" in relation with other bodies, machines, and environments, human bodies and relationships are both the point of reference and the focus of my work. After all, as Anne Frances Wysocki (2012) argues, "Our bodies—our primary media . . . are not fixed;

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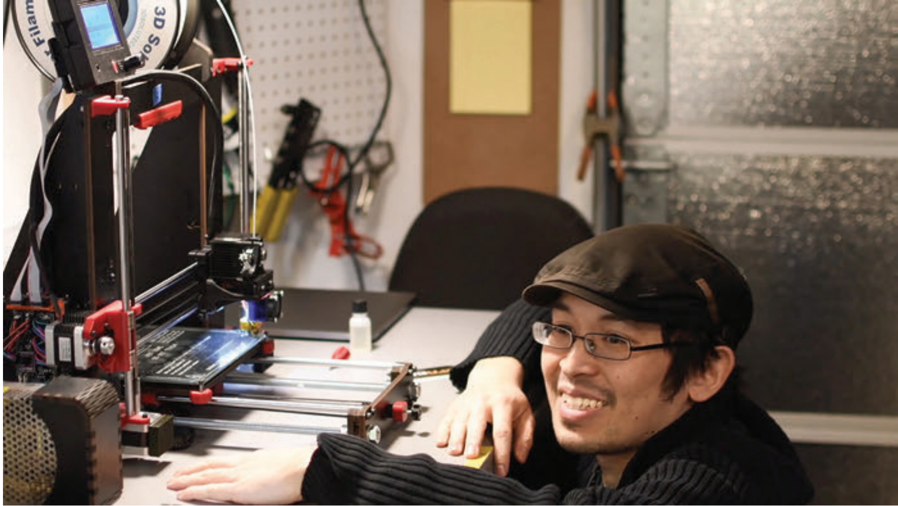

Figure 2. Tony works on a 3D printer and discusses human-technology relations

they are mutable. We come to be always already embedded—embodied—in mediation" (4). Therefore, a more than humanist but still human-centered approach foregrounds not only the making of technologies and objects, but also the making and remaking of bodies and relations—and all the possibilities and pitfalls entailed. Technologies are encoded with humans' values and biases, and technologies reinscribe and shape values and biases when we use them. And while technologies and acts of making can productively expand the boundaries of "human," I cannot ignore the dehumanizing effects of definitions of making that privilege certain bodies and traditions at the exclusion of others.

This boundary marking in definitions of rhetoric and making resonates with M. Remi Yergeau's (2017) observations about rhetoric in their work on autism:

> It is not uncommon . . . for rhetoricians to claim that rhetoric is what makes one human. This is a belief that persists in spite of rhetorical studies' various turns toward things, ecologies, affect, and complex vitalisms: if one is arhetorical, then one is not fully human. Rhetoric's function as a precondition for humanness or personhood is typically and deeply connected to how we conceive sociality, our modes of relating and relatedness with our (neurotypically human) surrounds. (6)

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Extending Yergeau's observations about the persistent function of rhetoric as a precondition for humanness, I notice similar ways in which identifying and being identified as a "maker" has material and social consequences for which bodies belong—or matter—in the spaces and conversations of the maker movement. If, in the words of disability rhetorics scholar Margaret Price (2011), rhetoric is "who we are allowed to be" (27), making, likewise, is who are allowed to be. Yergeau's emphasis on neurotypicality also highlights the ways in which both definitions of rhetoric and definitions of making can normalize certain bodies as "able" to the exclusion of others, which in turn shapes the meanings and things that get made, for whom, and by whom. The "normal" human body envisioned in the design of spaces, machines, and interactions in a makerspace marks the boundaries of who can make, which in turn shapes what gets made.

Relationality

In drawing attention to the ways in which rhetoric and making are more than symbolic and more than human, I have emphasized that definitions of making and rhetoric mark boundaries that include who counts as rhetors and who counts as makers. These boundaries are both the mechanism and the product of unfolding relations. My vocabulary for conceptualizing these boundary marks through relations in a makerspace draws on conceptualizations of relationality across epistemological traditions, including the vocabulary of feminist scholar and physicist Karen Barad, whose work animates and is taken up in a number of conversations in and beyond rhetoric and writing studies. Like Leigh Patel (2015), I acknowledge that Barad's work "speaks first, and foremost, to Western technologies" and is thus "likely to connect most readily with Western-based readers" (51). Following the example of Patel, who includes Barad's work alongside Indigenous scholarship, and of Tara McPherson (2018), who reads Barad's work alongside the work of women-of-color and feminist scholars, I include Barad's work alongside Indigenous scholarship, intersectional feminist, disability studies, and queer scholarship not only in order to "connect to the entry points of many readers," as Patel puts it (52), but also to acknowledge that "citation practices and more fundamentally, epistemic genealogies hold material force in not just our histories but our possible futures" (52)—a point to which I will return in assembling my understandings of relationality.

Like other rhetoricians who have engaged Barad's work, I am compelled by the rhetorical possibilities in Barad's refusal to treat distinctions

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between human and nonhuman or subject and object as a given, as well as the rhetorical possibilities in her theory of agency as matter's entanglement across humans and nonhumans. But Barad (2007) is also careful to point out that simply including nonhumans alongside humans, or distributing agency symmetrically across humans and nonhumans, misses the ways in which, as Judith Butler puts it, "The construction of the human is a differential operation that produces the more and the less 'human,' the inhuman, the humanly unthinkable" (1993, 8; qtd. in Barad 2007, 59). Barad argues,

> Some science studies researchers are endorsing Bruno Latour's proposal for a new parliamentary governmental structure that invites nonhumans as well as humans, but what, if anything, does this proposal do to address the kinds of concerns that feminist, queer, postcolonial, (post-)Marxist, and critical race theorists have brought to the table? Nonhumans are in, but the concerns of this motley crew of theorists and activists seem not to have been heard, let alone taken into account. (58)

In other words—and as many feminist, Indigenous, queer, disability studies, and critical race theorists also argue—the differential markings of more or less human are as important as the markings of human and nonhuman.

Key to Barad's theorization of these differential markings through relations is the concept of "intra-action," in which the prefix "intra," as opposed to "inter," asserts "ontologically primitive relations—relations without preexisting relata" (139). In other words, there are not *a priori* subjects and objects that exist as stable, absolute entities outside of their engagements with and relations to each other. Instead, subjects and objects emerge—are continually marked and redefined—through their relations and intra-actions. Likewise, humans are continually marked and redefined as more or less human (more or less privileged) in intra-actions that are unfolding in each moment, context, and set of relations. These intra-actions, Barad argues, "materialize different phenomena—different marks on bodies," and therefore "do not merely effect what we know" but also "contribute to the differential mattering of the world" (178). Through these differential markings, some bodies are made to matter more than others; therefore, ethics and responsibility are inherent in intra-actions.

Barad's emphasis on a relational ethics of mattering through intra-action lends itself to critical, ethics-focused applications in theorizing and studying rhetoric, writing, and making. For example, Stephanie West-

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Puckett (2017) found that Barad's concept of intra-action is useful in a study of making because it helps us to "reject an objective exteriority to knowing and being" (57). Julie Jung and Kellie Sharp-Hoskins (2017) build on Barad's work to articulate a "research ethic of emergent mattering" that insists that "*what* matters is premised on *how* it matters, that what matters has a history (i.e., it has been made to matter), and that what matters can matter differently" (x). Alison Cardinal (2019) draws on Barad's work to theorize participatory video methods through an understanding that "materiality, knowledge-production, and ethics are intertwined" (36). Indeed, as I observed machines mattering more, at times, than humans in a makerspace, Barad's emphasis on the ethics of mattering in intra-action is compelling as a way to describe the consequences of different relations and boundary marks among humans, as well as across humans and nonhumans. Barad's concept of intra-action is not merely about relating across difference, but treating the marking of difference itself as an intra-action—and therefore a space for negotiation.

And while these specific technological and theoretical configurations are relatively new, technologies as relations are not new, and neither are relational theories and ways of knowing. Jennifer Clary-Lemon (2019) argues that if we hold that "relationality is the primary way that meaning is made in the world," we must also be accountable for our relationships to knowledges beyond Eurocentric traditions (n.p.). Clary-Lemon's point echoes the work of Chela Sandoval (2000), who, nearly two decades earlier, argued that we must carefully account for the convergences in theoretical traditions from white, Western thinkers and from thinkers who "survived conquest, colonization, and slavery in order to develop insurgent theories and methods for outlasting domination" because "recognizing the alignments between these ideational forces becomes critical to the project of identifying citizen-subjects and collectives able to negotiate the globalizing operations of the twenty-first century" (6).

Therefore, just as the boundaries we draw around definitions of making and rhetoric have consequences, so too do the boundaries we draw around theoretical traditions. In other words, theorizing relationality from multiple epistemological traditions is an attempt to redress erasures in my knowledge-making practices, following Jennifer Sano-Franchini (2015), who calls us to account for what is privileged and what is silenced in the intellectual lineages we construct (23–24). Addressing epistemic genealogies (Patel 2015, 52) in theorizing relationality also aligns with the work Angela Haas (2012) lays out in the first part of her definition of decolo-

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nial methodologies, which "redress colonial influences on perceptions of people, literacy, language, culture, and community and the relationships therein" (297).

The second part of Haas's definition articulates another key methodological move in understanding relationality, which is to "support the coexistence of cultures, languages, literacies, memories, histories, places, and spaces—and encourage respectful and reciprocal dialogue between and across them" (297). José Cortez (2017) argues, similarly, that decolonial methodology "might be best understand as a practice of reading for the de-exceptionalism of all groups laying claim," cautioning that to position decoloniality as "an authentically non-Western voice" ultimately perpetuates an Aristotelian, binary model of tradition and resistance (59). Or, as Raúl Sánchez (2017b), puts it, "Description, in the form of [a] genuinely comparative approach . . . , is precisely what is needed if we want to theorize, study, and teach mark-making in a broader-than-merely alphabetic sense—that is, mark-making at the borders between Western Modernity and the Indigenous cultures of this hemisphere" (87).

I have used the word *decolonial* following the practice of rhetoric and composition scholars who approach this work "from the hope and vision that it is possible to explore 'border thinking,'" as Romeo García and Damián Baca (2019) put it (2), as a knowledge-making practice that decentralizes Western approaches. García and Baca draw upon the work of modernity/coloniality scholars like Walter Mignolo (2007), whose concept of "de-linking" is "a de-colonial epistemic shift leading to other-universality, that is, to pluri-versality as a universal project" (453). Still, Eve Tuck and K. Wayne Yang (2012) argue that "decolonization brings about the repatriation of Indigenous land and life; it is not a metaphor for other things we want to do to improve our societies and schools" (1). Responding to the exigence of Tuck and Yang's point, Leigh Patel (2014) posits that the term *anticolonial* "still allows for locating the hydra-like shape-shifting yet implacable logics of settler colonialism, but does not include in its semantic shape the unmet promises of stripping away colonization, as the term *decolonization* gestures to do. This, in itself, marks anticolonial stances as incomplete, as they don't necessarily address material change" (360). In this sense, *anticolonial* might more honestly describe the work and limitations of my project.

In engaging across traditions that theorize and intervene in more-than-symbolic, more-than-human rhetorics and relations, my goal is to locate the epistemologies that underpin those theorizations and interventions.

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Attending to the ethics of mattering includes supporting the coexistence of theoretical frameworks and lived experiences (my own and those of people in my study) through respectful, reciprocal, de-exceptionalizing, comparative dialogue. To do this work, I am guided by scholars who acknowledge marginalized theoretical traditions and bring them together to highlight the explanatory power they offer. For example, in her account of creating accessible, multilingual digital content, Laura Gonzales (2018b) brings together the disability studies framework of interdependence and the framework of intersectionality, as articulated by legal scholar and Black feminist theorist Kimberlé Crenshaw. Drawing on the work of disability studies scholars Margaret Price and Stephanie Kerschbaum (2016), Gonzales explains that interdependent research methodologies "center 'care, commitment, and acting with others in mutually-dependent relationships,' where relying on others to access information is not a matter of choice but an intentional, necessary practice" (35). Gonzales goes on to explain that "the notion of interdependency as central to inclusive research practice also has a long, though differently-named, history in research on language and racial diversity," noting Crenshaw's work on intersectionality and the work of scholars of African American Language who show that "race, power, and language are always inherently tied and intertwined" (36). Indeed, Crenshaw (1989) has long argued that we need account not just for a single axis of difference (i.e., gender) but for the intersections and relations of different identities (i.e., gender, race, class, dis/ability, sexual orientation, etc.) and the harm experienced by people whose intersecting identities are marked as less human through structural, systemic discriminations.

In acknowledging and bringing together these frameworks, Gonzales shows how the concepts and traditions of intersectionality and interdependence complement and therefore can enrich her analysis and practice. The characteristics of intersectionality and interdependence that Gonzales highlights also enrich our understanding of relationality. Interdependence reminds us that dis/ability is constructed by the kinds of relationships we create (and specifically, the bodies we assume are "normal" and therefore design for), and that we need to recognize and be intentional about the ways our relations (among humans, technologies, bodies, environments) are interdependent. Intersectionality reminds us that identities are never separate from each other: my identity as a woman is never separate from my whiteness, my nondisabled status, my socioeconomic status as a university professor, or any of my other identities. Furthermore, while Barad's (2007) concept of intra-action emphasizes the dynamic and ever-unfolding

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nature of differential mattering, intersectionality reminds us to attend to patterns and histories of differential mattering, which we might recognize as structural and systemic discrimination. Or, as feminist media theorist Tara McPherson (2018) suggests, reading Barad's concepts alongside and in relation to theories of intersectionality moves Barad's concepts "more forcefully toward ways of theorizing difference" (100).

In addition (and in relation) to intersectional feminist and disability studies traditions, Indigenous traditions also guide my understanding of relationality. While Indigenous traditions are not monolithic, Shawn Wilson (2008) explains that "the shared aspect of an Indigenous ontology and epistemology is relationality (relationships do not merely shape reality, they are reality). The shared aspect of an Indigenous axiology and methodology is accountability to relationships" (7). Likewise, Gabriela Raquel Ríos (2015) reminds us that Indigenous approaches to relationality recognize that "humans and the environment are in a relationship that is co-constituted and not just interdependent" (64). Ríos's emphasis on co-constituting relations, which resonates with Barad's (2007) concept of intra-action, draws our attention to the ongoing, recursive marking of the boundaries of "human" and "environment" in and beyond a makerspace. Importantly, however, Ríos's land-based approach to relationality draws our attention not just to the context of humans and machines in a makerspace, but also specifically to the context of the colonial history of the land where this study took place.

Indeed, a book about boundary marking and relations would be remiss if it did not acknowledge not only the epistemological boundary markings of Western modernity and Indigenous cultures, but also the material, colonial boundary markings that shape the making of this book. Indigenous Peoples have long stewarded and continue to steward the lands on which I live and work as a white settler: in Seattle, Washington, on the traditional lands of the Duwamish and Coastal Salish Peoples, and in Tucson, Arizona, on the traditional lands of the Tohono O'odham and Pascua Yaqui Peoples. Angela Haas (2007) notes that "American Indian communities have employed wampum belts as hypertextual technologies . . . long before the 'discovery' of Western hypertext" (77), and the Indigenous cultures of this hemisphere likewise have technologies for and orientations to making that are often elided by the contemporary maker movement. For example, in an essay on making in the context of capitalism and settler colonialism, Dylan A. T. Miner (2019) explains,

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> At the core of my working with elders and youth is the phrase: *mawadisidiwag miinawaa wiidanokiindiwag* // they visit and work together. In this phrase there is nothing about making *aya'iin* // things. Rather it is about being together with one another and collectively learning from, with, and alongside each other. From an Indigenous way of being, the doing and being and making is far more important than what is actually made. (134)

And in an essay on composing and digital ethics, Kristin Arola (2018) draws upon experiences from a powwow and from years of working with American Indian women to articulate a practice of making that involves "putting yourself into the objects you bring into the world so as to honor the relations that came before and will come after" (275–276). While the makerspace I studied, like the institutions I work in, was situated in a neoliberal, settler-colonial context, the work of scholars like Ríos, Haas, Miner, and Arola teaches me to recognize and name that context as such, to examine my own "complicity in colonial practices" (Mukavetz 2018, 129), and to understand making (including research about making) through co-constituting relationships with people, spaces, lands, and meanings.

Furthermore, the recursivity inherent in a relational orientation resonates with Violet Livingston's (2015) articulation of queer rhetorics of consent, which has enriched how I understand and navigate relationality in engaging with study participants. As Livingston explains,

> Consent is queer-based community rhetoric, and has the potential to provide queer frameworks for writing teachers and rhetoric scholars to think about ethical relationships. Queer rhetorics invite us to know consent as a collaborative, self-reflexive process, not simply a fleeting conversation about the benefits and risks of relationships that happens at the beginning of play. What I want to suggest is: consent [is] also a set of practical elements, which are part of ongoing, rhetorical negotiations where people can come to know their own power, privilege, and desires, and use them well. (16)

This articulation also resonates with the negotiation emphasized in Haas's (2012) definition of rhetoric, as well as Barad's (2007) conceptualization of intra-actions as unfolding relations. Livingston's emphasis on ongoing, rhetorical negotiations in relationships draws our attention to our relation-

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ships not only with theoretical traditions but also with the lived experience and perspectives of the people we interact with in our research.

Indeed, my understanding of relationality is also informed by the knowledges and practices of the people I met and collaborated with in this study, including Clarissa San Diego, founder and CEO of Makerologist. My relationship with Clarissa transformed how I understand and practice making, because she takes a relational approach to engaging people, technologies, machines, and things. For example, in Chapter 4, she describes her interaction with a CNC (computer-numerical control) routing machine as an intimate relationship that involves negotiations. And in Chapter 5, she shows how she applies relational prototyping strategies—including negotiation—both to creating human connections and to creating 3D objects. In learning not only from theoretical traditions but also from the knowledge and practice of Clarissa, a woman of color whose perspectives are underrepresented in the maker movement, I follow a tradition of feminist rhetorical scholarship, as articulated by Jacqueline Jones Royster and Gesa Kirsch (2012), of listening to and being guided by the work and words of women from whom we have much to learn (649).

Adam Banks (2011) has made a similar argument about work in digital rhetorics and computers and composition: "Any attempt to foster meaningful access to communication technologies or to a working education system must include theoretical frameworks or conceptual models that build from the traditions and truths of a people and assume their agency and ability" (5). This is particularly important in amplifying definitions and practices of making that include more bodies than those most often represented in makerspaces and the maker movement. Likewise, technical and professional communication scholars like Victor Del Hierro (2018) seek to build theories, as well as tools and technologies, that are "community-driven, localized, and accessible to a wide range of audiences" (11). If my goals are (a) to speak not only to academics but also to people in and beyond the maker movement, and (b) to participate in the work of expanding the voices and perspectives by which "making" and the "maker movement" are defined, then I must learn from and amplify the knowledge-making work of practitioners like Clarissa and her colleagues.

Relational Rhetorics

My approach to relationality, rhetorics, and making seeks to account for boundary marking both in the construction of concepts, lineages, and

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methodologies, and in phenomena like acts of making in a makerspace. This means continually asking not only "What counts as making?" and "Who counts as a maker?" but also "What counts as knowledge?" and "Who counts as a knowledge maker?" And when I refer to boundary marking, I do not mean to suggest that boundaries are fixed, absolute, or given, but rather that they are felt, relative, and negotiated. Instead, I follow the example of Barad (2007), who emphasizes that boundaries are continually unfolding, and of Fatima El-Tayeb (2011), who offers "fuzzy edges and intersections" as a more fruitful alternative to fixed boundaries that allows for "the exploration of commonalities while paying close attention to specific circumstances" (47–48). Therefore, this project engages in the fuzzy edges and unfolding boundary marks of definitions, epistemologies, and relationships in the making of a study about making. I describe this work, which is both a process and product, as relational rhetorics because this work

- brings together multiple theories, perspectives, and experiences from multiple bodies and spaces;
- places theories, perspectives, and experiences into dialogue; and
- participates in and accounts for relationships with and among bodies, spaces, theories, perspectives, and experiences.

Rhetoric is relational. *What* and *how* we know and do is inseparable from *where*, *when*, *in what bodies*, and *with whom* we know and do. As Angela Haas (2012) notes, "Every culture has its own rhetorical roots, traditions, and practices," and thus rhetoric "takes into account that subjectivity and knowledge are interrelated" (287). Haas draws on the work of Lucy Suchman (2002), who argues that design is a "vision from somewhere" that is "inextricably based in an embodied, and therefore partial, perspective—which makes us personally responsible for it" (96). Design includes not only the objects designed and made in a makerspace, but also the theories and methods used to design knowledge about making. In other words, if a theory or design is presented as a vision from everywhere (or nowhere)—one that is universally explanatory—then the specific conditions and bodies that produced that theory or design are made to stand in for all conditions and bodies in ways that can be limiting at best and harmful at worst. Instead, Suchman argues (as have many before her) that we need to acknowledge and take responsibility for the fact that theories are necessarily partial because they come from someone, somewhere.

Not only are theories partial in the sense that they are not whole, but

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they are also partial in the sense that they actively shape the knowledge we make using those theories. Juan Guerra (2013) reminds us that "we find what we look for, and we look for what the conceptual lenses we use allow us to see" (83). To acknowledge and mitigate the inevitable partiality of my own theoretical engagement, I locate and pluralize the conceptual lenses I use. This approach is informed by the "interfaces" model set forth by Casie Cobos, Gabriela Raquel Ríos, Donnie Johnson Sackey, Jennifer Sano-Franchini, and Angela Haas (2018) in their discussion of cultural rhetorics, which works to "move away from prescriptivist and singular definitions" (141). In locating and pluralizing conceptual lenses, I do not mean to suggest that all the parts I assemble add up to a universal whole, or that biases have been eliminated. Rather, by locating and pluralizing conceptual lenses, I am highlighting the fact that they are parts.

An emphasis on locatedness and plurality is fitting to a study of making, because the maker movement is not a monolith. Silvia Lindtner, Shaowen Bardzell, and Jeffrey Bardzell (2016) argue that the term *maker movement* is "often presented as a global universal, applying equally to Silicon Valley, Taipei, Changsha, and Windhoek" when, in fact, making is better understood as a "global assemblage" of practices that bear a "family resemblance" but are grounded in different cultural, geographic, and economic contexts (1392). Just as practices of making are multiple, theoretical traditions are multiple. I seek to engage across traditions following the practice of constellation, as articulated by the Cultural Rhetorics Theory Lab (2014): "building relationships between multiple traditions, multiple histories, multiple practices" (7).

To enact this relationship building, I am guided by Adela Licona and Karma Chávez's (2015) figuring of relational literacies as "the labor of making meaning, of shared knowledges, or of producing and developing new knowledges together" (n.p.). Just as Haas emphasizes the locatedness and relatedness of rhetorics, Licona and Chávez define relational literacies as "understandings and knowings in the world that are never produced singularly or in isolation but rather depend on interaction" (n.p.). Therefore, I use the phrase *relational rhetorics* to locate both the process and product of my engagement across theories and practices, my own experiences and observations of making, and the perspectives and experiences of participants in the study.

If my goal is to account for the locatedness and plurality of knowledge-making practices, then instead of treating theories and methods as something to apply to the study of a phenomenon, I must treat theories and

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methods as themselves part of the phenomenon, both shaping and shaped by what happens in the study. In this way I follow Raúl Sánchez's (2017a) articulation, drawing on the work of Bruno Latour, of a reimagined empiricism for knowledge making that moves beyond applying a theoretical framework to an object of study:

> Instead, we would constantly articulate and rearticulate *relations* between and among the various components (including ourselves and our frameworks) in constantly proliferating and changing systems. According to Latour, these components "make everything, including their own frames, their own theories, their own contexts, their own metaphysics, even their own ontologies," and it would be the task of a new empiricism to never stop writing them up as thoroughly as possible, recognizing every framework or interpretation as itself a part of the system being described rather than a privileged perspective onto that system. (6–7)

Echoing Licona and Chávez's emphasis on the inseparable relations of knowings and interactions, Sánchez highlights the recursive, co-constituting nature of these relations in the act of writing about knowledge making. My commitment to engaging thoroughly with these recursive relations is at the heart of my efforts to tell stories that not only relate experiences and findings from a makerspace, but also relate the conditions of the stories' own making. I do this as a way of locating not only the conceptual lenses I draw upon, but also my own positionality as a knowledge maker, because, as Steven Alvarez (2019) argues, it is important to work against "the colonizing gaze of the decontextualized researcher and the accompanying rhetoric that normalizes a 'universal' viewpoint" (86).

Readers may have noticed, by this point, that I have framed much of the content of this book as stories. This is because stories are key to the process and product of relational rhetorics in this book. Indeed, Rebecca Walton, Kristen Moore, and Natasha Jones (2019) argue that "stories are sites of knowledge making, theory building, and relational work" (xxi). Stories also figure in the "four points of practice" that Phil Bratta and Malea Powell (2016) argue should be "worked together" in cultural rhetorics scholarship: these four points of practice are "decolonization, relations, constellation, and story" (n.p.). Stories are how I share accounts and interpretations of experiences in and beyond a makerspace, as well as how I came to those accounts and interpretations, because my participation as a researcher and

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storyteller is what Barad (2007) describes as an intra-action that brings about differential matterings (178). My approach to story making also resonates with what digital humanities scholar Matt Ratto (2011) calls "critical making," a practice that "theoretically and pragmatically connect[s] two modes of engagement with the world that are often held separate—critical thinking, typically understood as conceptually and linguistically based, and physical 'making,' goal-based material work" (253). Ratto describes critical making in the context of collaborative work of digital humanities scholars to interrogate, test, and build critical theories through the work of making physical prototypes. In my case, the many acts of making I observed and the many acts of making I myself engaged in—learning how to fabricate 3D objects, creating the digital content for this book, building relationships and understandings with people, and writing (and rewriting) these words—both shape and are shaped by theories, concepts, and conversations. Stories, then, are how I do and show the work of critical making. In the next chapter, I situate stories—drawing across epistemologies and practices—as a method/ology for relational rhetorics that can help us account and answer for boundary-marking practices in acts of making in scholarly conversations, in makerspaces, in communities, and in classrooms.

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