



Griot-Style Methodology: Longitudinal Study of Navigating Design With Unwritten Stories

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ABSTRACT

We describe a seven-year longitudinal study conducted in collaboration with an indigenous community in Kenya. We detail the process of conducting research with an oral community: the deliberate practice of understanding and collecting stories; working with inter-generational community to envision and design technologies that support their ways of storytelling and story preservation; and to influence the design of other technologies. We chronicle how we contended with translating oral stories with rich metaphors to new mediums, and the dimensions of trust we have established and continue to reinforce. We offer our *griot*-style methodology, informed by working with the community and retrofitting existing HCI approaches: as an example model of what has worked, and the dimensions of challenges at each stage of the research work. The *griot*-style methodology has prompted a reflection on how we approach research, and present opportunities for other HCI research and practice of handling community stories.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI); HCI design and evaluation methods**; • **Applied computing** → **Computers in other domains**.

KEYWORDS

Indigenous Knowledge, Orality, Griot Methodology, ICH, Longitudinal Study, Oral Communities, Griots, HCI4D

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1 INTRODUCTION

Indigenous communities across the world have been impacted by colonialism through marginalization and forced relocation. As a result, they have had to contend with resource constraints, many still inhabiting such rural and navigate through resource-constrained contexts to this day. Negotiating through some of the impact of the colonial history in HCI research is reflected in various ways. They include ethically guided approaches [56], collaborative-based approaches (e.g. participatory design [54]), and power-based approaches (e.g. postcolonial and decolonial computing [2, 38]). These amalgamated works explore the impact and implications of technology introduction and application in these environments. In doing so, there are compromises made in the choice of each methodology depending on the population, the context, and the intent, presenting a continued challenge. Our research aims to contribute insights to the ongoing discussion with a particular focus on respectful and inclusive methodologies.

Research intersecting culture and technology has highlighted the complexity of orality, and the nuances of stories the oral communities of which indigenous communities are a part of. There are additional challenges of rendering these stories into written versions [60] and later representing them with designs and technology. These complex nuances pose a challenge for HCI due to the nature of technology to amplify inequalities [75] and in tandem suppression of the underrepresented voices [74]. Enfolded into this, is how we grapple with colonial pasts [38], and the abiding colonial influence in technology [2] designed for and with the communities—that in part foreground written communication over oral-based ways of life. These are the challenges we also encountered during this study and inform our approach to collaboration and to research.

We sought to collaborate with indigenous community members to understand their stories, their interaction with technology, and how they contended with issues of agency and ownership across history, and whenever new mediums have been, or can be used to facilitate or preserve their stories. We borrow the West African term *griots* to describe the complexity of indigenous storytellers who have developed and, in some cases, apprenticed with master storytellers. The *griots* understand the nuances of retelling stories depending on the content, the time, and the intended audience; often extending to song crafting and/or playing instruments [33].

Throughout this study, we reflected on key questions: how do indigenous communities still practice storytelling? What is the current role of technology to aid the storytelling? How do community members relate to technology in the context of indigenous knowledge? How can we design technology that leverage the community ingrained and contextual boundaries to support storytelling? What is our place as researchers in (re)telling these stories? Among other emerging questions. Our work extends beyond *griots*, to include community members across age-groups and domicile, as we work with the nuances of the indigenous community consensus and conflict, towards establishing a framework that can guide our work, and support other researchers who conduct similar collaborations with oral communities.

This longitudinal study represents a seven-year collaboration with an indigenous community in Kenya. Within the larger study, we present three case studies in this paper as a means of highlighting tensions, affordances, and abiding limitations. We describe how community members navigate the tension of competing and conflicting narratives; the nature of generational conflict on the use of technology to preserve and facilitate indigenous stories; and how community members navigate the tension of communal ownership of stories—and especially how they navigate and preserve/hide stories of harmful practices.

Through the years, we have refined our research approach and contribute the *griot*-style methodology that has been informed by established HCI approaches [38, 54] and indigenous inspired approaches [6, 41, 52, 76]. We describe the process systematically: from establishing initial communications, to sustaining the relationship and research collaboration. This study additionally presents a valuable long-term view of community relationship, the changing nature of technology, the impact of the COVID-19 pandemic, and coping with notable *griots* who succumbed due to old age, and how all these life experiences influence the community view and community stories over time.

2 RELATED WORK

We are led by the guidelines set in 2003 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) [77] on cultural heritage; and describe intangible cultural heritage (ICH) to incorporate living and evolving aspects of oral traditions, performance, crafts: that is inclusive, representative, and community-based [78]. This work also falls within indigenous knowledge (IK) (or local knowledge [57]) research domain that focus on the understanding the skills and philosophies built on the community history and interactions with their environments [51].

2.1 Orality, and the Storytellers

ICH research has typically involved heritage in museum contexts and contends with the operationalization of UNESCO guidelines for safeguarding heritage [13, 49], and the proper representations of culture [69]. This extends to work in HCI, but also considers contextual aspects of ICH and IK that leverage the storytellers and their stories—and how they impact design.

The key component of IK involves orality: how people communicate internalized culture, and the mode of enactment (for example through verbal stories, customary practice and/or material culture)

[60]. Folklore researchers have navigated around the changing nature of stories as the storytellers modify them depending on the audience composition, expertise on culture, and community membership [74]. The nature and challenge of oral stories is that often they do not have attribution or have contested ownership. Therefore, the story-handling guidance have instead focused on the stories' use to articulate shared attitudes and cultural nuances [61], instead of identifying and maintaining ownership traces. The storytellers and how they tell the stories form a rich source of how orality-grounded HCI research is conducted especially in the contexts of developing economies [82]. We call these storytellers *griots* in our work: to reflect their multiple roles, the various modes of conveying stories, the skills involved, and the African context.

When working with oral stories, HCI researchers have involved technology for development and community collaboration to inform technology-specific or general design frameworks and describe structures guiding the interactions [33]. The community-oriented nature of oral-based contexts necessitate the use of active research to guide the participation and to center ethics [56]. This allows space to articulate the values of resulting artifacts to the community [19], to strategize for inclusion [30], and to approach the negotiation of data ownership and values elicited from these communities [1].

Research and design in developmental contexts predominantly involve under-resourced communities, often in rural areas. The intent to envision design as a supportive intervention often faces key impediments, usually literacy. Researchers have approached this challenge for example by experimenting with the development of oral-based resources to share locally relevant information in Ghana [31] and the Congo Basin [80]; to explore language translation services in the Sahel [18]; and to leverage question and answer frameworks in contextual applications such as rural farming in India [62].

However, literacy in the context of rendering indigenous language is complex. Researchers have noted that often the indigenous speakers learned to speak the language orally: the language is otherwise indecipherable to the speakers in written form [79]. This is compounded by the fact that the alphabet used is borrowed from other languages [65]. This guidance inform the boundaries of our work, and our approach to consider orality and literacy as separate: literacy neither a requirement nor an impediment for IK to thrive.

2.2 Indigenous-Specific Research

We sought lessons and approaches that other indigenous communities and researchers have leveraged in the context of HCI: to offer lessons, guide our research approach, and offer a space for comparison.

2.2.1 The Nature of Indigenous Knowledge. IK research emphasizes the importance of centering indigenous ways of knowing, ways of being and ways of doing [52]. This has involved work that apply indigenous-inspired processes e.g. the First Nation-described *two-seeing eye* approach as an example of empathically guided methodology [34]. The emphasis is informed in part by the clash with colonial history, and the incompatibility of western-design technologies that have led to the erosion of indigenous knowledge, impacting sovereignty, intellectual property, and data agency. This

has subsequently led to suspicions of technology: observed in the hesitation of ICT adoption by the Aboriginal and Torres Strait Islanders [35], and maternal health-related technology by indigenous communities in Ecuador [79]. These insights sit alongside others exploring indigenous practices e.g. the practice of witchcraft in Bangladesh, and the insights and challenges that they pose at the intersection of morality and modernity in HCI research [70].

Given these confounding factors, researchers have had to reassess the formal approaches for conducting research, and instead enfolded local contexts [85] and community structures. They have also had to grapple with the complexities of community-based debates on the right of communal ownership vs instinctual defense by the gatekeepers [65]. Proposals originating from these contested contexts have included an approach of *design non-proposals*—intended to build relationship and rapport: by establishing a space that aids expression of intent and value [73] rather than research as the main goal. The impact of colonialism on IK feature prominently in our work, and we use it to consider the unsettled debate regarding IK ownership and boundaries, the community suspicions surrounding technology, and the resulting impact on IK.

2.2.2 Designing For/With Indigenous Language. The isolation and the dearth of in-person serendipitous community connections wrought by the COVID-19 pandemic made it necessary for certain indigenous communities to consider other means of maintaining community and convey stories. This has informed recent efforts to explore how indigenous community members leverage technology, and the necessity of doing so; for example, in Bangladesh [64] and echoed in Latin America context [65]. Other research explored the use of technology by researchers to facilitate connection and collaboration with indigenous communities: for example, through the use of WhatsApp with the Iban indigenous community in Malaysia [50], and through asynchronous video with Aboriginal Australians [9].

For technology to be adopted by indigenous communities, it has to work with how the stories are presented, and the language and performance used to convey them. In collaboration with the Xhosa indigenous community in rural South Africa, researchers envisioned how technology through mobile phones can be used to tell the stories in keeping with the community methods [12]. Complementary approaches also considered unsaid words, such as gestures, that are borne out of long-term collaboration with the Ovahimba IK in Namibia, now incorporated to facilitate virtual reality experiences [5]. We present insights about how the indigenous community in Kenya leveraged their indigenous language using social media, and how the *griots* were sometimes represented, but other times entirely missing in those contexts.

2.2.3 Facilitating and Preserving Indigenous Knowledge. Researchers have reported on work that have explored the utility of technology as a facilitator. This includes how members leverage video-based technology to engage with generational conversations [7], and the utility that indigenous community members found in social media as both a facilitator and preserver of their IK [44] in Kenya. In cases where preservation is paramount and/or unavoidable, researchers have surfaced cultural sensitivity to guide the digitization. For example, integrating the Sámi indigenous epistemologies in the design [55]—embodying their cultural sensitivities in the preservation of IK [53]. In dealing with existing preserved work, we additionally

gain insights from how the Māori foreground agency over how preserved knowledge is used and attributed [15] in their intellectual property decision-making involving trademarks of works that incorporate their words and images to product applications. Understanding the nature and use of technology by the community members themselves has served as a guide to approach the design that complements the storytelling, community representation, and the affordances found in the chosen technology.

2.3 Methodological Approaches

In exploring the methods used in indigenous contexts, we resurface the importance of accounting for colonial implication of both the research approach and technology design.

Postcolonial computing contends with the colonial influence and power differentials. It foregrounds culturally located research by involving the community to aid in knowledge articulation and requirement translation into technology [38]. Works that have leveraged this lens highlight the importance of centering knowledge considered non-dominant, in which indigenous practices [70] and indigenous knowledge [41] are domiciled.

Decolonial computing similarly deals with the colonial history, but also foregrounds geopolitics and body politics when discussing computing, de-centers Euro-centric maxims and considers remedies to technology harms, alongside reported utilities [2]. Researchers have found use in applying it in underrepresented contexts [85] and especially to account for chosen paradigms, knowledge practice, values, frames of reference and issues of power [3].

2.3.1 Retrofitted Methodologies. Beyond the broad scope of post-colonial and decolonial computing, researchers have retrofitted existing methodologies to account for the context and communities. Chief among these is participatory design (PD) [54].

Researchers have found the malleability of PD to fit contexts where community members have limited exposure and knowledge of technology [12] and support a re-working of established goal-setting approaches [23] and role renegotiations [83]. PD also allows for incorporation of community insiders as co-facilitators [10, 22], and oral and performance knowledge systems [84] that account for indigenous ways of thinking and consensus processes (e.g. Native American talking circles [81]).

We did not find significant use of other approaches that in theory look to suit collaborative research with indigenous communities: for example, leveraging intersectionality, to explore context and account and disclose dissent in the decision-making contexts [23]. Methods such as value sensitive design that prefaces community values [27], feminist HCI [8] and self-determination theory [20] used to understand community-based motivations guiding their choices, were not as represented—perhaps because the methodologies are nimble in providing specific guidelines that can be adopted, as opposed to leveraging the entire methodology. In considering them for our research, we found that they would apply where there is community consensus on practices, thereby potentially framing future-facing actions. However, when intending to account for the lack and therefore explore the challenges and orality complications, these methods do not provide sufficient support.

2.3.2 Indigenous-Inspired Methodologies. We present four examples of methodologies that foreground indigenous ways of knowing, ways of being and ways of doing [52]. These works have informed the guidelines we used to conduct the various studies we present in the following sections, and represent both the differences across contexts, and similarities across community-approaches.

First, an African-informed approach by Awori, Vetere and Smith (2015) [6] that builds on the *ubuntu*¹ research framework [84] and recommend viewing IK with three foci (the 3Ps): *practice as knowledge* (accounting for lived experience and conveyance of such), *people as knowledge (ubuntu)* and *place as knowledge* (the impact and relationship with ancestral lands) [6].

Second, a recommendation by Brayboy (2005) [14] informed by Native American research building on the critical race theory [21] approaches indigenous research following *six Rs: respect, relationship, relevance, reciprocity, responsibility, and representation*. The *six 6Rs* are intended to promote the valuing of indigenous people's rights and traditions, their relationship with the land, the value they get from the process, how the work will be perceived, and who is accountable for it [14].

Third, is a respectful framework by Kotut et al (2020) [41] that is informed by a Kenyan indigenous community storytelling content and contexts. They use the framework to describe four spaces: *public, discretionary, restricted* and *sacrosanct* to detail how the stories are to be treated in each space [41].

Fourth, is in continuance of the “respect” theme as articulated by Sheehan (2011) [66]; and informed by Aboriginal community understanding: centering care and humility (as we lack knowledge of the future) and situational awareness in advocating for equity of the people and the land, and accounts for divergent and conflicting cultural understanding (termed as “cultural wicked problems”) [66].

3 INDIGENOUS COLLABORATIONS

Within the larger longitudinal study, we describe three design-related studies conducted between 2016 and 2023, that have resulted from our collaboration with an indigenous community in Kenya. These studies form the basis of ongoing research: adding to the corpus of knowledge on designing for, and with underrepresented communities. We place particular emphasis on indigenous communities, and their interactions with technology platforms and infrastructure with which to tell and preserve their stories. We narrow our scope and highlight tensions: between community members, and with technology, for these are typically contextual and better described using emic approaches. For each study, we describe the background inspiring the research, the research approach, the collaboration activities, the lessons learnt, and the implications to community storytelling and to research and design.

3.1 Conflicting Narratives: Establishing Foundations (2016 - 2018)

The indigenous community contended with two conflicting needs: the preservation of orality as important, and the need for older

members of the community to convey this to the younger generation who may not have a place or communal structure to engage with community stories in the original form.

3.1.1 Background. The research emerged in pursuit of an opportunity to collaborate with cultural museums to design digital experiences of cultural artifacts belonging to the indigenous community. This is in keeping with established work in museum artifact and exhibit interaction [67], the technology associated with the exhibit interactions [63], and taking advantage of known gaps in interactivity specifically in African museums [42]. This approach falls within the unsettled debate both in literature and within communities practicing orality regarding the place of technology in the preservation, and the tendency for privileging a single version of narrated events in writing.

We approached this challenge from an intangible cultural heritage (ICH) perspective: as described by UNESCO [77] and implemented in design [49], to scope our research approach in considering how three (cultural) museums associated with specific indigenous communities address this. We also wanted to learn from the community on their participation in ensuring this.

3.1.2 Conflicting Narratives Tension: Who should tell the story? We expected to leverage the existing relationship between the museum and the various indigenous communities the museum represented. Through interviews of community members and of docents and curators, we found that no such relationships existed. Instead, the museums made use of different processes to supply the artifacts and stories: relying primarily on written records to inform the curation of the artifacts, the labelling, and the stories they associated and retold about the artifacts. The written records also supplemented the docents' contextual narratives when giving tours.

However, much of the written works about the indigenous community, and indeed, most indigenous communities in Kenya, were written by the British during the colonial period, and did not reflect the first-hand storytelling from the community itself. Additionally, we found that the community members did not feel a sense of representation by the museum—had in fact not been consulted on how the artifacts were presented, nor had they attended those museums in person in any formal capacity even though they were physically proximate. Our participation in supporting the museum in designing technology-aided experience should we have proceeded, would have served to amplify the stories of artifacts told from a colonial perspective.

Working with community members, we sought to navigate this gap: and understand how they wished to preserve artifacts and the stories associated with them. Through interviews with community members—especially the elders with the historical cultural know-how and understanding of cultural boundaries, we wanted to further understand the nuances of the place of technology in affording the community with the control of preservation, and the place of museums in how the stories are conveyed. We also had community members accompany us to the museum and experience the docents' tour, allowing space to debrief both the community members and the docents—the experience augmented by the community members' IK expertise that served to ground the discussions towards supporting concrete paths to consider the outcomes.

¹A word to explain humanity as a part of a whole. Extracted from the Zulu phrase: “*Umuntu, ngumuntu ngabantu*” - “I am, because you are”.

3.1.3 Lessons and Implications. The overall theme of the interviews with the indigenous community revolved around the notion of respect: of boundaries, and agency over the storytelling. Using the grounded theory analytical approach, we envisioned a respectful framework for making this possible and to be able to envision steps to navigate the conflict—described in indigenous research as “cultural wicked problem” [66] and in other research as “pluriverse” [17, 24]. The respectful framework [41] guided our subsequent work not only in determining the granularity of the collaboration structure and how stories are told, but also in how we approached subsequent interactions in determining the nature of the indigenous stories and how we can/should handle them in future work: adding to the corpus of work in HCI/CSCW research on postcolonial computing [38].

3.2 Generational Conflict: Understanding Technology Use and Reuse (2018 - 2021)

In the course of our collaboration, and by attending community events and interviewing members, we observed internal differences in their use of technology for engaging with indigenous culture and preserving cultural artifacts. The differences emerged generationally: the younger community members used social media, while the much older community members did not maintain any online presence. We discussed these differences with the community in considering whether the design of technology intended for the museum to aid their storytelling can also be repurposed, or redesigned to support within-community storytelling to ford the generational divide, based on the difference of how they leveraged online and offline spaces for interacting with their IK.

3.2.1 Background. The cultural wicked problem was showcased in the differences between how older members of the community viewed the stories and their boundaries of sacredness compared to the younger members. We scoped our research framing from an IK perspective, and interacted with work in this domain—with the specific seeking of works in the African-context.

Tradition, technology know-how, and technology adoption played key roles in determining the discussion on culture in different contexts. The younger community members tended to congregate in online spaces to engage with their IK [45] and preserve their language [59]. The older community members were absent in online spaces—often because they did not have the requisite literacy and/or English language skills, did not understand social media participation norms, or lacked access to internet-enabled devices [44]. Previous research has contended with similar challenges: in designing tools to enable communication between community members of different age groups domiciled in different parts of the country [58] and around the world [7]. However, considering technology for use in imparting indigenous knowledge, especially between grandparents and grandchildren [7, 11]—and even leveraging existing tools to preserve public-facing indigenous knowledge [29], the lack of elder participation in the online space, and the impact on cultural preservation remains a challenge.

3.2.2 Conflicting Spaces Tension: Where should the story be told? Social media platforms provided (younger) community members the space to congregate with others who were in different geographical

contexts—including overseas. The online space enabled the members to interact with different aspects of their culture, update other members, ask for contextual advice, etc. There were limits to what was able to be conducted online: revolving around the absence of elders as arbiters of cultural boundaries often done through leveraging their knowledge collected over time to inform their decisions. There are typical multiple paths to eldership within the community: by-generation (grandparent/great-grandparent), by-age-set², or by-mantle (individuals selected by the community—usually to serve as a representative, a path that now is leveraged politically).

To bridge the gap created by the absence of elders in the online space, young elders self-appointed themselves. The young elders are members who are considered the oldest in the context of the online space. Eligibility for young eldership by age-set was simplified to men whose own sons had also undergone their rites of passage (we did not find examples of women-led IK-specific online groups). These stop-gap measures allowed for the envisioning and adoption of indigenous-informed ways of establishing respectful boundaries, especially regarding secret, sensitive and/or sacred stories. Contextual allowances that are absent in the offline space were also adopted: for example, allowing sensitive topics to be discussed but only if written in the indigenous language, and/or providing mechanics of mentorship. This made it possible for members who are overseas for instance, to reach out to individual members and ask questions that touch on the sensitive/secret spectrum of their indigenous language. The mentors would determine the membership by virtue of whether they are born into the community and therefore have a right to the knowledge. If men, that they have also undergone the rites of passage thus making it possible to bypass the indigenous language requirement to be privy to the community stories.

3.2.3 Lessons and Implications. There are tensions surrounding the stop-gap measures used in the online space to guide the sharing of IK, influenced by community members having different concepts of what can be written, and what can be discussed publicly. This lack of consensus has implications on how researchers approach research goals: from the Institutional Review Boards (IRB) requirements, to engagement with ethical boundaries defined in the offline space, but undefined in the online space. We also found the concept of time to be different: the community members conceptualized events using age-sets, in keeping with patterns observed with Australian Aboriginal communities [72], and in Native American tribes. The Navajo, for example, incorporate changes to the environment into the concept of time [74]. These insights necessitated careful considerations on how we engaged with and reported on time.

3.3 Conflict of Ownership: Boundaries, and Beyond Boundaries (2021 - Onward)

The sustained relationship with the community and trust fostered through the years of collaboration has made it possible to discuss

²An age-set is made up of men who've undergone the rites of passage and considered adults. Each age-set is capped after roughly 15 years, cycling through seven-to-eight named sets. An active and preceding age-set were once considered the *warriors* and would go to battle/raids for the community. One-to-two age-sets preceding the warriors are the *advisors/quasi-elders*, and age-sets preceding the advisors are the *elders*.

aspects of culture and traditions that may surface harm done to community members, or present the community in a negative light. Instead of using the respectful framework as a window into the community story handling, we used it as a mirror by which the community can reflect on itself. Both views support the community in the articulation of identity across gender and between generations, is in the spirit of “giving back”, and has the promise of adding nuance to the discussion on underrepresented communities having a say in the development of technology, whether or not it is intended to be applied in their contexts.

3.3.1 Background. We sought to apply our experience with the window-and-mirror approach to having community members reflect on their cultural experience: giving nuance to inherited stories, especially in the contexts where power imbalances influenced fairness and justice. The intent of the study was first to buttress the framework we described collaboratively in the initial studies so that it can be used not only to frame the study of indigenous knowledge and inform how the outside communities should treat community knowledge, but also how the community members navigate the story boundaries amongst themselves.

This was compounded by concerns about large language models that leverage written stories. If they applied to the indigenous language, they could suppress orality and the community’s own stories about their contexts—countermanding their respectful boundaries for handling their stories in the artificial intelligence space. We also consider the dimensions of how community members who are not literate can contribute to the ongoing discussion on emerging technologies.

3.3.2 Conflicting Justice; Conflicting Technologies. In the first case study, we reported on the reliance on written corpus to influence the storytelling in museums. The writers were often British colonists who did not make a faithful accounting of the indigenous community stories, nor conveyed boundaries. We found similarities of these approaches to the concerns regarding the technology-specific models that make it tenuous to involve underrepresented communities. The resulting discussion provided opportunities to reflect on community intent on their storytelling: if it is to be insular, and kept within the community bounds, or if there is a space and desire to have influence beyond the community borders—especially on matters that involve a secondary application to community knowledge.

Underlying the discussion on the boundaries of community stories are the stories that if made public, would paint the community in a negative light. Some, like the practice of female genital mutilation (FGM) outlawed since the 1970s—the ban codified within the Kenyan law [25], are readily acknowledged by the community to be harmful. However, other topics on harms that touch on issues of morality, practices that infringe on personal autonomy, and patriarchy informing indigenous justice, are less explored. We interviewed community members across age groups—learning from their language and experience. Different from our previous approaches, was the discussion with elders in different contexts: including talking with men and women elders in separate groups to account for gendered storytelling. Apart from accounting for harmful practices, we sought to understand the rationale for repair: how those who

suffered injustice or injury are remediated and restored, to give shape to the concept of indigenous justice system.

3.3.3 Lessons and Implications. This work is ongoing. Early lessons include the notion of indigenous justice and elements and judgments that are respected and enfolded within the Kenyan legal framework. There are opportunities and intent to connect with justice and reconciliation approaches that have been practiced by other indigenous communities in an effort to provide reparative justice. We further consider the impact of political incorporation on the indigenous system of justice, and the use of mass and social media to amplify them.

3.4 Summary of Case Studies

The three cases we outlined in this section (also summarized in Figure 1) provide insights into the seven-year research collaboration with an indigenous community in Kenya. While the original research intent was to support the museum by envisioning digitization methods of indigenous stories and artifacts, the research transformed as we found a lack of community participation or say-so in the digitization. The research has since evolved according to community needs, and as we encountered and explored conflicts. These were: conflicts of narratives (the nature of prioritizing written sources created by British colonists over oral histories as communicated by the community); conflicts of generations (younger members adopting and using technology to engage with IK, the older members entirely missing in the online space) and conflicts of ownership (who is tasked at repairing harm perpetuated by community stories and practices, and how justice is rendered).

3.5 Case Studies Application

We enfold insights and lessons across the larger longitudinal study to describe a guiding methodology developed through the various community collaborations. We do so by scaffolding the case studies on related research that leverage participatory design and indigenous research methodologies. This combination informs the *griot*-style methodology we introduce in the next section: that sets the stage to critically examine both prevailing methodologies and research practices and provide the grounds to contribute to the discussion of implications on HCI specific research and design.

4 GRIOT-STYLE METHODOLOGY

We describe a methodology for the discovery, preservation and reporting of IK, constructed over the collaborative period with the indigenous community, and inspired by the expertise of the oral storytellers—the *griots*. The division of the *griot*-style methodology is informed by an archetype of a HCI qualitative study (Figure 2 provides a visual summary):

- (1) *Groundwork*: encompass background work, ethical guidelines and local permissions.
- (2) *Role Delineation*: comprise positionality and working with community liaisons.
- (3) *Interviews*: touch on the local ceremonies and communal nature of interviews involving elders and *griots*.
- (4) *Organization*: describe how we accounted for nuances of storytelling in the archiving and analysis.

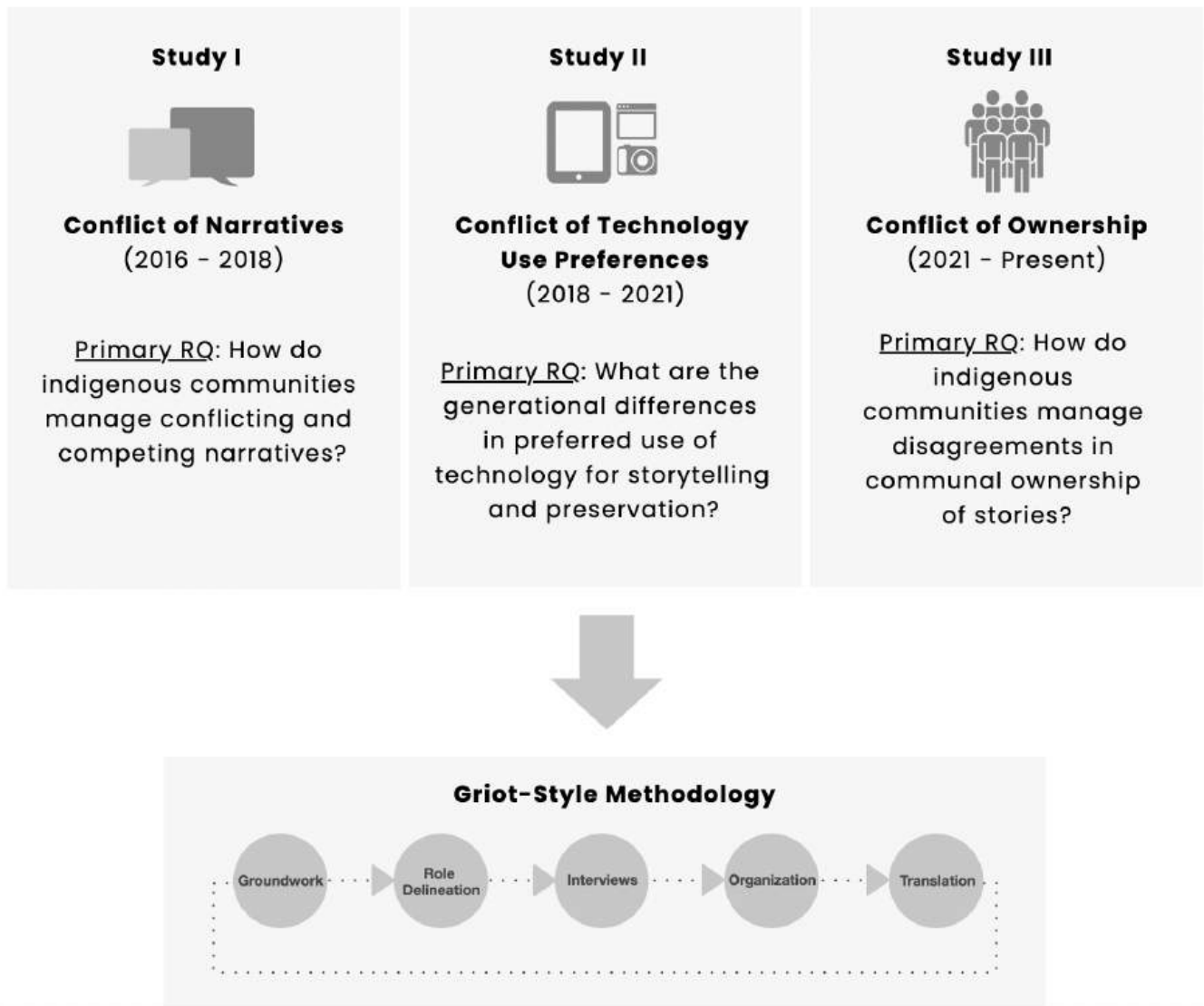


Figure 1: A summary of the three component studies in our longitudinal investigation, focusing on disagreements of narrative, technology use, and ownership of stories in indigenous communities.

- (5) *Translation*: deals with how we convey stories to an external audience while preserving the original intent.

4.1 Groundwork: Preliminary and Preparatory Work

The research guidelines are informed by the community storytelling experts who understand the nuances of custodianship of oral stories. These experts encompass community members who are de facto elders, and/or who are known to have cultivated the expertise of storytelling through volume and performance (songs, dances, etc.). We encapsulate these members with the *griot* title: an amalgamated West African term describing “masters of words and music” [32].

4.1.1 Appropriateness and Accountability. Research appropriateness and researcher standing in qualitative research is typically discussed in positionality statements. In our case, we determine appropriateness by also accounting for the researcher community standing, informed by membership or long-term association built on collaboration and trust. In the absence of this standing, liaisons (described in the next section) may act as a bridge.

The appropriateness discussion emerges from how community members introduce themselves, especially in the context of researchers asking for knowledge and input. The question is asked: “*Ii ng’o?*” (Translation: who are you?) that presents an opportunity to respond by narrating community membership: family name, ancestral origin, and clan membership. If a man, also the age-set

name. If a person was not born into the community, then they can leverage the ties that they have forged with named people, clans, and/or a geographically-described community. A description of research involvement with other community members [37] is an accepted substitute. The answer to the question also provides the opportunity to describe motivations for conducting research, and to demonstrate knowledge of community organization: showing respect towards the community authority and hierarchy and importantly, to establish the chain of accountability.

We leveraged the first author's community membership in the initial research. As the research progressed, we relied upon the network built through the research partnership. The institutional review board (IRB) approval process shapes the last part of the accountability process: as a means to provide additional participant protection—especially those unaccounted for in community practice [81]. For example, reviewing the voice-only consent process, respectful discussion of remunerations, the anonymity processes to protect participants' privacy in the reporting, etc.

4.1.2 Context, Community Policies and Politics. Communities may have mechanisms to review applications and grant approvals for indigenous-related research. This may range from formal structures such as the Tribal Institutional Review Board (TIRB) providing oversight on research conducted with American Indian/Alaska Native communities [48], or communal permissions discussed and determined during community meetings [65]. In Kenya, formal research review is conducted through the National Commission for Science, Technology and Innovation (NACOSTI): a regulatory body that accredits other independent organizations to review human subject research, in addition to obtaining community permissions. Indigenous and rural communities in Kenya are usually represented by council of elders who are the arbiters on behalf of the community and in support of the chief [26]; however, individual elder's permissions can act as a proxy.

Beyond understanding country-specific laws and community processes, there may be hidden conflicts in how community members relate to each other, and to a topic—especially as it regards community organization and external politics [43, 46]. While working with liaisons can reveal these hidden complexities, we hold the stance that it is not the researchers' position to confront these conflicts. However, unraveling and understanding nuance is essential for contextual understanding and recognizing those marginalized and harmed within the community.

4.2 Role Delineation

In addressing the notion of appropriateness above, we noted the importance for researchers to understand nuances in conflict, but not be arbiters of them. Liaisons provide support structures in this stance.

4.2.1 Working with Liaisons. The liaisons are community members who are able to convey the researchers' requests to the known elders. They are essentially the *griots* for the *griots* (in the meaning of go-between between the researchers and the community members—including the storytellers [32]). When working with elders in the context of indigenous knowledge, the inclusion of liaisons becomes a matter of respect—even if the participants are directly known to

the researchers. The liaison's role is: to make requests on behalf of the researchers, to showcase an understanding of knowledge hierarchy, to lend their own accountability to the purpose of the research, and to advise proper forms of participant remuneration. This consideration adds nuance to the notion of reflexivity: a reflection on the effect of the researcher's presence in the investigation [10, 36], as it also has to account for the liaisons.

As ceremonial guides, the liaisons do not replace the researcher's role and ultimate accountability. However, it is important to have established trust with the liaisons. Earlier, we navigated this by leveraging our community networks to determine trusted liaisons, and had redundancy in also working with participants who were known to us. As we increasingly sought out specific *griots* beyond our immediate network, we would ask community members on the most appropriate person to "introduce" us to liaisons, and would reach out after reviewing the recommendations: introduce ourselves and the connection that led to them, describe our work, and then arrange for the introduction to specific *griots*.

Liaisons occupy the liminal space between research partners and participants. As our work has matured, we have been able to have elders we interviewed in one case study become liaisons in later studies: facilitating interviews with other community elders. Younger members can act as liaisons to elders, but the reverse is not done. In addition, while previous participants can become liaisons, we do not practice the reverse, to avoid bias in the interviews. We also make room for liaisons to become full research partners—pursuing their formal research agenda. We summarize the contextual relationship between the liaisons and researchers as follows:

- (1) *Choice*: The choice of liaisons is contextual. Any adult member in good standing with the community and fluency in the indigenous language can act as a liaison. For our work, gender was only crucial when seeking to interview men elders.
- (2) *Relationship*: The liaison does not have to have a direct relationship or knowledge with the elder/*griot*. The trust chain of accountability between the elder/*griot* and the liaison will be established when the liaisons answers the *ii ng'o/who are you?* question—and orienting their place within the community.
- (3) *Presence*: The liaison does not have to be present when meeting the elders in typical cases. However, the higher the stature of the elder, the better it is for the liaison to be present. The liaison task is to present the researchers, to orient them within the community structure, and to ease the segue into the research process where the researcher(s) take the lead. Apart from the introductions, the liaison does not have any more formal or ceremonial tasks.
- (4) *Objectivity*: If early in the research, it is ideal to work with multiple liaisons to balance the risk of bias with the need for trust building. For example, when confirming the translation of specific parts of texts and metaphors, we would reach out to a different liaison apart from the one who was present during the specific interview.

For each study, we prepare by considering the scope and depth of liaison involvement, and manage the rewards and risks associated

with their involvement. We then account for them within the IRB environment, and describe their roles in positionality statements.

4.3 Interviews

We consider three aspects in approaching interviews that form the basis of *griot*-style methodology: participants sought, the interview environment, and the boundary discussion.

4.3.1 Establishing Parameters and Recruitment. The age and community stature of a participant inform the approach strategy. For younger community members who have online identities, the standard snowball/convenience sampling approach is sufficient. For older members who may not have any online identity, and especially elders and *griots*, there is need to also account for liaisons.

We discuss elders/*griots* remuneration amounts with various liaisons—to gauge the appropriateness of the amounts set aside for the purpose. It is expected that elders and *griots* would be remunerated with a higher amount than other adults, and in our work, we remunerate the liaisons at an amount between the adult and *griot* scale, and also reimburse any transportation costs incurred on our behalf (for example to physically reach a *griot* who does not own a phone). We also arrange “gifts for the house” if the interviews are to be conducted in a participant’s home. A typical gift bag includes food items: sugar, tea, salt, flour, and seasonal fruit. They are a customary practice and a mark of thanks for hosting us and also serve to defray any costs involved with the household serving refreshments to the interested community members in attendance as is custom.

Beyond discussing the amount with the liaisons, the remuneration amount is never discussed with elders/*griots*. We would hand over the amount when shaking their hands in goodbye, and they in turn will not count the amount in our presence. Both are in keeping with community practice.

4.3.2 Accounting for Unanticipated Participation. The interview processes follow a typical semi-structured approach. We begin by explaining our motivation for conducting the research, the community benefit, and the method of collecting data (notes, photos, and audio). We also advise participants on their privileged actions: they can re-listen to the recording, stop us from recording, or ask for the recording to be deleted at any phase of the interview and the research. There is an opportunity here for the participants to define their boundaries, but in our experience, boundary awareness is more informed at the end of the interview.

What is unique when interviewing elders and *griots* is the attendance of interested audience. Often word gets around that a researcher will be interviewing a noted elder or *griot*, and we will find an audience intending to listen in. The audience members would also interject to ask their follow-up questions or add to the discussion. The *griot* manner also changes, from narrating their experience to a researcher, to performing the experience to the community.

We tend to give context to the audience questions in our reports, and account for longer interview periods in our planning, but otherwise are open to adapt to the context—abandoning formalities when necessary [33, 85]. In cases where we wanted to touch on sensitive

questions that were more personal, we would seek opportunities to do so at the end of the interviews.

4.3.3 Respectful Boundaries: Recording, Transcribing, Translating. Earlier in our research process, we developed a rudimentary framework to guide how we obtained permission, and ensured community understanding of the process of providing informed consent. We use this at the close of the interview to provide space for the participant to set and reset boundaries. We have refined the process as the study has progressed and evolved, to using the following decision tree to describe *respectful boundaries*:

- (1) *Are there any parts of the story that do not need to leave this room?* To discuss the most sacred aspect of work, we prompt this before the interview begins which provides the vocabulary to be used during and after the interviews. Beyond the sacred/secret stories, this question also touches on political and communal concerns and can be used to frame possible harms, concerns, and/or surface superstitions guiding the restrictions.
- (2) *Are there any parts of the story that should not be written?* This question provides the opportunity for the participant to be comfortable in discussing aspects of sacred stories, knowing that the orality would be respected. The boundaries also guide whether we can transcribe the story in the original language but not translate it.
- (3) *Are there any parts of the story that do not belong elsewhere?* This provides guidance on what we could record and transcribe, to use in other contexts—research papers for instance.
- (4) *Are there any other things we need to be careful about?* We frame this question in a manner that signals to the participants that we undertake the accountability for the care in handling the stories, and offer the opportunity for them to provide advice or caution as necessary.

These questions are intended to protect the agency of the storytellers and the ownership over the story, and also to account for possible harms of disclosing secret aspects of community stories that may be the cause of embarrassment or outrage [74]. While we offer examples to each participant on how other participants have leveraged the boundaries on what can be recorded/transcribed/-translated, we do not bargain on the eventual boundaries set by the participants, even if they choose not to articulate the reasons for placing specific boundaries.

4.4 Organization: Archiving and Analysis

Using the respectful boundaries described above, we transcribe and translate the audio recordings. The indigenous language is rich in metaphors and at times we needed to correspond with liaisons to review translations. Asking liaisons for their input is also a logistical choice given the elders/*griots* reticence in discussing IK specifics over the phone.

4.4.1 Wicked and Hidden Stories. There are often conflicting variants of IK. The origin of differing stories is often unknown to the community members. This is described as “cultural wicked problems” in indigenous research [66]. We do not attempt to determine the “true” version, nor we argue, that it is our place as researchers to do so. Adopting this stance ensures that we do not inveigle or



Figure 2: A visual summary of the five constituent steps: groundwork, role delineation, interviews, organization and reflection and outline issues in our proposed griot-style methodology for long-term investigations of storytelling with indigenous communities.

interrupt the chain of custody of the stories. Instead, we envision ways in which multiple story versions can exist, giving background and context for the versions where possible, but designing technology that support how the existence of multiple truths exists and is supported in oral storytelling. This stance is supported by research in other contexts that also support a multiplicity of versions [17]—sometimes called the “pluriverse” [24].

We have also encountered hidden stories (not overtly spoken) and interrupted stories (unfinished in some way). Hidden stories often touch on aspects of harm: done to the community, committed on behalf of the community, or involving community members. It is important to distinguish between hidden stories in service of deliberate/collaborative forgetting in the context of healing, justice and reconciliation [28]—to repair harm, from those intended to obscure harm—hiding practices and actions that would paint the community in negative light. We learn from, and follow the community practice on the former, and use the latter to support community reflection and inform how we approach research and design accounting for harm.

4.4.2 Community Loss and Interrupted Stories. Interrupted stories may involve the death of a participant. Given the nature of our study with the oldest community members, this is not unexpected. And yet, we are still learning about the process of handling incomplete stories, especially in cases where boundaries were not placed: if the stories should survive the storytellers. There are *griots* who expect and intend for specific stories to not survive them. We aim

to honor both in our work: following the dictates of community members who do not wish for recordings to survive them, and learning from how the community handles the longevity of oral stories with ambiguous boundaries. Taken together, wicked, hidden and interrupted stories have implications on how we understand technology use to facilitate IK. For example, the absence of elders and *griots* in the online space: while omitting the complications for determining respectful boundaries for their stories, their IK-related stories—especially those associated with ancestral geographies [6, 45] are missing entirely.

4.5 Translation: Reporting and Attribution

In typical qualitative reporting, participant anonymity is granted by default through the use of pseudonyms or codes—so that quotes and study participation may not be associated with a specific individual. However, attribution, especially words involving elders/*griots*, is important in IK. It is a means to convey respect [39], authority, and credibility. As researchers, in contrast, we are obligated to protect participants’ anonymity, especially in the online space where the elders do not inhabit. We approach this conundrum by using elders/*griot* names that are attributable within the community but otherwise meaningless outside it. These include: praise names (unofficial names given to members after undergoing their rites of passage), clan-associated names (sometimes elders are called by their clan name as a matter of respect), or their community title in place of their official names.

Our reporting has been influenced by the intended audience and expected maxims. Frameworks that account for power imbalance have been helpful in providing guidance on navigating power and positionality in how we represent the stories [8, 38]. Interdisciplinary approaches have also assisted in identifying the challenges of handling conflict inherent in content use/reuse—touching on the notion of (indigenous) intellectual property [16], while IK-informed methodologies centering respect have provided guidance on (accountable) handling the stories [14, 41, 73].

We close by proposing the practice of continuous reflection on the positionality [71] as researchers, and on the research status [8], by leveraging reflective practices [40]. Reflexivity provides a separation between the pull to use technology to digitize or transform IK, in contrast to supporting the preservation of oral history, and in describing the boundaries of sharing. The practice is useful in planning for a respectful engagement: preparing selves as researchers, how to engage elders, how to treat stories, how to engage the community, and considering how other researchers may benefit from the process, and the impacts beyond the immediate study [75].

4.6 Summary, Implications and Future Work Considerations

The three cases in Section 3 highlighted the tensions and conflicts we navigated with handling the community stories considering gender, age and modality. Scaffolding on the case studies and influenced by HCI qualitative study archetype, we defined the five component parts forming the *griot*-style methodology presented in Section 4. We discuss the implications in the context of the key themes embodied:

- *Groundwork*—while encompassing contextual policies and politics, also explores the **accountability** process that a researcher ought to follow: adding insights not only to the notion of reflexivity when addressing other researchers as is practice, but also articulate how they express their positionality to the community.
- *Role delineation* and *Interview* practices involve the nuances of working with community liaisons and their necessity—especially when involving *griots*, even when the *griots* are known directly to the researchers. They center the recurrent indigenous methodology theme of **respect** in both the knowledge and practice; and demonstrate the necessity of malleable and respectful research approaches echoing other notions of “epistemic humility” [4].
- *Organization* and *Translation* makes explicit the notion of **amplification** considering the boundaries guiding the storage, interpretation, and retelling of stories.

The longitudinal study informing the *griot*-style methodology has the promise of providing grounding for comparing indigenous methodologies based on their implications on design and HCI research: given that conceptual comparison of indigenous knowledge does not work without the contextual understanding guiding the work. Beyond enfolding accountability, respect and amplification effects, the *griot*-style methodology impacts future works by opening doors for incorporating IK more closely in research for example in leveraging traditional ecological knowledge (TEK) to embody indigenous-inspired sustainable values [68] in design, and thereby

highlighting both the adaptability of the methodology to support research at different stages of execution, and the context and scope by which it can be used to advance future research directions.

4.7 Limitations

The *griot*-style methodology while informed by a longitudinal study, is influenced by one indigenous community. This may impact the extensibility of the work to other contexts, similar to how the work itself was influenced by the lack of complete fit of prevailing methodologies. While this is the nature of the methodology, we also consider this a limitation.

We also focused on indigenous-origin methodologies—informed by community stories and community practice [6, 14, 43]: scaffolded on critical methodologies and participatory design. It can be argued that decolonial approaches would also serve to inform the work. This would then contribute to insights highlighted by other indigenous scholars. For example, on self-determination and the Māori contention with colonial influences on their IK [69]. In this work we took the stance similar to Kovach [47] in setting the “tribal epistemolog[y] as the center as the guiding force for research choices” [47]. Because of this, research that may adopt a decolonial stance to inform indigenous-originated methodology to guide research and design may have different priorities than those presented in this work. Similarly, due to scope, we have not accounted for research that intend to apply the *griot*-style methodology to contexts with decolonial research, and therefore consider this a limitation at this time.

5 CONCLUSION

We presented three case studies out of a seven-year longitudinal study conducted in collaboration with an indigenous community in Kenya. The study is aimed at investigating the place of technology in support of community storytelling and custodianship. The case studies highlighted the community-community and community-outsider tensions surrounding the treatment of conflicting and competing narratives, the use and place of technology as understood by elders vs younger members, and the tensions of keeping stories that reflect harmful community practices.

We described the *griot*-style methodology, highlighting how we retrofitted existing methodologies and HCI research practices to guide our own research with the community. This serves as a contribution to the HCI community on highlighting the long-term nature of collaboration with community, the discussion on ethics and how to approach empathically-guided design and research, and contending with power and justice topics—touching on both the issue of colonial influence and gender-based hierarchy.

We have observed our research endeavor becoming a pretext for the elders and *griots* to meet and tell stories, and for the community members to listen in: to learn the vocabulary for conveying indigenous knowledge, and strategize over avenues for highlighting aspects of the IK. Community members learned of practices and stories they had little to no knowledge before, and took the space and time to contextualize their own experiences and to ask follow-up questions to the elders and *griots*. We intend to pursue this path as long as the community and participants continue to see value in the collaboration.

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