

Making is not just about Making: Clay Pottery and Oven-Making in Brazilian Quilombola communities as avenues for identity building and community meaning-making

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Abstract: This paper explores the cultural nuances of clay pottery and oven-making in two quilombola communities in Brazil, offering a critical perspective on the prevailing narratives around maker education. Our research in the Brazilian Amazon reveals a profound connection between the community and the *Mãe do Barro*, a revered non-human entity, which significantly influences their pottery practices. In the Southeast of Brazil, the communal oven-making process showcases the collective strength and solidarity among women, resonating with principles of black feminism. These findings challenge the dominant, often US-centric, paradigms (and critiques) in maker education by highlighting diverse, culturally rich making practices. By integrating these unique insights into the broader discourse, this study argues for a more inclusive and globally aware making education curriculum, emphasizing the need to recognize and value the making traditions of historically marginalized communities outside of the US.

The “making” of physical objects as part of students’ educational experience has seen a resurgence in the early 21st century with the “Maker Movement” and FabLabs. But despite numerous positive changes the movement has brought to education, such as the rekindling of constructionist, project-based STEM learning in mainstream systems, a considerable part of what happens in such spaces and curricula reflects North American ideas, views, and epistemologies, having objectives implicitly rooted in the experiences of dominant populations (Anonymous, 2008; Anonymous et al., 2015; Buechley et al., 2008; Buechley, 2013; Vossoughi et al., 2016). While anthropologists, sociologists and historians have long documented varied and globally dispersed manufacturing and craft practices (e.g., Eglash et al., 2006; Mukhopadhyay, 2009), these literatures have had a relatively small influence in education.

Building upon studies that merge these findings with considerations of making in education (e.g., Cavallo, 2000), and recent conceptualizations of cultural making (Anonymous, 2020), this paper delves into our research on pottery and oven-making in two quilombola¹ communities: one in the Brazilian Amazon and another in Southeast Brazil. This study is part of a larger project in Brazil that aims to explore diverse making practices within historically marginalized communities. Through collaboration with local researchers in Brazil who have deep connections with these communities, we have been studying these practices with the goal of broadening definitions and practices of Maker Education. In this paper, we address the following questions: *What are some culturally-specific elements of these quilombola communities’ approach to making practices, and what are the implications for research and implementation in maker environments?*

Framework

Dominant narratives on making

Dominant discourses on STEM education (and sometimes also the maker movement) tend to display a pronounced bias toward US-centric views, such as solving problems, inventing gadgets, technological advancement, and economic growth. Even if inadvertently, these perspectives contribute to regarding making as an activity that is always oriented towards those goals, disregarding the well-documented cultural variation in making practices, principles, and objectives. Making practices of non-dominant communities are often overlooked, particularly when those practices do not directly support *strictu-sensu* academic learning or contribute to existing economic structures. Yet, for the current maker movement to be genuinely equitable, it is imperative that we broaden our

¹ The term “quilombola” was first defined by the Overseas Council in Brazil as “any dwelling of escaped slaves, that number more than five, in a depopulated area, even if they have not erected huts nor found mortars in it” (Almeida, 1999, p. 14-15). However, after the 1970s, the term underwent a significant evolution, coming to also represent communities in terms of their space, territoriality, and culture. The modern interpretation of “quilombola” extends beyond its historical context, shifting the emphasis from its origins in slavery to a contemporary appreciation of community and cultural identity (Schmitt, 2002).

perspectives, which requires understanding the experiences, assets, and values and purposes of making within communities from many different countries, regions, and cultures.

Broadening perspectives on making

Equity efforts in maker education have focused on recognizing cultural variation in making practices across various communities – mostly US-based ones – while concurrently formulating equity-oriented strategies and/or principles for maker education. Buechley's (2013) careful analysis of MAKE! Magazine content pointed out that the populations, types of projects, and tools of the movement privilege the interests and cultures of “white Bay Area boys” (cars, robots, rockets, entrepreneurship) and obscure possibilities and ideas such as celebratory costumes and complex traditional metalworking and pottery. Barajás-López and Bang's (2018) study of clay making within an indigenous STEAM program demonstrates how indigenous making operates as a form of storytelling and is deeply connected to the natural world. Sengupta-Irving and Vossoughi (2019) examine the subjective experiences of two minoritized girls in STEM learning environments to critique normative discourses around STEM learning, arguing for new discourses that dispute US global hegemony as the rationale for STEM learning, questioning dominant definitions of science while valuing its convergence with creativity and joy. Durán-López (2023) showed that basketmaking in a Pomo Nation community had a role that went beyond the utilitarian, carrying intergenerational connections and a particular cosmovision. Anonymous (2020) argues that the maker movement and maker education have often uncritically adopted an idealized view of making as inherently liberating or democratizing. Like others, Anonymous advocates for a culturally-informed approach to making that engages with local populations to co-determine what tools and practices could be mutually enriching, avoiding the romanticization of the “local.” Despite this research, even the critique on maker education has been predominantly US-based, and the understanding of its potential and the possibilities ends up being limited by US contexts and populations. In our research, we endeavor to advance this agenda by further documenting making practices in nondominant populations, going beyond the predominantly US-based locations and into the Global South.

Methods

Research context

The Quilombola Communities of Anonymous (QC1 henceforth) and Anonymous (QC2 henceforth) are located in the Northern and Southeastern regions of Brazil, respectively. QC1 gets its name from a local animal and comprises various villages of quilombola origins. Over the last three decades, the community has seen pottery production – an activity exclusively driven by women and deeply rooted in the community's heritage – evolve into the community's primary source of income (Anonymous, 2011). Elderly women, known as “louceiras” (pottery makers, in English) are the heart of this enterprise. They not only provide for their families but also ensure the preservation of pottery-making skills for future generations. This unique clay pottery has recently gained recognition, especially in the tourism sector. QC1 has also piqued the interest of researchers keen to understand the people's lifestyle and their relationship with the environment. QC2 is home to around 200 residents in the rural area of a municipality with strong cultural and touristic appeal. The elderly women of QC2, often referred to as “quitandeiras” (“baked goods makers,” in English), have been at the forefront of various initiatives related to family agricultural techniques, seed banks, organic produce sales, and the revitalization and sale of traditional community baked goods, known as “quitandas.”

Data sources and analysis

Our analysis at QC1 focuses on the community's pottery-making practices, observed over the course of four research visits between September 2022 and March 2023 by two of the authors. The primary dataset incorporates photographs, digital field notes, and informal interviews with key informants. During this period, Author X observed 58 hours of activity, concentrating on 18 of the community's 24 potters, and especially on Dona Joana (pseudonym), founder of the QC1 Association and the community's leading political figure. The selected 18 potters willingly consented to the research under Dona Joana's guidance and leadership. Author Y contributed by being present for the initial 14 hours, and mainly collected interviews with key informants, including Dona Joana.

Main events observed included the preparation for clay extraction, clay extraction, clay preparation, and pottery-making (Figures 1-12). This data was further supplemented in mid-July 2023 by Author X, who carried out a semi-structured interview with Dona Joana.

In contrast, our analysis at QC2 revolved around the construction of a traditional clay oven, a significant aspect of their community. The construction was proposed to community leaders as a methodological solution to a research challenge: the difficulty in identifying a family which would be about to build an oven during the anticipated fieldwork period, since almost every house in QC2 already has its own clay oven. Consequently, a proposal was made to support financially the construction of a new communal oven at QC2's community center, which was promptly embraced by the women from the community involved in the community center. Two experienced women were designated to lead the construction, assisted by a third and supported by a younger woman managing the center's administrative tasks. All data were collected by Researcher W and included observations and informal interviews with the three women involved in the construction. The construction spanned four consecutive days in November 2022, totaling 40 hours of observations. The following processes were observed: terrain preparation, planning of the oven's dimensions, foundation setting, and oven construction (Figures 13-24). This construction involved the building of the walls and filling of the foundation, raising the curvilinear-shaped oven walls, defining the openings for the insertion of trays and the release of smoke, all the way to sealing the oven's top, which is considered the most challenging step. Data sources included photographs, digital field notes, informal interviews, and audiovisual recordings with the three women.

All researchers involved in the larger project collectively analyzed photos and discussed preliminary findings presented by Author X and W in online meetings between September 2022 and March 2023. The notes from these meetings subsequently laid the groundwork for an analytical memo created by Author Z. Employing interpretive frameworks, Author Z moved continually between Author X's and W's preliminary findings, field notes, photographs, audiovisual recordings, and meeting notes, and routinely consulted with Author X and W for validation. This in-depth analytical process eventually led to a final analytic memo, which was then reviewed and enriched by the other authors.

Findings

In presenting the findings of our research, we focus on the most salient characteristics of pottery and oven-making practices within the two distinct quilombola communities in Brazil. Although our analysis highlights these key features, it is important to recognize that they represent only a fraction of the practices and beliefs that permeate making in these communities.

Non-human participation in pottery-making

The making of clay objects in the community is deeply interwoven with an ancestral bond with a non-human entity called the "Mãe do Barro" (Clay Mother). This presence is integral to pottery making in the community, with her participation evident at every step. The availability and purity of clay in the land, as well as the ultimate quality and durability of the clay pieces, are intrinsically attributed to the Mãe do Barro's assistance and continuous approval. The community believes that their pottery-making practices thrive on her satisfaction, and that without her their pottery-making tradition would cease to exist. During the first interviews with co-authors, the potters explained that the Mãe do Barro will provide, from a single pit excavated only once per year after the rainfall season, all the clay necessary for that year's production, which potters will store in their houses. Some of the pots are also sold to other community members and for tourists.

When asked if they would be interested in having a machine or mechanical assistance that could extract larger quantities of clay to increase production, they unanimously said no, because of how much it would disrupt the "Mãe." Dona Joana elaborated further on how this belief manifests in the clay extraction process, recounting a 2021 incident in which she invited some young men to assist in the extraction (the only step in which men participate). These men brought beers and speakers with them and, despite replicating the same excavation techniques from previous years, were unable to unearth the usual quantity of clay. Dona Joana attributed this shortfall to the men's misbehavior during the extraction process, which would have upset the Mãe do Barro. Clay extraction is a sacred process. At least seven days before the extraction, women hold a sexual fast, a period during

which they avoid raising their voices or using harsh words. Pregnant or menstruating women, as well as those who have lost family members in the past 30 days, do not participate in the extraction process. Dona Joana further explained that shortages of clay are not mere coincidences, but a clear sign of disapproval from the Mãe do Barro. On extraction day, before arriving at the clay pit, the potters offer their prayers, asking for the Mãe do Barro's permission to extract their clay. At the end of the process, each potter offers a tribute (Figures 1 and 2) to the Mãe do Barro in gratitude. These narratives reflect the intertwinedness of a non-human entity and making within the QC. The potter's relationship with the Mãe do Barro demonstrates the significance of maintaining respect and tradition in making, asserting that their unique advantage in pottery-making is not due merely to skill or resources but to the Mãe do Barro's assistance.

Figures 1-12. Tribute to *Mãe do Barro*. Source: Author's Z personal archive





Female collective bonds in oven-making

Oven-making within QC2 represents a collective and solidarity-focused endeavor among women, embodying perspectives central to black feminism (hooks, 2000, 2015). This solidarity is derived not from a confrontational stance against male counterparts, but rather from a shared understanding and mutual life experiences. In a particularly telling incident, when asked why only women were involved in a community meeting, one woman humorously responded, “men don’t even know what collective means,” which was met with laughter and nods of agreement from the other women. Quilombola women, much like their counterparts in urban peripheral communities, often rely on each other for support, especially in family contexts where the traditional male provider may be absent. The construction of the oven in the community cultural center, despite many women already owning personal ovens, was embraced as a means of reinforcing their collective bonds. In discussing the proposal brought by Researcher W for building a new oven, the women saw the oven not only as practical for food preparation but also as a central feature for community engagement. Solidarity among the women during the oven’s construction was also evident. During the oven construction, the division of tasks among the women was seamless, resembling a single entity operating without a designated leader. There was a horizontal distribution of construction functions and tasks, which were self-assigned as needs arose. For instance, when more clay was required, one of them would volunteer for the task, just like when it was time to prepare lunch. Decisions and strategies for construction, such as selecting a specific type of wood for the structure covering the oven, determining the ideal consistency of the clay, or deciding on the angle of the broken tiles for the oven walls, were all collaboratively made. These choices were not only shared but often demonstrated, deliberated, and collectively agreed upon without any conflict throughout the process. The affectionate and respectful interaction among the three women, coupled with the playful tone and laughter that characterized their coexistence during the construction, was also notable.

Figures 13-24. Process from terrain preparation to the finalized oven





Their collective effort in constructing the oven reflects a larger movement of self-affirmation and identity within the community. It is tied with the broader narrative of Black women in Brazil actively resisting the erasure of their cultural and historical significance (Moura, 2001). By choosing to engage in traditional practices and celebrate their identity as quilombolas, these women are challenging the historical narrative that has marginalized their contributions. Oven-making, and the traditional form of baking associated with it, is interwoven with the larger movement of quilombola women throughout Brazil, who are seeking to assert and maintain their cultural identity. The solidarity and collective action in oven-making demonstrate a conscious effort to retain and celebrate their heritage, which is crucial in a society where their history and contributions have often been marginalized.

Discussion and Significance: Making is not just about Making

Pottery and oven-making in the quilombola communities is far from being mere crafts. In QC1, pottery making is deeply intertwined with the community's spiritual beliefs, particularly the reverence for the *Mãe do Barro* (Clay Mother), a non-human identity believed to influence the quality and availability of clay. This practice, a critical part of the community's heritage passed down through generations, is predominantly a female collective endeavor. While pottery making has evolved to become a primary source of income, reflecting its economic significance, it

is conducted in a harmonious relationship with the environment, through a careful, respectful, and sustainable clay extraction process. Furthermore, it plays a central role in community involvement and leadership, with elderly women leading not just pottery-making but also community leadership.

Oven-making in QC2 is similarly a collective endeavor among the women, embodying solidarity and mutual support. The making process is distinguished by its seamless execution and collective approach, with the construction of the oven evolving through the effortless collaboration of the women involved. Each step, from planning to execution, unfolds organically, with tasks being naturally distributed among the women, and decisions made collectively.

Our work in these two quilombola suggest that, in the lives of these communities, shaping and creating objects is deeply connected to other aspects of their livelihood and not a mere goal-based activity to “solve a problem.” Building objects – clay pots, or ovens – went beyond their strict utilitarian value. The practices, rituals, and operations involved in the process also surpass the strictly necessary operations for efficiency. Most likely, complex historical and social processes and pressures shaped these making practices. For example, it could be that the once-a-year extraction was related to the need to protect the environment and the clay, and the complex rules imposed by the “Mãe do Barro” were a way for the local women to assert and protect their roles and leadership in the community and in the economically-important activity of making the clay pots. The unforgiving presence of the “Mãe do Barro,” more than a mere religious figure, has a crucial role in maintaining the integrity of the group, their identity, and their particular processes of making the pots. Now let us imagine that we would transplant the clay making from the Louceiras to a school makerspace, in an attempt to have “culturally-meaningful” maker education or even to honor their traditions—reducing it to a mere making of pots would miss all the complexities and histories of how their entire making ecosystem and process came to be—the pots themselves are, perhaps, more “objects to bond people with” than to solve a particular problem about food preparation.

Similarly, oven-making in QC2 had many of those characteristics, but also brings new elements of a particular maker ecology. The roles were horizontally distributed and democratic, rather than hierarchical, and the planning was emergent (echoing constructionist ideas of epistemological pluralism and “tinkering versus planning”). This might go against the grain of traditional engineering or computer science practices, in which operations are codified and team members are assigned fixed roles. Considering that the women in the village have built hundreds of ovens, their way of organizing the process is likely not only very successful but achieves many additional extra goals. It promotes group cohesion, asserts their identity, provides a protected space in which men are not allowed, and reasserts their leadership and protagonism in an otherwise male-dominated culture. Again, if we imagine a similar oven-making activity in schools, the mere construction of the object would not only miss these elements but possibly revert back to more standard ways of organizing engineering teams.

In mainstream urban communities, we see technology mostly as a way to solve everyday problems, and the materials around us as mere inanimate matter to be shaped, used, and discarded. School makerspaces reflect that mindset and are well-stocked with abundant materials and different types of machines. Notwithstanding the fact that, indeed, work in those spaces can be engaging, rich, agentic, and important for children and youth, they do not expose students to other making paradigms, which could be windows into understanding other cultures and ways of being. Makerspaces need to internalize the fact that making—perhaps more prominently outside of mainstream urban centers and white, middle-class culture—is rarely just about making. Makerspaces, thus, should become spaces not only to build things, invent, understand STEM content, but to talk about how objects get made, understand and experience other cultures and worldviews, and elevate ways of being excluded from mainstream life. Because the way objects get constructed is embedded with multiple layers of communities’ socio-historical lives, it could perhaps be a viable way to understand those layers.

That way, makerspaces could transcend their “factory of inventions” paradigm and become as environments in which multiple cultures and maker practices can coexist. Children and teachers could, beyond the creation of objects, discuss and problematize their own access to materials, their environmental impact, and the relationship they establish with it, the social arrangements and inequities in the work, issues of power, gender, race, and economic exploitation.

Conclusion

In contrast to the dominant perspectives in maker education, which often emphasize technological advancement and entrepreneurship appealing to specific demographics, the pottery and oven-making practices in the quilombola communities of QC1 and QC2 embody deep spiritual and communal values. These practices provided a grounded illustration of the complex cultural values and worldviews that can permeate making, thereby

challenging prevailing discourses and offering an important counter-narrative with implications for research and practice. This work could provide

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