MAPPING GUATEMALA-US MIGRATION:
A CASE STUDY IN CRITICAL VISUAL STORYTELLING

by

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This thesis is dedicated to everyone fighting for the right to land, water, freedom, and dignity in Guatemala.
Abstract

In this research, I document a visual storytelling design study intended to address the persistent gap between critical geographic scholarship and conventional cartographic representation—specifically, the failure of cartographers to ethically and effectively represent the structural and historical forces driving Guatemala-US migration, as well as the personal and emotional repercussions of displacement. To address this problem, I carried out a hybrid design process that synthesizes visual storytelling practices from both academic and professional settings. To center political and ethical considerations as primary drivers of design, I drew on reflexive methods from critical cartography, counter-mapping, and feminist visualization. To prioritize usability and technological innovation, I incorporated practices from professional data journalism and user-centered design.

Emphasizing process over product, I documented the development of my visual story from initiation to evaluation, exploring potential tensions and synergies between usability and a critical politics of representation. I successfully identified a wide array of voices, embodied experiences, and uncertainties missing from conventional visual stories of Guatemala-US migration and produced a widely accessible visual story that centers these omissions. This design study offers transferable, contextualized insights for future work at the intersection of critical cartography and data journalism, and suggests the need for increased partnership between visual storytelling practitioners in academic and professional settings.
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Chapter 1: Introduction

Section 1.1: Problem

Driven by extortion, impunity, and instability, tens of thousands of Guatemalan migrants seek asylum at the southern US border each year (Council on Foreign Relations, 2018). Despite recent theoretical and technological advances, cartographers have failed to ethically and effectively represent the structural and historical forces driving Guatemala–US migration, as well as the personal and emotional repercussions of displacement (Radojevic 2010). Conventional maps are dehumanizing on multiple levels, silencing the lived experiences of migrants by excluding their stories and employing Western mapping conventions that convey “a geography of modernity, universality, detachment, and placelessness” (Pearce 2008, 18). Employing the ‘God trick’ (Haraway 1988), these disembodied cartographic perspectives fuel xenophobic rhetoric and stand in direct opposition to contemporary geographic scholarship (van Houtum & Lacy 2019). While critical geographers continue to produce important scholarship contesting hegemonic notions of mobility, maps are often absent or conventional in their analyses (Moore & Perdue 2014).

This disconnect has persisted despite new and flexible tools for map-based visual storytelling, an emerging space at the intersection of data journalism and cartography. Visual storytelling is a multimedia, multiscale approach that seamlessly integrates maps, photos, charts, and other narrative elements,
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synthesizing quantitative and qualitative modes of communication (Roth 2021). The budding field of map-based visual storytelling holds unique opportunities to bridge the stubborn chasm between critical geopolitical scholarship and conventional cartographies of migration. In order to explore this potential, I executed a case study in critical visual storytelling, guided by the feminist mapping concepts of voice, embodiment, and uncertainty. The case study asked the following questions:

1) What voices, embodied experiences, and uncertainties of Guatemala–United States migration are missing from conventional cartographic narratives?

2) How can these voices, embodied experiences, and uncertainties of Guatemala–United States migration be ethically and effectively represented with map-based visual storytelling?

This work is situated in narrative cartography, which considers maps as a form of storytelling (Caquard 2011), and engages with the two overlapping questions facing any storyteller: what story to tell, and how to tell it? Despite their entangled nature, I use the terms story and narrative in referring to these respective questions, recognizing that a given set of events, characters, and settings making up a story may be shaped, represented, and presented in various narrative structures and visual forms (Pearce 2008, Roth 2021). To rethink representations of Guatemala-US migration, I employed a transformative approach that critically
considered both story and narrative. Moving beyond revealing “ideology, power, and hidden metanarratives” (Kelly 2015, 48) embedded in conventional cartographic techniques, transformative approaches carefully deconstruct and reassemble the representational techniques employed (Soja 1999).

To address my research questions, I employed a hybridized approach to visual storytelling that synthesized principles of feminist visualization with a formal user-centered design process. Emphasizing process over product, I documented the development of my visual story from initiation to evaluation, exploring potential tensions and synergies between usability and a critical politics of representation. By drawing on both critical and conventional approaches, I aimed to design an ethically-grounded and widely-accessible visual story of Guatemala–US migration, and to produce transferable, contextual insights for future work at the nexus of critical cartography, feminist visualization, and visual storytelling (after Sedlmair et al. 2012).

My hybridized design process, described in Chapter 3, engaged with both of my research questions. Early in the process, I deconstructed conventional maps of Guatemala–US migration in order to identify missing voices, embodied experiences, and lived uncertainties of mobility. Contrasting their compelling yet reductive depictions with nuanced, contextualized accounts from geographers, I demonstrated how these maps dehumanize migrants, reinforce problematic binaries, and silence histories of oppression. Recognizing migratory maps as persuasive political documents (van Houtum & Lacy 2019), I situated their
arguments within a wider discourse on undocumented migration and discussed how critical perspectives complicate and contest dominant narratives. Drawing on the work of geographers, ethnographers, and journalists, whose work exposes “the erroneous neatness of distanced, abstract, theoretical understandings” (Crang and Cook 2007, 21), I pinpointed specific voices, embodied experiences, and uncertainties to include in my own visual story. By prioritizing scholarship grounded in “deep listening through direct contact and stopping” (Holloway 2006), I aimed to amplify the “perspectives of those marginalized by current power configurations” (D’Ignazio and Klein 2016, 1) and to mitigate the limitations imposed by my own positionality.

Entangled with the task of identifying key experiences of migration is “the question of how to express the geographies of human experience and place” (Pearce 2008, 2), a dominant theme of critical cartography. The latter stages of my hybridized design process focused on narrative form, exploring the capacity of multimedia visual storytelling to convey “representational strategies premised on multiplicity” (D’Ignazio & Klein 2016, 2). Inspired by and drawing on previous work in feminist mapping (e.g., Pearce 2008, Kelly 2019), I explored the abstract potential of visual storytelling by designing my own visual narrative of Guatemala–US migration. Focusing on representing voices, embodied experiences, and uncertainties missing from conventional migration cartographies, I solicited formative feedback from collaborators in Guatemala on the usability and ethics of my visual narrative. By constructing a public facing product grounded in both
feminist design principles and practical considerations of usability, I aimed to explore tensions and synergies between academic and professional practice while answering the need for “more scientifically robust, critical, and decidedly more creative cartographies of migration” (van Houtum & Lacy 2019).

Section 1.2: Guatemala–US Migration: Crisis, Context, and Cartography

Moving beyond theory, this project explored visual storytelling as a medium for critical cartography in an applied setting. In selecting the case study of Guatemala–US migration, I chose a site of inquiry that felt urgent, offered theoretical richness, and aligned with the aims of feminist mapping: amplifying disempowered voices, representing differential experiences of place, and engaging with subjectivities of representation (D'Ignazio & Klein 2016).

Each year, tens of thousands of Guatemalans—including unaccompanied children, pregnant mothers, and entire families—attempt desperate journeys north to the United States (US Customs & Border Patrol 2018). And each year, thousands of these migrants are injured, robbed, deported, violated, killed, and ‘disappeared’ in transit through Mexico (Comisión Interamericana de Derechos Humanos 2013). Efforts to track violence against migrants in Mexico quantitatively are largely nonexistent, as illustrated by Wendy Vogt’s (2018, 209) description of data from the Missing Migrants Project on violence in 2016:

“The U.S-Mexico border was the site of 409 recorded deaths, and the region called Central America and Mexico recorded 159 deaths. This last figure, while horrific,
stands in contrast to the estimates made by human rights groups in Mexico, who claim that as many as twenty thousand Central Americans disappear in Mexico each year...there are no official mechanisms by the Mexican state or NGOs to track or report the kidnappings or deaths of Central American migrants, who in death as in life are selectively treated as invisible by the state.”

Many who make it to the US apply for political asylum, citing experiences of extortion, domestic violence, and discrimination in the communities they are fleeing (Fontes 2019). Some are deported immediately, while others languish for months to years in detention centers and prisons, subject to conditions so severe that hundreds protest with hunger strikes each year (Ali 2019). A small minority are granted asylum.

Pundits in the United States rarely discuss the wider structural and historical context of violence against migrants, regularly referring to the chronic, transnational issue as the ‘US border crisis’. Though the arrival of Central American migrants at the southern border has been attended by intense political discourse in the United States, that discourse rarely ventures beyond selective outrage about “criminal invasion” or “family separation”, depending on political leaning. Conservatives commonly reduce the problem to a breach of national sovereignty by “gang members, drug dealers, human traffickers, and criminals” (Trump 2019), while liberals focus their outrage on domestic detention policies and remain largely silent on the central irony of migration: that US policy past and present has played a central role in fomenting the entire mess (Yates-Doerr 2018). Seeking to mobilize constituencies, political commentators of all leanings frame migration as an
emergency, employing crisis rhetoric that “ushers in hasty responses, stimulates fraught political rhetoric” (Lawrence 2016), and diverts attention away from broader historical and geopolitical contexts towards short-term responses. By consistently framing migration as a crisis, nativists, humanitarians, and journalists obfuscate the role of US foreign policy, neoliberal economics, and plutocratic regimes in creating the present ‘emergency’, cultivating a fundamentally ahistorical discourse (Sieff 2019).

Yet a rich body of work by ethnographers and human geographers contests this ahistorical account, “shedding light on the entangled webs of power, capital, and violence that have shaped the movements of Central Americans over the past half-century” (Vogt 2018, 33). Far from an acute crisis, the structural violence and forced migration experienced by Guatemalan migrants is a multigenerational affair, a fact underscored by depictions of migrant experience such as the 1983 Hollywood film El Norte (Nava 1983). The 36-year-old film depicts a past that bears an uncanny, heartbreaking resemblance to the present: Guatemalans stifled in the chokehold of oligarchy, seething racism against migrants, and the dangerous journey north a last resort for the desperate. Contemporary work by migration scholars contests crisis rhetoric by contextualizing present day mobility in a long history of oppression, resistance, and dislocation. As the editors of The Guatemala Reader (Grandin et al. 2011, 6) argue, no analysis of “the enduring inequalities and dislocations of [Guatemala’s] present” is complete without a historical lens.
Narratives that situate contemporary migration in its context necessarily look not only beyond the present moment, but beyond the US-Mexico border, where US “political and public discourses from Latin America typically begin and end.” (Vogt 2018, 2). Politicians often frame the decision to migrate as a simplistic calculus between the risk of the journey and the payoff of ‘making it’ to America. Facing political backlash for the US government’s handling of unaccompanied migrant children in 2014, a frustrated President Barack Obama pointed to the dangerous journey through Mexico and admonished Central American parents, “not to put their children in harm’s way in this fashion” (Obama 2014). Obama’s statement fits neatly into a discourse that paints migration as a personal choice, artificially separate from the chronic conditions of uncertainty, violence, and dislocation that exist in sending communities. Such avoidances “lead to a naturalization of violence” (Grandin et al. 2011, 5) and excuse the complicity of the US in that violence (Yates-Doerr 2018). The displacement of Guatemalans is driven by a host of factors, including neoliberal economics, gang violence, genocidal trauma, political corruption, and climate change (Fontes 2018, Vogt 2018). To leave these historical and structural problems unquestioned in a discussion of Guatemalan migration is an extreme act of erasure (Grandin et al. 2011). Yet such omissions are commonplace, with many narrators happy to “position the United States of America as a magnetic sanctuary” (Gurba 2019), flatten the agency of migrants, and sell sensationalized images of violence without questioning its social causes (Fontes 2018, Vogt 2018).
In tracing the geopolitical context of migration south of the US border, I chose to focus on Guatemala for several reasons. First, the drivers of migration in Guatemala are similar in certain respects to those of its neighbors Honduras and El Salvador, the three countries colloquially known as the ‘Northern Triangle’ of Central America (Council on Foreign Relations 2018). In recent years, the Northern Triangle has surpassed Mexico as the largest source of undocumented US immigrants with 116,808 Guatemalans, 77,128 Hondurans, and 31,636 Salvadorans “apprehended” (“apprehensions” include migrants requesting asylum between ports of entry) by the US Border Patrol in fiscal year 2018 (US Customs & Border Patrol 2018). Though distinct, the severe political problems driving increasing numbers of Guatemalans to risk the dangerous journey north are representative of the Northern Triangle more broadly. Many Guatemalans struggle daily with problems of economic insecurity, environmental degradation, political impunity, and violence, obstacles that plague Honduras and El Salvador as well (Council on Foreign Relations 2018, Fontes 2019). Contemporary insecurity and mobility in Guatemala are linked intimately with a legacy of “colonialism, imperialism, and brutality carried out in the name of corporate rapacity” (Grandin et al. 2011, 3), a history congruent with those of Honduras and El Salvador (Vogt 2018). Conventional maps of Guatemala–US migration largely bypass this context, reinforcing the erasures of state rhetoric by collapsing complex geographies of mobility into neat abstractions that convince map readers of their “expertise at a
glance” (van Houtum & Lacy 2019). The active role of cartography in political discourses of migration is discussed further in the subsequent chapters.

Section 1.3: Positionality and Values Statement

My positionality was key in shaping my research and design process. Wherever possible, I aimed for reflexivity, or self-critical reflection on the particular ways my prior experience, biases, and values affect my work (Rose 1993, Kelly 2019). Since my theoretical influences are no more independent of these subjectivities than the design study itself, I precede my literature review with a statement on my positionality and values.

I am a privileged outsider. Privilege insulates me from the experiences of Guatemala–US migration discussed in this research and represented in my visual story. As a white, male US citizen, my experience of crossing borders differs fundamentally from those of Guatemalan asylum seekers. For me, traveling to Guatemala via airplane takes about a day, costs about $350 roundtrip, and involves relatively few safety concerns. This ease of mobility is set into stark relief by the experiences of Guatemalan asylum seekers, who face extreme violence, carceral purgatory, and costs averaging upwards of $6000 for a chance to traverse the same borders (Organización Internacional para las Migraciones 2016). Though I originally imagined interviewing individuals about migration experiences, I ultimately decided against it, concerned about the politics of conducting such interviews as a privileged
outsider, the limitations imposed by the short timeline of a Master’s thesis, and potential challenges with language barriers.

*I speak only intermediate Spanish, and do not speak any Mayan languages.*

Language barriers posed significant challenges to this research, limiting the diversity of my citations as well as the ease of communication with stakeholders. Linguistically, Guatemala is extremely diverse, and while Spanish is spoken by most, millions speak one of the 21 Mayan languages as a first language. My native language, English, is spoken by very few people. Early in my research, I committed to improving my Spanish, to the tune of hundreds of hours of studying, and though I communicated with stakeholders in Spanish, and drew on many reports written in Spanish, some nuance was undoubtedly lost in translation. While much of the US-centric visual media on migration is indecipherable to many of those it represents, I committed to designing a Spanish version of my visual story early on. To limit missed opportunities related to language barriers, I worked with stakeholders based in Guatemala who speak Spanish, K’iche, and Mam.

*I aimed to prioritize proximate voices and direct contact.* In opposition to positivist approaches, I aimed to prioritize voices with proximity to the places, people, and phenomena I mapped. In seeking proximate voices, I immersed myself by reading ethnographies of migration and Guatemalan life, made two trips to Guatemala totaling about a month, and volunteered remotely for Colectivo Vida Digna, a NGO based in Xela, Guatemala that works in Mayan and migrant advocacy. My positionality to the case study evolved based on these experiences and
relationships, strengthening my commitment to the project and encouraging me to adopt a more participatory approach.

*I prefer applied work and stand to gain professionally from this project.* The applied and collaborative nature of this thesis reflects my personal and professional motivations. I aimed to produce an innovative and usable visual storytelling *product* not only to address a pressing geographic problem, but also to further my professional aspiration to work as a data journalist. In addition to satisfying the requirements of my Master’s degree, I hoped to cultivate relationships with scholars, activists, and journalists for future collaborations, to produce an impressive portfolio piece, and to explore whether my hybrid process might be viable in professional settings.

*I brought a diverse skill set to this research.* With a mix of quantitative and qualitative background experience, I brought a unique set of technical and artistic competencies to this work. The hybrid design space of map-based visual storytelling requires one to think concurrently as a geographer, data scientist, designer, front-end developer, and writer. With experience bridging all of these domains, I was well positioned to navigate the flexible demands of visual storytelling. My technical skills enabled me to volunteer my time building an interactive map for Colectivo Vida Digna, building trust in order to facilitate a collaborative exchange of ideas rather than a more extractive approach. My academic training as a cartographer not only helped build these technical skills, but also exposed me to critical and intersectional feminist geographies, fostering my commitment to social justice, equity, and
reflexivity. My experience working as a journalist at NPR introduced me to a range of mentors and opened my eyes to the pragmatic demands of building usable, compelling data journalism on deadline. This diverse background training enabled me to attempt this ambitious project.

**Section 1.4: Thesis Outline**

This thesis proceeds with four additional chapters. Chapter 2 presents relevant background literature, reviewing academic and professional approaches to visual storytelling and discussing methodological influences from critical and feminist cartography, counter mapping, and usability engineering. Chapter 3 details my methodological approach, introducing and justifying the adapted user-centered design process I employed and describing my methods for each stage of the procedure. Chapter 4 presents a collinear narrative describing the process and results from each design stage of my visual story in depth. Finally, Chapter 5 reflects on the successes and failures of my user-centered approach to critical visual storytelling and provides recommendations for adaptation and extension of this work.
Chapter 2: Literature Review

In the following chapter, I provide background on the theoretical and methodological influences that informed this project. To address my principal research objectives—the identification and representation of silenced voices, embodied experiences, and uncertainties of Guatemala–US migration—I employed a hybrid approach to visual storytelling. Weaving together qualitative and quantitative methods, my methods drew on both academic and professional approaches to visual storytelling.

To engage with the ethics and politics of representing Guatemala–US migration, I drew on reflexive methods developed within critical, narrative, and feminist cartographies (Section 2.1). Critical approaches to visual storytelling emphasize political and ethical considerations as primary drivers of design and consider process as important as product.

To prioritize the usability and utility of my visual narrative, I borrowed from systematized user-centered design processes commonly employed by professional designers and data journalists (Section 2.2). Data journalists at major newsrooms have focused on producing visual stories with high usability, prioritizing accessibility for non-expert audiences while innovating with digital technology.

Though academic and professional approaches to visual storytelling are by no means mutually exclusive, priorities in each context are shaped by distinct sets of constraints and expectations. By applying methods and modes of evaluation from
both contexts, I aimed to prioritize both ethics and usability in my visual storytelling practice and to explore tensions and synergies between the two.

**Section 2.1: Visual Storytelling: Academic & Reflexive Practice**

While visual storytelling as a research thrust in cartography currently enjoys increased attention, a wide array of previous cartographic scholarship has theorized maps as visual stories and cartography as visual storytelling (see Roth 2021 for a review). This body of work includes research from critical, feminist, and Indigenous scholars, who have applied narrative as a framework to both critique and contest the hegemonic power of conventional cartography.

Conceptualizing maps as narratives rejects their objective neutrality, a notion central to the field of *critical cartography* (Thatcher 2018). Since the 1980’s, proponents of critical cartography have challenged the prevailing paradigm of cartography as the scientific “communication of information from the cartographer to the map user” (Crampton 2001, 236), denouncing the colonial silencing performed by positivist cartographies and calling for a narrative approach that recognizes maps as politicized documents (Wood 1987, Harley 1988). Drawing on the post-modern ideas of Jacques Derrida and Michel Foucault, critical cartographers study maps as social constructs located within a field of power relations (Harley 1988, Thatcher 2018). Through deconstruction of cartographic representations in their political contexts of creation and use, we can expose both how and for whom maps exert power. By selectively including, omitting, and
emphasizing certain geographic knowledge, mapmakers promote certain stories while suppressing others (Harley 1988, Wood 1992). Overwhelmingly, the stories embedded in conventional cartographic representations tend to advance positivist, colonial, and state-centric views (Thatcher 2018, Moore & Purdue 2014). Critical cartographers have written extensively about the historical role of maps in normalizing power relations and sanitizing “the inherently messy process of state-making” (Moore & Perdue 2014, 893).

Despite decades of critique, contemporary map representations continue to align with hegemonic state narratives (Thatcher 2018). In their dissection of the European Union’s 2017 Frontex map (Figure 2.1), van Houtum and Bueno-Lacy expose how virtually every aspect of the map’s design conveys a “deeply ideological” story that legitimizes state violence against migrants (van Houtum & Bueno-Lacy 2019, 203). With a heavy emphasis on the underlying grid of national borders, the map espouses the “territorial trap”, or the fallacious assumption of the nation-state as the fundamental unit of analysis. The accentuation of national borders as static, permanent entities legitimizes state authority while encouraging nationalist, nativist, and xenophobic modes of thinking (Casas-Cortes et al. 2017, van Houtum & Bueno-Lacy 2019). Through the use of massive, red arrows that “have traditionally appeared in propagandistic and military maps” (van Houtum & Bueno-Lacy 2019, 201), the map paints migrants as an invading force, their movement across the EU’s border an unnatural violation rather than a harrowing, involuntary odyssey. The smooth, uninterrupted movement of the flow arrows masks the uncertainty and
violence faced by migrants, portraying the EU as vulnerable in order to cultivate political support for border control. Taken together, the story promulgated by the Frontex map is “a nativist diagnosis about the perils of ‘non-native’ immigration and a subtle yet violent recommendation to fix it” (van Houtum & Bueno Lacy 2019, 213).

Figure 2.1. The 2017 Frontex map analyzed by Houtum & Bueno-Lacy (2019)

The insidious power of cartographic narratives is enhanced by their autobiography as scientific and objective (Wood 2007). The Frontex map typifies this “illustory lack of authorship” (van Houtum & Bueno-Lacy 2019, 196), arguing from a situated position while proclaiming its objective neutrality (Wood 2007). The
rejection of conventional cartography’s impossible “views from nowhere” (Haraway 1988, 581) is central to the fields of feminist mapping and feminist visualization, which “emphasize the situated nature of knowledge” (D’Ignazio & Klein 2016, 1) and strive to present contextualized views that foreground the positionality of the designer(s). My own methodological approach draws heavily on feminist design practice, particularly on the principles of data feminism outlined by D’Ignazio & Klein (2020, see Table 2.1).

Table 2.1. Principles of Data Feminism (D’Ignazio & Klein 2020). My methodological focus on voice, embodiment, and uncertainty draws on these principles, as well as existing work in critical cartography and counter-mapping.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Examine Power</td>
<td>Data feminism begins by analyzing how power operates in the world.</td>
</tr>
<tr>
<td>2. Challenge Power</td>
<td>Data feminism commits to challenging unequal power structures and working toward justice.</td>
</tr>
<tr>
<td>3. Elevate Emotion &amp; Embodiment</td>
<td>Data feminism teaches us to value multiple forms of knowledge, including the knowledge that comes from people as living, feeling bodies in the world.</td>
</tr>
<tr>
<td>4. Rethink Binaries &amp; Hierarchies</td>
<td>Data feminism requires us to challenge the gender binary, along with other systems of counting and classification that perpetuate oppression.</td>
</tr>
<tr>
<td>5. Embrace Pluralism</td>
<td>Data feminism insists that the most complete knowledge comes from synthesizing multiple perspectives, with priority given to local, Indigenous, and experiential ways of knowing.</td>
</tr>
<tr>
<td>6. Consider Context</td>
<td>Data feminism asserts that data are not neutral or objective. They are the products of unequal social relations, and this context is essential for conducting accurate, ethical analysis.</td>
</tr>
<tr>
<td>7. Make Labor Visible</td>
<td>The work of data science, like all work in the world, is the work of many hands. Data feminism makes this labor visible so that it can be recognized and valued.</td>
</tr>
</tbody>
</table>

Unlike positivist cartographies, feminist practice “recognizes the subjectivities and possibilities built into design, and is less focused on identifying a narrow or universal solution” (Kelly 2019, 35). Instead of aiming for an illusion of singular objectivity, feminist practice encourages the visibility of the subjective
decisions and labor that drive design (D'Ignazio & Klein 2020). The rejection of singular objectivity does not constitute a “retreat into complete relativism” (ibid, 82) as some critics posit. Rather, it advocates for reflexivity on the part of the designer, recognizing pre-existing experiences and biases as vital in shaping cartographic practice (Kelly 2019, D'Ignazio & Klein 2020). Since the modern map production environment, like its historical antecedents, remains a technocracy dominated by white, heteronormative men, its cartographic narratives tend to espouse hegemonic values (Thatcher 2018).

Assessing what stories are not told is essential to understanding and contesting the power of positivist cartographies (Harley 1988, Campos-Delgado 2018). We can “peek into the naked worldview” (van Houtum & Bueno-Lacy 2019, 198) of the Frontex map’s designers not only by deconstructing its narrative of criminal invasion, but by identifying what perspectives are silenced and deemphasized (Harley 1988). The destabilizing role of EU military and economic policy on origin countries, the nuanced stories of migrants themselves, and the extensive infrastructures of migratory control are all conspicuously absent from the map (van Houtum & Bueno-Lacy 2019). Through such “silences and secrecy” (Harley 1988b, 57), conventional migratory maps obscure essential context in order to present a tidy picture that advances state policies of control and exclusion (Casas-Cortes et al. 2017, van Houtum & Bueno-Lacy 2019).

Cartographic scholars challenge these erasures not only via critique, but through **counter-mapping**, a set of mapping practices that explicitly sets out to
“question, trouble, or contest dominant power relations in society” (Thatcher 2018, online). Originally developed to resist the erasure of Indigenous cultural knowledge by Western cartographic narratives, counter-mapping practice reimagines mapping as a means of resistance and empowerment (Peluso 1995, Louis 2012). While recognizing the limitations of Western cartographic grammar, counter-mapping sees maps as “a liberating, creative, yet dormant mode of expression in need of imaginative expansion” (Pearce 2008, 18). In contrast to conventional Western cartography, which prioritizes products, counter-mapping is highly process-oriented (Rundstrom 1995, Pearce & Lewis 2008). Explicitly opposed to the erasures of positivist cartography, counter-mapping aims to represent voices, embodied experiences, and uncertainties invisible in state-centric narratives (Campos-Delgado 2018).

While conventional maps narrate space in the third-person, counter-mapping approaches use voice to present situated views of place, particularly from systematically marginalized perspectives (Pearce 2008, D'Ignazio & Klein 2020). Contrary to positivist cartographies, this approach emphasizes proximity, prioritizing the amplification of voices with direct experience (D'Ignazio & Klein 2020). The cognitive sketch maps produced by Campos-Delgado’s 2019 counter-mapping study exemplify a participatory approach to counter-mapping, involving proximate voices directly in the cartographic design process (Campos-Delgado 2018, see Figure 2.2). Such collaborative approaches to counter-mapping stand in direct opposition to the hidden, technocratic processes that spawn conventional
maps, emphasizing the visibility of labor and the foregrounding of positionality (Crampton 2001, Thatcher 2018, Kelly 2019). The visual stories produced through this collaborative approach contest the erasures typified by the Frontex map, highlighting the chronic vulnerability of migrants and exposing the “political, normative, and procedural decisions that preceded and triggered this drama in the first place” (Campos-Delgado 2018, 493).

Counter-maps further humanize visual stories through embodiment, affirming individual affect and knowledge and recognizing emotional and sensory ways of knowing as “on par with more quantitative methods of knowing and experiencing the world” (D'Ignazio & Klein 2016, 3; Kelly 2021). In contrast to the disembodied gaze of the Frontex map, Campos-Delgado’s sketch maps depict a landscape suffused with emotion and shaped by individuality, encouraging deeper understanding and empathy towards the migrant experience (Campos-Delgado 2019). By articulating individualized visual stories, the sketch maps illustrate the importance of intersectional identity in shaping experiences of migration (Ybarra 2019). Counter-maps informed by the ideas of intersectional feminism resist aggregation, insisting on representations of place that illustrate differential experiences along the lines of gender, race, class, sexuality, and more (Kelly 2019, D'Ignazio & Klein 2020). In addition to resisting the “conscious deletion of human beings” (van Houtum & Bueno Lacy 2018, 199), the visualization of these diverse embodied experiences reveals hidden infrastructures of control extending far beyond linear state borders, exposing “a corridor of death where gangs and Mexican
law enforcement officials co-mingle and crimes of the most egregious nature are committed” (Green 2009, 332).

Figure 2.2. In Campos-Delgado’s 2018 counter-mapping study, participants drew cognitive maps representing their experiences of migration, revealing embodied understandings of transit and hidden infrastructures of control. The map above, drawn by Eduardo, a 20 year old Honduran, reveals various fragments of his journey, including “(a) Departure, (b) border crossing, (c) Rainforest landscape, (d) Means of mobility, (e) Violence and criminal actors, (f) safe spaces/shelters” (Campos-Delgado 2018, 496).

Counter-maps further distinguish themselves by highlighting uncertainty, deliberately resisting the veneer of authoritative certainty common in conventional cartography. With its “deceptive iconographic simplicity”, the Frontex map presents the illusion of “expertise at a glance”, delinking migration from its complex historical and geopolitical context (van Houtum & Bueno-Lacy 2018, 196). Kennedy et al. (2016, 716) lay out four data visualization conventions that convey a sense of authoritative certainty: “(a) two-dimensional viewpoints; (b) clean layouts; (c)
geometric shapes and lines; (d) the inclusion of data sources”. The Frontex map exploits several of these conventions, giving no sense of the extreme uncertainty intrinsic to quantitative data on migration (Bacon et al. 2016). In comparison, Campos-Delgado’s sketch maps embrace their partiality, leaving blank spaces that “underscore how limited [participants] knowledge of the space outside the migrant trail is” (Campos-Delgado 2018, 499). Rather than trying to be comprehensive individually, the unpolished counter-maps collectively testify to the feminist principle that “all knowledge is incomplete, and the best knowledge is gained by bringing together multiple partial perspectives” (D’Ignazio & Klein 2020, 83). Much of the quantitative data on migration is collected for the purposes of state surveillance and control, while data on violence against migrants is extremely incomplete to nonexistent (Vogt 2018). Therefore, cartographic narratives that fail to prominently foreground uncertainty should be met with skepticism, if not rejected outright.

Counter-maps explicitly oppose the surveillant and technocratic conventions of cartography with sousveillant and participatory approaches that aim to represent silenced voices, embodied experiences, and uncertainties. Reflexive counter-mapping practices, informed by decades of critical, feminist, and Indigenous scholarship, provide important models for navigating the subjective process of visual storytelling armed with an ethics of design (Crampton 2001). And yet, ethics alone are insufficient. As Sasha Costanza-Chock puts it, “Projects with good intentions are not immune from failure, and can even cause harm” (Costanza-Chock
Regardless of intention, counter-mapping negotiates with an abstract form intimately linked with colonialism and nation-building, and its products are politically ambiguous, depending on the contexts of their use (Sparke 1998). Nominally participatory design approaches are occasionally extractive in nature, and the products of counter-mapping are sometimes co-opted by the state (Campos-Delgado 2018, Costanza-Chock 2020). Despite decades of critique and counter-mapping, today there are “more maps used to exploit, control, and kill than ever before” (Thatcher 2018, online). The dehumanizing Frontex map is not an isolated exception, but rather the dominant and canonical representation of undocumented migration, prominently used by educators, academics, NGO’s, and journalists (van Houtum & Lacy 2019).

Given the persistence of reductive cartographic conventions, many academic geographers have opted to abstain from mapmaking altogether (van Houtum & Lacy 2019, Moore & Perdue 2014). Yet Moore and Perdue (2014) make a compelling argument that abdicating this space does critically-minded scholars a disservice, ceding powerful tools to those who will continue to misuse them. Rather than abandon mapping as a means of empowerment, I address the limited uptake of academic counter-maps by drawing on professional visual storytelling practices that emphasize usability, accessibility, and technological innovation.
Section 2.2: Visual Storytelling: Professional Practice & User-Centered Design

In contrast to academic and reflexive practice, professional visual storytelling stresses the importance of designing visual stories that are useful and accessible to wide, non-expert audiences. Novel approaches to visual storytelling have coalesced in the hybrid professional space of data journalism, where cartographers work alongside web developers, user experience designers, and reporters to produce visual narratives incorporating text, images, maps, and other data-driven graphics (Cairo 2017, Roth 2021). In this transdisciplinary setting, cartographers are the curators of a host of media, with maps just one subset of the narrative options at their disposal. Leveraging rapid advances in geoweb technology, data journalists now design map-based visual stories that are “responsive across display devices, personalized to the viewer’s content and context, and viral across social media” (Roth 2021, 83).

The rapid evolution and flexibility of modern visual storytelling offers both opportunities and challenges. On the positive side, the creation of visual stories with code “affords the composition of techniques and interfaces in ways wholly unanticipated by the toolmaker, greatly increasing the cartographer’s ability for self-expression.” (Bostock 2013). With interactive, mobile, and multimedia design possibilities, the digital space of data journalism offers an escape from the constraints of conventional Western cartography. Unlike static map views, which require the designer to settle on a singular vantage point and scale from which to
view the world, the fluid form of data journalism allows for multiple cartographic viewpoints (Wood et al. 2006). This potential for multiplicity aligns with the wisdom of feminist and critical scholars, who suggest that “there is no single ‘optimal’ perspective” (Crampton 2001) and that insight is best garnered through multiple partial perspectives (D’Ignazio & Klein 2020). The *Washington Post’s* 2018 visual story “Borderline” leverages novel web mapping technology to offer immersive perspective views of the US-Mexico that would not be possible in print (Figure 2.3). By shifting the vantage point, the interactive flyover offers a compelling and visceral sense of ‘being there’, avoiding the conventional ‘God’s eye’ perspective rejected by feminist mapping.

![Figure 2.3. The Washington Post’s immersive and interactive story “Borderline”](image)

The ability to combine multiple cartographic perspectives and multimedia may prove critical in addressing one of the primary challenges of migratory
cartography, the legible representation of complex geopolitical contexts (Bacon et al. 2016). Migration is complicated, including at a bare minimum “a social dimension (type of population), a complex spatial dimension (origin, destination, stages, returns, etc.), and a strong temporal dimension (evolution of movements, waiting times, development of certain phenomena)” (Bacon et al. 2016, 10). Distilling all this information into a single static display, with Western cartographic language alone, is a monumental challenge. Perhaps this difficulty is in part why many conventional migratory maps “give the impression of a territory where social problems, administrative and (geo)political obstacles and distance are not taken into account” (Bacon et al. 2016, 9). The fluidity of digital visual storytelling may be more amenable to representing this complexity, allowing for the sequential deployment of text, imagery, and data-driven graphics to bring key contextual information into the narrative (Roth 2021).

While emerging digital technology has broadened design possibilities for visual storytelling, it also presents novel challenges and constraints. Professional data journalists are expected to keep pace with technological innovation, developing new competencies to take advantage of rapidly evolving tools (Cairo 2017). Many of these tools only persist for several years before deprecation, undermining the stable availability and archival of visual stories that rely on constantly mutating dependencies (Roth et al. 2014). And though interactivity and animation offer promising avenues for representing the temporal dimension of migration, their implementation is difficult and costly (Bacon et al. 2016). Some research and
anecdotal evidence even suggests interactive and animated maps are ineffective, failing to engage and communicate key insights to users (Tse 2016). In addition, data journalists need to adhere to responsive design, dynamically updating content, layout, and styling to work across user devices and contexts (Ricker & Roth 2018). Today, maps are increasingly viewed with mobile devices, and the best-selling smartphones measure only a couple inches wide (Muehlenhaus 2013). The constraints imposed by mobile devices include not only screen-size, but also processing power, memory capacity, data connectivity, and bandwidth (Cairo 2017, Ricker & Roth 2018). To design responsively, data journalists need to consider these constraints, bearing in mind massive inequality in access to new technology.

Despite these challenges, visual stories created by professional data journalists have enjoyed critical and commercial success. Unlike many of the interactive maps produced by academics that “languish on the servers of research institutions” (Roth et al. 2017a, 62), visual and interactive stories published by major newsrooms engage and influence wide audiences. Six of the seven most-visited digital stories published by the Washington Post have been graphics-based, with a recent interactive story on coronavirus garnering more than three times the visits of any other article (Washington Post 2020). With audiences numbering in the millions, the reach of these visual stories far eclipses that of academic counter-maps, a testament to their usability and accessibility.

The success of professional data journalism can be attributed in part to its increased attention to users, evident in the adoption of principles from usability
engineering (UE) (Cairo 2017). Originating in software development, UE prioritizes a product’s usability, meaning ease and efficiency of use, and its utility, the degree to which identified user needs are supported (Norman 1988, Nielsen 1994, Ooms & Skarlatidou 2018). As data journalism has converged with digital technology, designers have incorporated UE principles into their workflows, paying increasing attention to how users interact with visual stories, designing with audiences in mind, and collecting metrics on engagement (Tolochko 2016, Cairo 2017).

Figure 2.4. The user-centered design process (Robinson 2005)

One approach to UE commonly employed by both professional designers and researchers is formal user-centered design (UCD), a multi-stage and iterative process that solicits input from target users and/or stakeholders throughout the design process (Tolochko 2016, Ooms & Skarlatidou 2018). In contrast to the primarily theory-based approach of most academic visual storytelling, UCD explicitly identifies a target use case, taking into account contextual variables associated with users and their use environments throughout design (Ooms &
Rather than draw on cartographic literature for evaluation, a UCD approach defines success in terms of usability and utility for specific users in a real-world setting. The UCD process originally proposed by Norman (1988) is commonly modified to suit particular design contexts, and the adaptation described by Robinson et al. (2005) has been particularly influential in cartographic research (e.g., Robinson et al. 2005, Sack 2016, Tolochko 2016). Tolochko (2016, 7) efficiently summarizes the Robinson et al. (2005) UCD process (see Figure 2.4):

“The Robinson et al. (2005) UCD process outlines six stages of design. Work domain analysis, also known as needs assessment or requirements analysis, covers the initial research into the topic being mapped and includes initial communication with the client, stakeholders, and target user group. The conceptual development stage includes the written formalization of requirements for the application based on the user needs established through the work domain analysis. Prototyping is a highly iterative process of creating visual mockups of the proposed functionality, first potentially as paper wireframes and eventually as functioning, though not full-featured alpha and beta releases. Interaction/usability assessment is built into the UCD process to receive feedback on prototype from the users, and can be formal or informal. The implementation stage involves incorporating changes from the previous assessment stage back into the product. Lastly, debugging ensures stability of the interactive web map application.”

Variations on this prototypical UCD process are employed in professional visual storytelling, though workflows tend to follow a flexible structure rather than concrete stages (Tolochko 2016). Evaluations of usability in data journalism often use a discount approach, relying on rapid feedback from a relatively small number of users or experts (Cairo 2017, Roth et al. 2017a). Extensive research shows that individual user differences such as experience, education, biases, and attention play a strong role in mediating perceptions of maps, data visualizations, and visual
stories (Peck et al. 2019). By explicitly defining a target audience and conducting iterative rounds of user feedback beginning early in the development cycle, designers avoid squandering time and resources on ineffective design solutions (Roth 2019). The requirements document focuses the conceptual phases of the development process, constraining meandering ideation and encouraging efficient convergence towards designs that are effective, intuitive, and compelling. UCD results in products with higher uptake than approaches that neglect usability.

Still, UCD is by no means a panacea, and uptake alone does not constitute success from a critical perspective. As Costanza-Chock (2020) puts it:

“Human-centered design includes end-users in the design process through various strategies; it focuses on better-matched affordances and improved user experience. This is good—but it has little to say about values, community accountability or control, or the ultimate distribution of benefits such as profits or attention.”

The typical UCD model neglects many of the ethical and political considerations central to academic visual storytelling, replicating the problematic conventions decried by critical cartography, feminist visualization, and counter-mapping. While the integration of users during development makes for more effective and accessible designs, it does not necessarily challenge or even acknowledge dominant power structures (Costanza-Chock 2020). Absent reflexivity and an ethics of design, visual storytelling may inflict more harm than good, mirroring the positivist, exclusionary, and state-centric tendencies of conventional
Western cartography (Roth 2021). A recent visual story on migration published by the *Texas Tribune* (see Figure 2.5) illustrates this point.

![Figure 2.5. Militaristic flow arrows, from the Texas Tribune](image)

From a critical perspective, the motif of criminal invasion trumpeted by the map’s symbolization is virtually indistinguishable from that espoused by the problematic Frontex map. Despite this dubious resemblance, the map may work from a usability perspective; indeed, it may be exceptionally intuitive to users because it aligns with a dominant cultural narrative (Crampton 2011, Roth 2021). This is not to say that UCD and a critical politics of design are *always* incongruent, or that reflexive practice is entirely absent from data journalism. Indeed, Bacon et al. (2018) argue that progress in qualitative visual storytelling on migration has been “driven in particular by the development of data journalism” (Bacon et al., 2), and D’Ignazio & Klein (2020) cite numerous professionally designed visual stories as examples of data feminism in action. Still, the principal motivation of professional
visual storytelling is profit rather than politics. With tight deadlines, economic objectives, and a “get sh*t done” (Tolochko 2016, 80) mentality, designers in professional settings are more focused on usability than on challenging hegemonic power imbalances. Bearing in mind both its successes and its shortcomings, I argue for synthesizing UCD with the reflexive practices of academic visual storytelling.

Professional and academic visual storytelling practices are shaped and limited by their contexts. Though innovation and usability are hallmarks of modern data journalism, reflexivity and ethics receive less attention. Conversely, academic cartographers rethinking visual storytelling for a largely expert audience are not focused on usability, and their products have seen limited popular uptake (Lloyd et al. 2007, Roth et al. 2017a). Given contextual demands, the continued disconnect between research and praxis is unsurprising, yet it remains imperative to close this gap, “drawing from critical theory as well as professional standards to establish tent poles of ethical visual design” (Roth 2021, 107). An ethical and effective approach to visual storytelling should not only challenge and reimagine conventional representations, but also consider user limitations such as graphical literacy, attention, and preconceived biases. The need for such an approach is particularly evident in cartographies of Guatemala-US migration, where voices, embodied experiences, and uncertainties of the migratory experience are routinely omitted. To address this pressing problem, I employed a hybrid approach to visual storytelling, synthesizing critical and feminist cartographic practice with UCD.
Chapter 3: Methods

This thesis aims to contribute to ongoing scholarship in critical cartography and visual storytelling by exploring the following questions:

1) What voices, embodied experiences, and uncertainties of Guatemala–United States migration are missing from conventional cartographic narratives?

2) How can these voices, embodied experiences, and uncertainties of Guatemala–United States migration be ethically and effectively represented with map-based visual storytelling?

To address these questions, I conducted a design study drawing on methods from both academic and professional visual storytelling practices. Design studies differ from the dominant approach to cartographic research, which is characterized by controlled hypothesis testing, large numbers of participants, and insights that are generalizable and reproducible (Roth 2019). Instead, design studies track the evolution of a product that addresses a real-world use case through conceptualization, implementation, and evaluation, resulting in insights that are transferable and contextual (Munzner 2009, Roth 2019). While my development of a visual story focused on the specific and urgent need for ethical and effective cartographies of Guatemala-US migration, I also prioritized making my intentions,
labor, and reflections visible in order to inform future work at the nexus of counter-mapping and data journalism. Aiming to synthesize critical and feminist principles with UCD, I drew on Roth's (2019) suggestions to slow and adapt Robinson's UCD (2005) process at several key points. My iterative, seven-stage process for ethical, user-centered visual storytelling is illustrated in Figure 3.1 and described in detail in the following sections.

![Critical Visual Storytelling](image)

**Figure 3.1:** My hybridized design process for ethical, user-centered visual storytelling.

**Stage 1: Defining Positionality and Partners**

While UCD has been lauded for centering the needs of users, the choice of *which* users’ needs to center is rarely made transparently and explicitly (Costanza-Chock 2020). In many cases, this political decision is influenced by both capital and positionality—designers default to supporting socially and economically privileged users with experiences similar to their own (ibid). Relatively few UCD studies document their methods for articulating user needs and requirements (Roth et al. 2017a). In order to address this deficiency and adhere to the feminist principle of
reflexivity, I began my critical visual storytelling process by drafting a statement on my positionality. The positionality statement consisted of reflections on the preconceived notions, biases, and intentions I brought to the design study. Given the importance of my positionality in shaping my theoretical influences and methodology, I included this statement in Chapter 1.

Reflecting on the limitations of my positionality, and conscious of wanting to avoid a ‘parachute’ approach to scholar-activism, I recognized the need for community-based partners. Through Internet searches for community organizations and advocacy groups, I identified Colectivo Vida Digna as a partner organization whose strategic objectives dovetailed with my own. Based in the city of Xela in the western highlands of Guatemala, Colectivo Vida Digna is a community-based Mayan organization whose work includes transnational advocacy, scholarly research, and social work supporting Indigenous communities and returned/potential migrants (Colectivo Vida Digna 2020). Initial contact was made through email, and a productive and transparent relationship developed that began with volunteer work developing an interactive map for the organization, helping to build trust and nurture relationships. After jointly confirming that our ethics and objectives were aligned, the organization agreed to work as stakeholders in this project, offering their expert perspective in two surveys during the design process. At the suggestion of Colectivo Vida Digna, and in accordance with Costanza-Chock’s (2020) suggestion to embrace explicit strategies for community accountability and control, we discussed, drafted, and signed a formal working agreement that set
expectations for participation, decision making, and deliverables (see Appendix). In addition to publishing the final visual story online in Spanish where the organization could access it for free, I agreed to obtain the consent of the Colectivo prior to any publication, to acknowledge their contributions, and to conduct a two-hour workshop discussing my approach.

**Deliverables:** Positionality statement, formal working agreement

**Stage 2: Domain Gap Analysis**

Following Roth’s (2019) suggestion, I broadened UCD’s typical needs assessment into a domain gap analysis, an in-depth characterization of conventional practices and unmet needs for critical visual storytelling on Guatemala-US migration. Taking a deep dive into critical geographic research, I identified voices, embodied experiences, and uncertainties of migration erased and marginalized by conventional visual stories. Like a typical needs assessment, this stage included initial research on the design context and user needs, particularly gaps in conventional design (Robinson et al. 2005, Tolochko 2016, Roth 2019). By critically comparing a set of existing visual stories to critical geographic scholarship on Guatemala-US migration, the domain gap analysis aimed to inform conceptual design by identifying dominant practices and unfulfilled opportunities.

I evaluated twenty (n=20) visual stories across the three theoretical themes of voice, embodiment, and uncertainty. The assessed examples spanned professional and academic settings, including visual stories designed by data journalists, non-
governmental organizations, academics, and migrants. The only criteria for inclusion were that the story must be primarily visual and focused on the domain area of Guatemala-US migration. All of the examples are recent, designed in 2014 or later, and were identified through a convenience sampling method. Keeping in mind the goal of this study to inform future professional practice, I limited the set of assessed visual stories to twenty, a number that might feasibly be replicated during a discount user-centered design process in a professional setting. Table 3.1 lists each of the evaluated visual stories.

Table 3.1. The twenty visual stories of Guatemala-US migration included in the analysis.

<table>
<thead>
<tr>
<th>Title</th>
<th>Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Stop Border Crossings, the U.S. Made the Journey Deadlier</td>
<td>New York Times</td>
<td>2019</td>
</tr>
<tr>
<td>Borderline</td>
<td>Washington Post</td>
<td>2018</td>
</tr>
<tr>
<td>Migrant Caravan Continues North, Defying Mexico and U.S.</td>
<td>New York Times</td>
<td>2018</td>
</tr>
<tr>
<td>Central American migrants face grueling journey north</td>
<td>Dallas Morning News</td>
<td>2014</td>
</tr>
<tr>
<td>From One River to the Next</td>
<td>Texas Tribune</td>
<td>2016</td>
</tr>
<tr>
<td>Most migrants cross at the Texas border. Here’s how the flow of people intersects with Trump’s policies.</td>
<td>Texas Tribune</td>
<td>2019</td>
</tr>
<tr>
<td>Mexico a Perilous Gateway to the U.S. for Immigrants</td>
<td>Albuquerque Journal</td>
<td></td>
</tr>
<tr>
<td>Fleeing for their lives in Central America</td>
<td>Norwegian Refugee Council</td>
<td>2019</td>
</tr>
<tr>
<td>How this quiet region in Guatemala became the epicenter of migration</td>
<td>National Geographic</td>
<td>2019</td>
</tr>
<tr>
<td>Invisible Walls</td>
<td>Washington Post</td>
<td>2019</td>
</tr>
<tr>
<td>Counter-mapping migration: irregular migrants’ stories through cognitive mapping*(4 maps)*</td>
<td>Amalia Campos-Delgado</td>
<td>2018</td>
</tr>
<tr>
<td>The Genesis of Exodus</td>
<td>Office of the General Assembly</td>
<td>2017</td>
</tr>
</tbody>
</table>
The comparison of this set of visual stories to critical geographic research on Guatemala-US migration resulted in the identification of several needs under the umbrellas of each broad theoretical theme. I coded each visual story based on how well it fulfilled each of these individual needs, using the categories conventional, ambivalent, and transformative in order to facilitate ordinal pattern analysis. I considered both story and narrative during coding—only a visual story that challenged convention in both its content and its representational strategies was coded as transformative. Visual stories that replicated positivist and state-centric tropes were coded as conventional, while those that mixed radical and traditional elements were considered ambivalent. I organized my identification, reporting, and discussion of unmet needs in three sections reflecting the key themes of voice, embodiment, and uncertainty discussed in Chapter 2.

**Deliverables:** Domain gap analysis

**Stage 3: Conceptual Design**

During the conceptual design stage, a formal set of written requirements for my own story was outlined, with the core narrative requirements based directly on
the results of the domain gap analysis. By translating needs into requirements, I aimed to center the story around the unfulfilled opportunities identified during the competitive review, and to avoid replicating harmful conventions. In combination with the data biography, which describes the key datasets identified to fulfill the requirements, the requirements document links each core ethical requirements to the proposed story, datasets, and representation strategies. The requirements document summarizes the problem motivating the requirement (a quick summary of the relevant results from the domain gap analysis) and the proposed solution addressing the problem in the story design. The requirements document also included a UE requirement intended to maximize the usability and utility of the visual story.

**Deliverables:** Requirements document (proposal)

**Stage 4: Prototyping**

The prototyping stage marked the beginning of visual development. During this stage, representation strategies shifted from conventional to novel as I moved from data exploration to imagining alternative designs. In order to demonstrate the novel and interactive representations to the stakeholders, I developed a high-fidelity, full-length prototype of the visual story, creating a realistic mock-up of the various multimedia elements in Adobe Illustrator. Opting for a hi-fi prototype strategy over the creation of lo-fi storyboards meant that this stage took significantly more time, but ensured clear communication about how the proposed
story would attempt to fulfill the requirements. Aiming to provide as much information as possible, the hi-fi prototype was built using the real data specified in the conceptual design, rather than hypothetical/mock-up data.

**Deliverables:** Lo-fi storyboard, hi-fi prototypes

**Stage 5: Formative Assessment**

During two rounds of formative assessment, I obtained feedback on the proposed requirements, data sources, and prototype from the stakeholders. The first survey took place after the conceptual design phase and before prototyping, gathering feedback on the proposed requirements and data sources. The second survey took place after prototyping, collecting responses to the hi-fi, full-length prototype before implementation began. Inviting feedback on ethics, utility, and usability, the formative assessment was designed to identify problems before investing heavily in technical implementation, thus increasing the efficiency of development (Roth 2019). The two surveys took a qualitative and discount approach, with n=3 participants from the stakeholder organization Colectivo Vida Digna, and was conducted electronically via Google Forms. The survey questions generally followed the structure of the requirements document—they are reported in detail in Chapter 4 and the full surveys are available in the Appendix. All materials presented in the formative assessment were translated to Spanish, including the requirements document and data biography, the prototype of the
visual story, and the surveys themselves. Stakeholder responses were then translated from Spanish to English for reporting in Chapter 4.

**Deliverables:** Survey I results, Survey II results, revised requirements document and prototype

**Stage 6: Implementation**

After revising the requirements and prototype based on the stakeholders’ feedback, focus shifted to the implementation of the visual story in its interactive, web-native final format. Focus shifted from utility to usability during this stage, and the story was designed to be responsive for a broad range of user devices and contexts. Once complete, the final story was made freely online available for anyone to read.

**Deliverables:** Finished visual story in both English & Spanish

**Stage 7: Summative Evaluation**

In the summative evaluation stage, I reflected on the successes and failures of the final visual story, reflecting on what worked well and what didn’t during the design process and making recommendations for future work. By evaluating the successes and failures of my experimental hybrid storytelling process, I hoped to make my process more visible and accessible to practitioners of visual storytelling in both academic and professional environments, and to inform future work at the
intersection of counter-mapping, user-centered design, and migratory cartography. These reflections are presented in Chapter 5.

**Deliverables: Summative evaluation**

The following chapter details the results of my design study, documenting the evolution of my visual story through the development process. Results are presented as a collinear narrative, with design thinking documented alongside the deliverables of each stage.
Chapter 4: Results

Section 4.1: Domain Gap Analysis

After the initial stage focused on positionality and partnership (reported in the Appendix), the design process continued with the domain gap analysis, a competitive review of conventional practices and unmet needs in visual storytelling on Guatemala-US migration. The results of the analysis and the identified needs and patterns are discussed in the sections that follow.

4.1.1 Voice

The domain gap analysis revealed a persistent divide between critical cartographic theory and practice in the use of voice. With some exceptions, the analysis showed that most conventional visual stories of Guatemala-US migration omit marginalized and proximate voices, reproducing the ahistorical, decontextualized, and emotionally detached narrative preferred by the state. The representational strategies used by some of the visual stories were ambivalent—mixing the use of conventional tropes with limited presentation of historical context, counter-US perspectives, and marginalized voices. Relatively few of the visual stories could be considered transformational in their use of voice. Figure 4.1 summarizes the domain gap analysis and presents examples of visual stories that were coded as conventional, ambivalent, and transformative.
**Need #1: Combat the Silencing of History**

The contemporary dislocation of Guatemalans from their homes is fueled by “decades of ongoing displacement and dispossession of Indigenous and poor Guatemalans” (Nolan 2020, online), including the multi-generational effects of genocidal violence, neoliberal economics, and political marginalization (Grandin et al. 2011, Vogt 2016). In the aftermath of Guatemala’s internal conflict (1960-1996), independent investigations by the United Nations and the Catholic Church concluded that the Guatemalan military had conducted a systematic genocide against the indigenous Mayan people, killing or ‘disappearing’ over 200,000 people and displacing millions from their land (REMHI 1998, CEH 1999, Green 2009). Since the signing of the Peace Accords in 1996, the repression of Indigenous and poor Guatemalans has been reproduced and deepened via neoliberal economic policies, which some Mayans view as “an economic extension of the genocide waged against them” (Yates-Doerr 2018, online). Today, 80% of the arable land in Guatemala is owned by only 2% of the population, 59% of Guatemalans live below the poverty line of $3.68/day, and the tiny economic elite maintain their stranglehold on political power (Green 2009, INE 2014). In the context of this history, Guatemalans risk the dangers of migration as a last ditch survival strategy, “a way to break the cycle of violence and poverty” (Vogt 2018, 37) in which they are embedded.

The migration of Guatemalans to the US cannot be understood outside of this historical and structural context (Brigden 2016, Vogt 2018). Yet 16/20 (80%) of the assessed visual stories omitted this history entirely, following the tendency of
conventional migratory maps to use representations that are “ahistorical, decontextualized, and thus depoliticised” (Brigden 2016, 248). A visual “tracker” created by the *Texas Tribune* (2019) typifies this pattern, reproducing the crisis rhetoric surrounding migration by focusing myopically on the latest numbers of migrant apprehensions at the border and neglecting all historical context.

In contrast, 4/20 (20%) of the assessed visual stories were coded as ambivalent, presenting some sense of the “decades and arguably centuries of exploitation and violence suffered by people in Central America” (Vogt 2018, 34). The Presbyterian Church’s visual story “The Genesis of Exodus” (2017) includes a brief but thorough history of colonial and imperial influence in Guatemala, including critical video testimonials from Guatemalan academics and activists. Unfortunately, the accompanying maps lack this humanized historical perspective, using simplistic flow arrows to represent migration and reducing Guatemala to an aggregated nation state with a solid fill. None of the visual stories in the assessed set were coded as transformative. To find a visual story that contested the erasure of history using transformative representational strategies, I looked outside the case study domain to Knowles & Westervelds’ “I Was There” (2018). Using an alternative cartographic grammar that emphasizes subjectivity, the visual story voices the personal geographies of Holocaust survivors to give a powerful historical testimony, intentionally avoiding the confining conventions of Western mapmaking.
Need #1: Combat the Silencing of History

This 2019 Texas Tribune story orients the history of structural violence driving migration entirety, focusing myopically on apprehension numbers and U.S. enforcement actions.

This 2017 visual story by the U.S. Presbyterian Church mixes rigorous testimony on Guatemala’s history of racialized state violence with problematic and over-simplified cartographic visualizations.

Infused with emotion and situated place knowledge, this 2018 map by Knowles & Westerveld combats the silencing of Holocaust history with its transformative narrative power.

Need #2: Contest U.S.-Centric Bias

This 2019 National Geographic presents a biased picture of the structural drivers of migration, concealing the key role of U.S. policy in the marginalization of poor and indigenous Guatemalans.

This 2018 KQED story provides historical context on how U.S. state policy produced Central American gang violence, but replicates problematic invasion rhetoric and elides discussion of the less dramatic, but equally important “slow violence” wrought by U.S. policy.

Designed collaboratively with First Nations groups, Pepper’s 2017 visual story uses Indigenous place names to radically center the conventional pre-colonial vision of Canada as vast and empty.

Need #3: Amplify Proximate, Situated, and Marginalized Voices

This 2018 New York Times story represents migrants as an aggregated, homogeneous block and narrates their movement with third-person voice, erasing the individuality of migration and reinforcing the narrative of migrants as a transgressive force to be monitored.

While this 2019 New York Times story combats the invisibility of migrants suffering using the voices of undocumented border crossers, it replicates salvationist rhetoric by depicting migrants as helpless victims who need to be saved.

This sketch map drawn by Rosa, a 42 year old migrant and mother of six, depicts an individualized experience of migration shaped deeply by her intersectional identity. (Campos-Delgado 2018)

Figure 4.1: Voice needs from domain gap analysis
**Need #2: Contest US-Centric Savior Rhetoric**

The United States has played an outsized role in negatively shaping the everyday political and economic lives of Guatemalans. (Green 2009, Yates-Doerr 2018). The CIA played a pivotal role in the 1954 coup that initiated Guatemala’s genocidal civil war, backing “the age-old alliance of the rich and the military” (Bitter Fruit, 269) over a democratic government to protect US corporate profits. Throughout the conflict, the US government provided training and financial support to the Guatemalan military, turning a deaf ear to reports of war crimes (Ball 1999). At the height of the genocide, with Guatemalan President Efraín Ríos Montt’s administration conducting a scorched earth campaign that killed some 150,000 Mayans, US President Reagan publically reassured supporters, “I know that President Ríos Montt is a man of great personal integrity and commitment...I know he wants to improve the quality of life for all Guatemalans and to promote social justice.” (Reagan Library 1982). Contemporary discussions of migration often leave this history of US complicity unspoken, as well as the ongoing role of US neoliberal and immigration policy in producing migrant suffering (Vogt 2018). This avoidance plays a key role in rhetoric that criminalizes migrants, as anthropologist Emily Yates-Doerr (2018) points out:

> “Most U.S. media outlets characterize migrants as fleeing Guatemalan violence and impoverishment for a country where they do not belong. For many Guatemalans, they are fleeing circumstances that are American-made. Their claim to the U.S. is legitimate, they believe, because they fit the conditions for asylum. They also identify with the U.S. because its government has extensively shaped their daily lives—long before they attempt to cross the U.S.-Mexico border.”
Accounts of Guatemala-US migration that deemphasize the destructive effects of US policy on the lives of poor Guatemalans are biased and incomplete. Of the visual stories assessed, 9/20 (45%) expressed the conventional perspective, positioning the US as a magnetic sanctuary while leaving the extensive history of US intervention unspoken. A 2019 visual story from *National Geographic* exemplified this trope, highlighting the environmental devastation, hunger, and debt driving migration from Huehuetenango (a mountainous department in the west of Guatemala), but leaving out the starring role of US policy in creating and strengthening these forces. Paired with the use of uni-directional flow arrows reminiscent of military cartography, this narrative omission paints Guatemalan migrants as criminal transgressors on US sovereignty, rather than resilient survivors of US imperialism.

Conversely, 11/20 (55%) of the analyzed visual stories were ambivalent in their representations of the US, including at least partial critiques of the US role in marginalizing poor and Indigenous Guatemalans. Notably, none centered the role of the US in maintaining the neoliberal economic order, which structures the suffering of Guatemalan migrants before, during, and after transit (Vogt 2016). A 2016 visual story by KQED uses illustrations to explain how contemporary gang violence and impunity in Central America are the direct result of mass deportations by the US government. And yet, like several other examples that were coded as ambivalent, this visual story leaned on conventional cartographic representations such as flow arrows and neglected discussion of the less dramatic, but equally important ‘slow
violence’ wrought by US economic policies. None of the visual stories assessed were coded as transformative in their use of voice to contest US bias. For a transformative visual counter-argument to imperialism, I looked to Pearce’s map “Coming Home” (2017), which powerfully refutes the pre-colonial vision of Canada as vast and empty, using dense Indigenous place names to represent a geography shaped by generations of lived experience.

Need #3: Amplify Proximate, Situated, and Marginalized Voices

Though US pundits seem irresistibly drawn to reductive binaries such as economic migrant/refugee and criminal/victim, the convoluted realities of Guatemala-US migration resist such simplistic categories. On the ground, lived experiences of migration are shaped by a complex interplay of “individual aspirations and structural forces” (Mainwaring & Brigden 2016, 246). Both migrants’ reasons for leaving and their odds of survival differ along the lines of intersectional identity, with marginalized groups facing heightened vulnerability to multiple forms of violence before, during, and after transit (Vogt 2018). The migration of women from Guatemala has been linked to high and increasing rates of domestic violence and femicide—abuse that is compounded during transit, where women face astonishing levels of sexual violence and trafficking (Schmidt & Buechler 2017, Vogt 2018). As a consequence of centuries of dispossession and repression, Indigenous Guatemalans face higher rates of poverty, malnutrition, and illiteracy, and lower levels of land ownership, education, and life expectancy (INE
2014, Yates-Doerr 2018). During transit, Indigenous migrants endure racialized securitization, with immigration enforcement engaging in systematic profiling that “maps people into countries for deportation based on hair, language, and tattoos regardless of legal documentation of national citizenship” (Ybarra 2019, 199). Meanwhile, migrants with racial, gendered, and economic privilege meet fewer hardships and reach their destinations at higher rates (Ybarra 2019).

The amplification of proximate, situated, and marginalized voices is essential to resisting the representation of Guatemalan migrants as a homogenous group and contesting the invisibility of violence against vulnerable groups (Schmidt & Buechler 2017). Yet 8/20 (40%) of the visual stories failed altogether at including these voices, instead using conventional techniques that espouse state-centric perspectives and obscure diverse individual experiences of migration with aggregated representations. This paradigm is exemplified by a 2018 New York Times story, which uses static flow arrows to represent a diverse migrant caravan of more than 4,000 people. The migrants are denied the opportunity to speak for themselves—instead, their movement is narrated by a distant, third-person voice that reinforces the dominant narrative of migrants as a transgressive force to be monitored (Mekdjian 2015).

An additional 8/20 (40%) visual stories were coded as ambivalent, affording proximate voices at least partial expression but mixing in some conventional elements. While a 2019 visual opinion from the New York Times includes the voices of migrants, embedding audio from borderland 911 calls in its compelling
indictment of ‘Prevention Through Deterrence’, the particular context these voices are heard in reinforces the trope of migrants as helpless victims. The transformational inclusion of proximate voices means more than permitting migrants to testify to their suffering—it means amplifying marginalized perspectives on the “political, normative, and procedural decisions that preceded and triggered this drama in the first place” (Campos-Delgado, 493).

The 4/20 (20%) visual stories that amplified proximate voices in this transformative sense were the cognitive sketch maps authored by migrants in Campos-Delgado’s (2018) study. In contrast to conventional surveillant maps, the sketch maps offer sousveillant perspectives on the migration experience, illuminating the contours of a securitization space that are hidden in state-centric visuals. The migrants’ sketch maps challenge state meta-narratives by “allowing the subject to maintain the ownership of her/his story; thus, the elements and scenarios depicted are just the ones that she/he wanted to share” (Campos-Delgado 2018, 490). Each of the sketch maps illustrate situated geographies, revealing the differential dangers faced by Eduardo, Sara, Agustin, and Rosa, emphasizing their agency and emotions as they traverse these dangers, and highlighting aspects of the journey that are normally hidden, such as departure from home and extortion by authorities (Campos-Delgado 2018).
4.1.2 Embodiment

The analysis exposed significant gaps between critical geographic theory and conventional cartographic practices in the use of embodied representations. Some of the assessed visual stories conformed wholly to disembodied design conventions, overemphasizing the US-Mexico border, reproducing the static flow model of migration, and maintaining a voyeuristic gaze on migrant suffering. Many others were ambivalent, blending established tropes with some presentation of embodied experiences. A significant minority forcefully contested disembodied perspectives, using representations that radically shift attention to the arterial border, embodied experiences of (im)mobility, and the infrastructures that shape migrant suffering. Figure 4.2 summarizes examples that were coded as conventional, ambivalent, and transformative for each need.

Need #4: Shift Focus from US-Mexico Border to the Arterial Border

Within the United States, much of the discourse on Guatemala-US migration focuses heavily or exclusively on the US-Mexico border, despite the fact that state bordering practices are increasingly outsourced beyond this border (Mainwaring & Brigden 2016, Vogt 2018). Under political pressure from the US, the Mexican state has dramatically accelerated the militarization of migration routes, compounding the hardships of migrants in transit (Green 2009, Johnson & Woodhouse 2018). Though branded as humanitarian efforts at protection, expanded deterrence practices in Mexico have exacerbated the vulnerability of Guatemalans during
migration, necessitating reliance on criminal networks and resulting in the creation of “multi-billion dollar mafia-like enterprises for human smugglers that hardly existed [previously]” (Green 2009, 332). In addition to obscuring violence and insecurity along transit routes, stories that focus on the US-Mexico border play into the performative power of the border, reinforcing “a Westphalian model of world politics, identity, nationalism, and the us versus them mentality” (Kelly 2017, 36).

 Rather than legitimize state authority by focusing on the US-Mexico border, visual stories of Guatemala-US migration should expose embodied experiences of mobility along what Wendy Vogt calls the ‘arterial border’, a term that conceptualizes the border “not as a fixed entity, but as a constantly shifting and dynamic site of state legitimisation, individual agency and contestation” (Vogt 2017, 3). Of the assessed visual stories, 7/20 (35%) remained thoroughly preoccupied with the US-Mexico border, replicating and reinforcing the performance of state sovereignty. The Washington Post's 2018 visual story “Borderline” exemplifies this conventional preoccupation, though its oblique viewpoint and emphasis on natural features do expose the arbitrary nature of the borderline. An additional 7/20 (35%) visual stories were coded as ambivalent, at least partially exposing embodied experiences of transit along the arterial border. Many of these ambivalent representations focus on the movement of Central Americans through Mexico, but maintain state-centric narratives. The New York Times' 2018 depiction of a Central American migrant caravan typifies this approach, visualizing the movement of
migrants from a disembodied, top-down perspective that reinforces surveillant conventions and fails to capture the dynamic nature of the arterial border.

In contrast, transformative representations of the arterial border were included in 6/20 (30%) of the evaluated visual stories. While the collaboratively designed “Una cartografía de las mujeres en las migraciones” (FOCA A.C. 2015, A cartography of women in migration) may be critiqued on the grounds of usability and aesthetics, it remains an exceptional visualization of embodied experience along the arterial border. The map illustrates how various migratory routes used by female migrants intersect with uneven geographies of insecurity, exposing the entanglement of migrant vulnerability with the state security apparatus. While it includes border symbolization, national boundaries are barely distinguishable from municipal boundaries, which represent equally important navigational context for migrants seeking to skirt security checkpoints and reach shelters in specific towns. Despite its top-down perspective, this visual story reveals embodied experiences of “transient populations [that] remain hidden if we limit our analysis to the borders of the global north” (Mainwaring & Brigden 2016, 258).
Figure 4.2: Embodiment needs from domain gap analysis
Need #5: Challenge the Static, Smooth, Unidirectional Flow Model

In contrast to the static, smooth, and unidirectional flow arrows commonly deployed to represent Guatemala-US migration, the actual movements of migrants include “trajectories that are non-linear, circular, seasonal, multi-directional, repetitive, and ambiguous” (Mainwaring & Brigden 2016, 250). Static flow arrows aggregate disparate embodied experiences, obscuring differences in the ease, costs, and dangers of migration for various individuals (Lin et al. 2017). In addition, they imply unambiguous starting and ending points where there are none—destinations often shift during transit, and the threat of deportation for those who arrive “creates a lived space of liminality in which a sense of settlement cannot be achieved” (Mainwaring & Brigden 2016, 246). While the smoothness of flow arrows suggests frictionless movement, migratory journeys are often halting, uncertain, and circuitous, with migrants constantly adjusting to the challenges posed by enforcement authorities, criminals, and the natural environment (Schmidt & Buechler 2017, Campos-Delgado 2018, Vogt 2018). The invisibility of migrants’ embodied suffering serves both political and criminal interests, denying them legal protection and compounding their vulnerability to exploitation (Schmidt & Buechler 2017). By only depicting movements towards the US, unidirectional flow arrows convey “a politics of invasion and a moral panic around migration” (Mainwaring & Brigden 2016, 248), obscuring the large-scale deportation of Guatemalans by both the US and Mexico.
By revealing the turbulent, contested, and multidirectional nature of Guatemala-US migration, visual stories can expose the embodied suffering produced by enforcement regimes. Instead, 8/20 (40%) of the assessed visual stories concealed the embodied experiences of migrants behind static, smooth, and unidirectional flow arrows. This conventional approach is exemplified by a 2014 *Albuquerque Journal* story, which collapses the diverse lived experiences of Central American migrants into a single static flow arrow atop a grid of state borders. The struggles, resilience, and emotions of migrants are invisible in this reductive cartographic viewpoint. An additional 5/20 (25%) visual stories were ambivalent with respect to the conventional flow model, including some that mixed embodied representations with prototypical flow arrows. This included a 2016 visual story by the *New York Times* that illustrates the precarious, arduous journey of ten Guatemalan and Honduran migrants as they move north through Chiapas, Mexico’s southernmost state. The text and photos powerfully foreground embodied experience, detailing the physical and emotional toll borne by migrants as they traverse the militarized space, and the map emphasizes the highways and natural features that shape their movement. Despite these factors, the satellite imagery, top-down perspective, and bounded focus on movement toward the US give the map an emotionally distanced, surveillant tone.

In contrast, the 7/20 (35%) visual stories that radically challenged the conventional flow model used representations that center emotional and individual understandings of migratory journeys. The *Washington Post*’s 2019 visual story
‘Invisible Walls’ uses a combination of video, text, and animations to illustrate the embodied experiences of three Central American women—one in Guatemala post-deportation and family separation, one stuck in dangerous limbo by the ‘Remain in Mexico’ program, and one with temporary papers laboring in California’s agricultural sector. Together, their testimonies demonstrate the ambiguity and uncertainty of migratory journeys, and show that migrants’ trauma “must be understood as the embodiment of structural, political, and symbolic forms of violence” (Vogt 2018, 109). At the start of each woman’s narrative, the reader is oriented by conventional locator maps superimposed on drone imagery, an intriguing blending of scales. One limitation of ‘Invisible Walls’, shared with all the visual stories assessed, is that deportation, circular migration, and liminal settlement in Mexico are not visualized beyond the scale of the individual—perhaps representations of these multidirectional and non-linear movements at a statistical or aggregate level could play a role in debunking the conventional flow model.

*Need #6: Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering*

While attention to personal journeys of Guatemala-US is crucial, it is equally important to understand how migration infrastructures shape individual embodied experiences in powerful ways. As Lin et al. (2017, 170) argue, accounts that fail to robustly consider infrastructures omit context vital to understanding individual (im)mobilities:
“While narrating encounters of friction and difficulties in sustaining transnational lives from the migrant’s perspective provides ground-up accounts, this does not fully capture the ‘politics of mobility’ as determined through governmental apparatuses that imperceptibly, but influentially, organise movements. In this context, scholars need to treat migration infrastructures as an alternative knowledge repository, if not a starting point, through which divergent migration experiences can be elucidated and explained; failing which, the relative conditions under which migrants move (or do not move) become unjustly obscured.”

From neoliberal markets, to the state enforcement apparatus, to debt, infrastructures extensively influence the lives of Guatemalan migrants before, during, and after transit (Johnson & Woodhouse 2018, Vogt 2018). The neoliberal restructuring of the market under the Central American Free Trade Agreement (CAFTA) devastated the livelihoods of rural Guatemalans, impairing the viability of traditional agricultural practices and accelerating land grabs by transnational corporations (Green 2009). The material insecurity that drives Guatemalans to leave is compounded by border militarization, which “not only routinely fails to deter deportees, but in some cases actually perpetuates the very return migration it seeks to impede” (Johnson & Woodhouse 2018, 977). Increased border policing has driven the costs of migration so high that many Guatemalans take on predatory, high-interest loans to pay for passage north—debt that perpetuates cycles of migration because it is nearly impossible to pay off without US wages (Johnson & Woodhouse 2018). Instead of interrogating the infrastructures producing migrant suffering, many accounts of migration fixate narrowly on the people who move and the spectacle of violence (Lin et al. 2017). States even cite migrant hardship in order
to justify expansion of the very infrastructures that compound it (Mainwaring & Brigden 2016).

Ethical stories of Guatemala-US should expose the “different regimes, structures, and regulatory norms that unevenly orchestrate and impede movements for different groups of people” (Lin et al. 2017, 170). Yet 13/20 (65%) of the visual stories assessed completely omitted infrastructural context, replicating the conventional focus on the spectacle of violence. Reuters’ ‘Deadly Crossing’ exemplifies this trend; with a narrow focus on migrant deaths in the Sonoran desert, the 2018 story goes beyond omitting infrastructural responsibility to actively presenting the agents of border control as heroic rescuers. In contrast, the 5/20 (25%) visual stories coded as ambivalent provide some context on the migratory infrastructures that shape movement. For example, a 2019 visual story by the Norwegian Refugee Council discusses how historical deportation practices, contemporary changes to asylum law, and state corruption have affected migratory movements, but includes an underwhelming visualization of border deaths and overemphasizes the spectacle of gang violence.

The 2/20 (10%) visual stories coded as transformative go further, forcefully indicting the role of infrastructures in producing embodied suffering and directly linking structural forces to lived experience. The New York Times’ 2020 visual story ‘The Great Climate Migration’ shows how climate change is already devastating livelihoods in Central America and imagines how various border enforcement and development regimes would affect future population growth and migration.
Traversing scales, the story demonstrates how climate change induced drought led to forced migration for one family in Guatemala and visualizes statistical forecasts of migration across Central America and Mexico with various infrastructural calibrations. Critically, the story focuses squarely on infrastructures and abstains from the dramatization of migrants’ embodied suffering.

### 4.1.3 Uncertainty

The domain gap analysis revealed that many of the assessed visual stories of Guatemala-US did not adhere to critical and feminist standards for foregrounding uncertainty. Most of the visual stories completely failed to convey uncertainty, projecting a sense of authoritative confidence despite their use of unreliable or incomplete data. Others were ambivalent, communicating some sense of ambiguity and complexity but failing to fully express the uncertainty of their representations. A select few met transformative standards, fully revealing the partial nature of their data and giving a thorough sense of the uncertainty of migration and associated data. Figure 4.3 summarizes examples that were coded as conventional, ambivalent, and transformative.

**Need #7: Foreground Uncertainty and Expose Missing Data**

Like the lived realities it attempts to describe, data on Guatemala-US migration is fraught with uncertainty. Though conventional representations of migration often “project the illusion of a world manageable, controllable and static”
(Campos-Delgado 2017, 488), mobilities on the ground are dynamic, contested, and uncertain. Migratory routes through Mexico are “in constant flux, expanding and contracting as migrants, organized criminals, and local activists engage, evade, and contest the state along highways, train routes, and the network of shelters that traverse the country like arteries” (Vogt 2018, 8). Linear and static representations of migratory routes fail to capture this uncertainty, as do ‘stock measurements’, or summary figures that purport to capture the total number of migrants who depart from, transit through, or arrive at various points (Bacon et al. 2016). Numbers that claim to represent the exact total of Central Americans that are kidnapped, murdered, and disappeared in transit should be met with equal skepticism. Though the media regularly sensationalizes these numbers, the true scale of the violence is unknown—efforts to track this violence quantitatively are woefully limited, and the statistics compiled by groups such as the Missing Migrants Project are widely considered to be glaring underestimates of the true toll (Vogt 2018, Ybarra 2019). Nor can the data collected and disseminated by state actors be considered fully reliable, considering evidence that suggests states have suppressed information and failed to comply with legal documentation requirements for enforcement actions such as deportation (Ybarra 2019).

Given the unpredictable and dynamic nature of Guatemala-US migration, and the fact that associated statistical data is often “incomplete, imprecise, or even based on questionable methods” (Bacon et al. 2016, 2), it is essential that visual stories expose the limitations of what is known and foreground the uncertainty of data.
Instead, 10/20 (50%) of the visual stories excluded uncertainty entirely, using conventional representations that exude a false sense of scientific precision and government control. The *Texas Tribune*’s 2019 visual tracker epitomizes this approach, using unrounded figures (“67,101 migrants”) that imply comprehensive certainty about migratory movements. The story neglects uncertainty entirely, failing to appraise the validity of its government sources and the limitations of its numbers. In contrast, the 8/20 (40%) stories coded as ambivalent refrain from such gratuitous positivism, using visuals and language that convey some sense of uncertainty and partiality. For example, the cognitive sketch maps from Campos-Delgado’s 2018 study challenge the myth of definitive, static migratory routes by revealing the divergent trajectories of migrants as they attempt to dodge state and criminal actors. Still, while these individualized representations expose uncertainty hidden by conventional representations, their specificity may inadvertently compound the vulnerability of migrants. As Mainwaring and Brigden point out, “Publishing details about migrant routes and strategies may result in routes being further policed and made unavailable to travellers” (2016, 16). Ironically, though Campos-Delgado states that academic products are frequently co-opted for state securitization purposes and notes that “due to the clandestine and perilous nature of their journeys, the considerations of location is crucial for the participants’ wellbeing”, the visual stories’ main flaw is that they maintain insufficient uncertainty about migrants’ movements. Considering the shortcomings of both exact routes and static flow arrows, how can migrant journeys be visualized
ethically? The 2/20 (10%) visual stories that radically foreground uncertainty skirt this dilemma by focusing less on movement and more on the uncertainty that precedes and succeeds migrant journeys. In its narrative about the impacts of the ‘family separation’ policy, The Washington Post’s ‘Invisible Walls’ emphasizes the partial nature of the statistical data broadcasted by the US government, and points out that an accurate count of families that remain separated simply does not exist. Instead of using data visualizations or mapping migrant routes, the story leans heavily on photos, personal testimony, and artistic representations to convey the liminality imposed by US immigration policies. The New York Times’ ‘The Great Climate Migration’ represents the uncertainty of migratory futures using multiplicity, visualizing a range of different scenarios that might play out across time and according to a number of environmental and political variables.
Table 4.1. Summary of coding for the domain gap analysis.

<table>
<thead>
<tr>
<th>Title</th>
<th>Source</th>
<th>Year</th>
<th>Source URL</th>
<th>Combat the Blaming of History</th>
<th>Context U.S. Centric Bias</th>
<th>Proximate, Situated, and Marginalized Voices</th>
<th>Shift Focus from U-S-Mexico Border to Arterial Border</th>
<th>Challenge Linear, Disobedient Flow Model</th>
<th>Shift Focus From Spectacle of Violence to Infrastructures</th>
<th>Foreground Uncertainty and Excess Missing Data</th>
</tr>
</thead>
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<tr>
<td>From One River to the Next</td>
<td>Texas Tribune</td>
<td>2016</td>
<td><a href="https://apps.texastribune.org/migrant/">https://apps.texastribune.org/migrant/</a></td>
<td>C</td>
<td>C</td>
<td>A</td>
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<td>A</td>
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<tr>
<td>Fleeing for their lives in Central America</td>
<td>Norwegian Refugees Council</td>
<td>2019</td>
<td><a href="https://www.nrc.no/shortnews/07/01/0160765881667/why-these-central-american-refugees-are-fields.html">https://www.nrc.no/shortnews/07/01/0160765881667/why-these-central-american-refugees-are-fields.html</a></td>
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</tr>
<tr>
<td>Counter-mapping migration: irregular migrants’ stories through</td>
<td>Amikam Campos-Dalgado de la Fuente</td>
<td>2018</td>
<td><a href="http://storymap.genesismigrated.com/index.html">http://storymap.genesismigrated.com/index.html</a></td>
<td>C</td>
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<tr>
<td>Deadly Crossing</td>
<td>Reuters</td>
<td>2018</td>
<td><a href="https://www.nytimes.com/2020/02/22/national/migrant-migration.html">https://www.nytimes.com/2020/02/22/national/migrant-migration.html</a></td>
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4.1.4 Domain Gap Analysis Conclusion

The domain gap analysis revealed a broad array of unmet needs and problematic patterns in visual storytelling on Guatemala-US migration. The coding results (Table 4.1) show that many of the assessed visual stories stuck partially or wholly to conventional representations of migration that reinforce state-centric,
positivist, and myopic perspectives. While certain exceptional stories included transformational representations of silenced voices, embodied experiences, and uncertainties, none were coded as transformative across all of the assessed needs, and every story in the set was coded as conventional in at least one dimension.

These results both underline the pressing need for critical reimagining in this design context, and testify to the difficulty of challenging convention in all its sprawling forms. As Roth (2021, 85) points out, visual stories are inherently partial, “emphasizing a small set of key characters, places, and events while ignoring others”. While the domain gap analysis cast a purposefully wide net, assessing not only representations of transit itself but also depictions (or the lack thereof) of historical and structural context, it would be unfair to expect a single visual story to transformatively represent all the voices, embodied experiences, and uncertainties of Guatemala-US migration. Still, the onus is on designers to avoid problematic conventions and prioritize critical unmet needs within their limited purview. With these limitations and responsibilities in mind, the process advanced to the conceptual design stage.

Section 4.2: Conceptual Design

In the conceptual design stage, I outlined a formal set of written requirements based directly on the results of the previous stage. By translating each need into a core ethical requirement of my story, I aimed to avoid the problematic conventions and prioritize the critical unmet needs identified during the domain
gap analysis. The requirements document summarizes the *problem* motivating the requirement (discussed in more detail in the domain gap analysis) and the *proposed solution* addressing the problem in the story design. Thus, each requirement is conceptually linked with its manifestation in the story, representing a narrowing of focus from broad values and ethical problems to specific datasets and representations. In addition to the seven core ethical requirements translated directly from the gap analysis, I include an eighth requirement to ensure the usability and accessibility of the story.

The conceptual design of the story is further elaborated in the data biography, where I describe the key datasets identified to fulfill the requirements in sequential order (as they will appear in the story). Thus, the data biography gives a broad sense of the narrative flow, as well as details about the proposed data sources.

**Table 4.2. Requirements Document**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Problem</th>
<th>Proposed Solution</th>
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<tbody>
<tr>
<td>1) Combat the Silencing of History</td>
<td>The present day displacement of Guatemalans from their communities is fueled by centuries of dispossession, including the multi-generational effects of genocidal violence, neoliberal economics, and political marginalization. Yet most conventional visual stories of Guatemala-US migration omit this context, silencing history with representations that are ahistorical and decontextualized.</td>
<td>To combat this erasure, I propose using the concept of the four invasions, showing how present day migration is entangled with a history of cyclical invasion in Indigenous communities, including Spanish colonization (the 1st invasion), the advent of the plantation economy (2nd), the Guatemalan Civil War and Genocide (3rd), and the modern day incursion of industrial megaprojects (4th). In particular, I plan to emphasize historical connections between the third invasion (civil war/genocide) and present-day displacement.</td>
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<td>2) Contest US-Centric Savior Rhetoric</td>
<td>The United States has played a significant role in stifling political and economic progress in Guatemala, consistently prioritizing corporate profits over the human rights of Guatemalans. Despite the complicity of the US government</td>
<td>To challenge this dominant narrative, I plan to highlight key moments of US intervention, including the role of the US in the 1954 coup and their support of genocidal military governments during the period 1960-1994. The story will present</td>
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<td>3) Amplify Proximate, Situated, and Marginalized Voices</td>
<td>Experiences of Guatemala-US migration differ for people of various identities, with Indigenous and female migrants facing heightened vulnerability to multiple forms of violence before, during, and after transit. Despite the uneven power dynamics driving and shaping migration, many visual stories of Guatemala-US migration represent Guatemalan migrants as a homogenous group, statistically erasing Indigenous identity and omitting proximate, situated, and marginalized voices.</td>
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<td>Historical evidence on the close relationship between the US and Guatemalan governments and demonstrate that the US government had full knowledge of the extensive human rights violations that occurred during the third invasion, and therefore bears equal responsibility for the violence.</td>
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<td>To contest this silencing, I plan to highlight and affirm the situated experiences and Indigenous identities of six displaced Maya youth, and to illustrate the particular histories of their communities. I intend to amplify proximate perspectives by including quotes from family and community members rather than using only distant, third-person, state-centric narration.</td>
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<tr>
<td>4) Shift Focus from US-Mexico Border to the Arterial Border</td>
<td>Within the United States, much of the discourse on Guatemala-US migration focuses heavily or exclusively on the US-Mexico border, despite the fact that state bordering practices are increasingly outsourced beyond this border. Most conventional visual stories show this bias, reinforcing the performative power of the border, replicating nationalist modes of thinking, and obscuring violence and insecurity along transit routes.</td>
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<tr>
<td>To avoid replicating this bias, I plan to focus on events in Guatemala rather than happenings along the US-Mexico border. The story will visually de-emphasize national borders where possible, using more specific, sub-national data wherever possible. If representations of migrant journeys are included, they will aim to depict the 'arterial border', a term coined by anthropologist Wendy Vogt that conceptualizes the border “not as a fixed entity, but as a constantly shifting and dynamic site of state legitimisation, individual agency, and contestation”.</td>
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<td>5) Challenge the Static, Smooth, Unidirectional Flow Model</td>
<td>Many conventional visual stories of Guatemala-US migration use static, smooth, and unidirectional flow arrows to represent migration towards the United States, reinforcing a xenophobic narrative of invasion and obscuring the turbulent, contested, and multi-directional nature of migratory movements. These aggregated representations suggest a false narrative of frictionless movement, unambiguous beginnings and endings, and one-way movement north.</td>
<td></td>
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<td>I plan to avoid the use of conventional flow arrows. The visual story will go beyond the static flow model by depicting movement at multiple scales and in multiple directions, and by emphasizing emotional and embodied understandings of mobility. Unlike most conventional visual stories, the main narrative focus of the story will not be on the journey north, but on historical and structural context.</td>
<td></td>
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<tr>
<td>6) Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering</td>
<td>From neoliberal markets, to militarized immigration enforcement regimes, to debt, infrastructures extensively influence the lives of Guatemalan migrants before, during, and after migration. Yet many conventional visual stories fixate narrowly on the spectacle of violence against migrants, emphasizing gruesome details of migrant hardship and gang violence without providing structural context.</td>
<td></td>
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<td>Instead of focusing narrowly on the spectacle of violence, I plan to emphasize the role of infrastructures in producing and compounding individual suffering. The visual story will show how the US-supported scorched earth campaigns systematically targeted Indigenous peoples, using multiple geographic and temporal scales to show the pattern of violence over time. The story will also emphasize how this pattern of violence has continued into the present with violence against...</td>
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</tbody>
</table>
7) Foreground Uncertainty and Expose Missing Data

Like the lived experiences it attempts to describe, quantitative data on Guatemala-US migration is fraught with uncertainty. Efforts to track violence against migrants are woefully limited, and the data compiled and disseminated by state actors is unreliable. Despite this fact, conventional visual stories project an illusion of certainty, exuding a false sense of scientific precision and governmental control by using "exact" figures and failing to foreground uncertainty.

In my visual story, I plan to prominently foreground the uncertainty of the quantitative data used in the story, and use estimates made by researchers to put the partial nature of the visualized data in context. Instead of using exact figures such as "67,101 migrants", which implies certainty and government control, I will use rounded estimates such as 65,000+, and explicitly convey uncertainty to readers in the text.

8) Ensure Usability and Accessibility

Ease of use and accessibility is extremely important to the success and uptake of visual stories. Yet many visual stories of Guatemala-US migration do not prioritize usability and accessibility, failing to take into account technological constraints, language barriers, and user expertise levels.

I plan to design the visual story to be usable and accessible to a broad range of users. The visual story will be available for free on the web, and will be designed responsively so it works well for all screen sizes, from cell phones to desktop computers. The story will be designed in both English and Spanish so it is accessible to more users. The story will not assume expert knowledge, but will aim to be understandable to people with little or no previous knowledge of Guatemala-US migration. I will aim to keep the size and complexity of the story to a minimum so it works well for people accessing the story with slow Internet connections.

Table 4.3. Data Biography

<table>
<thead>
<tr>
<th>Data</th>
<th>Description &amp; Examples</th>
<th>Relevant Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices of the Displaced</td>
<td>In the first section of the story, I plan to illustrate the causes and effects of migration in Indigenous communities, highlighting the stories of six Maya youth who tragically lost their lives in transit.</td>
<td></td>
</tr>
<tr>
<td>(qualitative)</td>
<td></td>
<td>By centering Indigenous voices and emphasizing personal/emotional understandings of migration, this data is intended to contribute to:</td>
</tr>
<tr>
<td></td>
<td>Jakelin Caal Maquin</td>
<td>Maya Qʼeqchiʼ</td>
</tr>
<tr>
<td></td>
<td>Felipe Gómez Alonzo</td>
<td>Maya Chuj</td>
</tr>
<tr>
<td></td>
<td>Juan de León Gutiérrez</td>
<td>Maya Chʼortʼiʼ</td>
</tr>
<tr>
<td></td>
<td>Wilmer Josue Ramirez Vasquez</td>
<td>Maya Chʼortʼiʼ</td>
</tr>
<tr>
<td></td>
<td>Carlos Gregorio Hernández Vásquez</td>
<td>Maya Achi</td>
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<tr>
<td></td>
<td>Instead of emphasizing the details of their journeys, I plan to focus on the structural problems that displaced these Maya youth and the human and emotional cost of migration by amplifying the voices of their families and communities. For example, I would include voices from Jakelin’s community of San Antonio Secortez, Raxruhá:</td>
<td></td>
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<td></td>
<td>&quot;Here, there is no opportunity to work, we are receiving low pay for what we produce and everyday things are more expensive...My husband decided to go to the United States to find the means to support our family.&quot;</td>
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</tbody>
</table>
Indigenous Identity and Income Inequality (quantitative)

To emphasize how structural problems such as inequality and poverty are disproportionately affecting Indigenous communities, I plan to map census data from the Guatemalan National Institute of Statistics that will show the distribution of the population by ethnic/linguistic identity and the percentage of the population in poverty in each municipality. The data will be used to show that each of the six Maya youth come from distinct Maya communities and to demonstrate that poverty is worse in Indigenous communities. For example, this data shows that all six youth come from majority Maya municipalities where the poverty rate is greater than 70%.

Claudia, San Juan Ostuncalco | 84% Maya Mam | Poverty 72%
Jakelin, Raxruhá | 80% Maya Q’eqchi’ | Poverty 92%
Felipe, Nentón | 58% Maya Chuj | Poverty 83%
Juan, Camotán | 63% Maya Ch’orti’ | Poverty 88%
Wilmer, Olopa | 51% Maya Ch’orti’ | Poverty 84%
Carlos, Cubulco | 73% Maya Achi | Poverty 81%

By emphasizing the structural conditions that are driving migration, and emphasizing the complex geography of Indigenous identity, this data is intended to contribute to:

- Requirement #3: Amplify Proximate, Situated, and Marginalized Voices
- Requirement #6: Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering

CEH Data on Massacres (quantitative & qualitative)

In the second section of the story, I plan to show how the present day marginalization of Indigenous peoples in Guatemala is connected to a history of cyclical invasion. To show how the genocidal armed conflict caused multi-generational dispossession and displacement in Indigenous communities, including those of the six Maya youth, I plan to map data about massacres published in the landmark 1999 report of the Commission for Historical Clarification (CEH). I transcribed detailed data on more than 600 massacres committed by the Guatemalan government forces in particular municipalities. Here’s a typical entry:

CEH Case #: 9351
Perpetrator: Army
Department: Alta Verapaz
Municipality: Chisec
Date: 11/11/1981
Description: On August 20, 1982 in the mountains near Setzi, municipality of Chisec, department of Alta Verapaz, there was a bombardment. In the flight some people lost their children. A woman was injured. Two days later, troops from the Guatemalan Army arrived and continued to persecute people. They killed Maria Coy and her son Santiago Ic. Five children, old and sick people, could not flee and were executed by members of the Guatemalan Army. Likewise, soldiers of the Guatemalan Army kidnapped the girls Mercedes Pop Chub and Romelia Pop Chub, who were never seen again. Domingo Chuc also disappeared.
Identified: Maria Coy, Santiago Ic, Domingo Chuc, Mercedes Pop Chub (Child), Romelia Pop Chub (Child)
Unknown Victims: 7

I focused on massacres because they were, as the report puts it, "the most..."
A concentrated expression of the repressive power of the state. By mapping where and when these events occurred, the visual story will show how the military’s genocidal scorched earth campaigns targeted Maya peoples in particular, exacerbating the structural inequality that drives forced migration today. In addition, I plan to include voices of survivors quoted in the CEH report. For example, I would include the following quote about displacement following the Cajón del Rio massacre in Juan’s home municipality of Camotán:

"Many from here are still in Honduras. Almost half the village left." - Survivor

| US Intervention (qualitative) | To show how the US government participated in regime change and supported brutal military governments in Guatemala, I plan to include qualitative data showing the extent of US government intervention. This data will show how the US supported genocidal governments throughout the armed conflict both diplomatically and financially. For example, US President Ronald Reagan met with Guatemalan president Rios Montt in December 1982 during the height of the scorched earth campaigns and issued the following statement of support:

"I know that President Rios Montt is a man of great personal integrity and commitment...the United States is committed to support his efforts to restore democracy and to address the root causes of this violent insurgency. I know he wants to improve the quality of life for all Guatemalans and to promote social justice. My administration will do all it can to support his progressive efforts." (Reagan Library)

The data also highlights financial and military support from the United States For example, in the late 1980’s the US contributed hundreds of millions in aid to regimes that were committing human rights violations:

"The US delivered an estimated $109.5 million in economic and military assistance to Guatemala in 1986 and $117.6 million in 1987. Secretary of State George Shultz, on behalf of President Reagan, certifies to Congress that "the Government of Guatemala made demonstrated progress during the preceding year" in "achieving control over its military and security forces, in eliminating human rights abuses, and in respecting the human rights of the indigenous Indian population" (Broder & Lambek, 113).

| Indigenous Defenders and State Violence (quantitative and qualitative) | In the third section of the story, I plan to show how the invasion of Indigenous territories did not end with the Peace Accords, but continued to the present with extractive mega-projects led by transnational companies and violence against Indigenous land defenders. This section will highlight the voices of Indigenous leaders and land defenders speaking about continued resistance and repression, such as K’iché Communities Council leader Aura Lolita Chávez Ixcaquic:

"The territorial dispute is focused mainly on the transnational companies that are illicitly profiting from the water, the land, and the natural resources — especially the minerals — in our territories. So we rise up in opposition. Of course, as a result, they come and attack entire communities that defend territory, ancestral authorities, and rights defenders." - Lolita Chavez (Earth Island Journal)

To illustrate the extent and severity of repression by transnational corporations and the state, I will map data showing the assassination of human rights and land defenders in 2018-2020 published by the Unit For the Protection of Human Rights Defenders in Guatemala (UDEFEGUA). The data shows where 57 defenders lost their lives in defense of their communities, for example:

-Nery Esteban Pedro | Defensor del Territorio | San Mateo Ixtatán, Huehuetenango | 2018 | By showing key moments of US support and demonstrating complicity in war’s human rights violations, this data is intended to contribute to:


By amplifying the voices of Indigenous leaders speaking about the structural problems in communities experiencing migration, and showing how state violence continues today, this data is intended to contribute to:

-Requirement #6: Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering. |
Section 4.3 Formative Evaluation (Survey I)

Once the initial round of conceptual design was completed, I conducted a survey with the stakeholder group Colectivo Vida Digna to collect feedback about the proposed requirements document and data sources. The requirements document and data biography were translated to Spanish and the survey was conducted via Google Forms. The full survey was captured for posterity in the Appendix, but the basic format was as follows.

The survey had three sections and took roughly 30-45 minutes for stakeholders to complete. The first section focused on the requirements document, the second section on the data biography, and the third section on overall impressions. In the first section, the full requirements document was presented with the following questions asked about each requirement:

1) *What if anything do you like or appreciate about this requirement?*

2) *Do you have any concerns or doubts about this requirement?*

3) *Please provide any additional feedback you have about this requirement (optional)*
In addition, the following question was included at the end of the requirements section:

Would you like to see any additional requirements for the visual story? (optional)

The format of the data section mirrored that of the requirements section. The full data biography was presented and the following questions were asked about each data source:

1) What if anything do you like or appreciate about this data source?
2) Do you have any concerns or doubts about this data source?
3) Please provide any additional feedback you have about this data source or suggestions for alternative data sources (optional)

Finally, in the summary section, Likert scales were used to capture overall impressions of the proposed story, according to each of the eight requirements. For example:

Overall, how well does the proposed story support Requirement #1: Combat the Silencing of History?
The first survey set an early baseline for overall impressions of the story’s success, capturing potential story revisions and broader considerations for later design stages.

4.3.1 Survey I Results

Once survey was complete, I translated responses from Spanish to English. Overall, stakeholder feedback in the survey responses was positive, with the majority of statements expressing support for the proposed requirements and data sources. The largely affirmative feedback is summed up by the following statement from the stakeholders: “We find [the story] very interesting because it reflects about 90% of the history of Guatemala, congratulations on your progress.”

The responses to the Likert scale questions about overall impressions also indicated general approval (Figure 4.4). Stakeholders rated the proposed story most successful at fulfilling Requirements #1 (Combat the Silencing of History), #3 (Amplify Proximate, Situated, and Marginalized Voices), and #4 (Shift Focus from US-MX Border to the Arterial Border), all of which were rated 4.5/5. Closely behind and rated 4.0/5 were Requirements #2 (Contest US-Centric Savior Rhetoric), #6 (Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering), and
#7 (Foreground Uncertainty and Expose Missing Data). Requirement #5 (Challenge the Static, Smooth, Unidirectional Flow Model) received a slightly positive 3.5/5, perhaps because the proposed story and data sources were not focused on transit experiences. Stakeholders assessed Requirement #8 (Ensure Usability and Accessibility) lowest at a neutral 3.0/5, which was not entirely surprising since the early stages of the design process were more focused on utility and story content, rather than usability and narrative form.

**Overall, how well does the proposed story support this requirement?**

![Likert scale results for Survey I](image)

**Figure 4.4:** Likert scale results for Survey I
Though largely positive, the survey responses also included numerous suggestions and critiques that indicated the need for some revisions and additions to the requirements.

Several stakeholder responses suggested the need to highlight the role of specific antagonists, stating, “It is necessary to analyze the governments of the day, how they have taken advantage with their various political parties that have used these invasions...” and “...it has to do with the great businessmen of Guatemala”. The stakeholders also stated that “linking the history to its current relevance is very important”. In response to these comments, and considering the fact that contemporary Guatemala remains dominated politically and economically by its genocidal oligarchy, I made the following addition to Requirement #1: Combat the Silencing of History (solution).

The story will name specific antagonists, especially politicians and corporations that continue to wield power today despite their criminal history.

The responses to the questions on Requirement #3 affirmed the inclusion of migrant voices, but emphasized the need to incorporate additional perspectives. One stakeholder stated, “It is necessary to listen to [migrant] voices, but also to their complements on the issue of lack of land, lack of education in languages, lack of health, lack of electricity, lack of communication media...”, while another asserted, “I think it is important to talk about what the communities have, not just what they lack. Not
only why people migrate, but also why they do not. Wealth, knowledge, and life reside in the communities.” In response to these comments, I made the following addition to Requirement #3: Amplify Proximate, Situated, and Marginalized Voices (solution).

The story will amplify the perspectives of community organizers and ancestral authorities on the collective strength and struggle of their communities to address structural injustice.

Several responses spoke to the importance of avoiding victim tropes, specifically the stereotype of Indigenous communities as poor. One stakeholder stated, “[It is important] that the person or the Indigenous community is not represented as poor”, while another advised, “Talking about poverty rates does not change how Indigenous peoples are seen. Inequality is a reality, and also strategic impoverishment, but the word poverty not only stigmatizes, it also decontextualizes.” They also pointed out how misrepresentation can be a product of positionality and lack of direct contact, stating, “What is worrisome is that you do not have access to more of the story from the [migrants] themselves and their families...[some journalists] do not realize that they victimize and "strip" Indigenous people in their narratives in an attempt to wake up the public in the US to the realities. But at whose expense? Many times the lives, communities, bodies and words of Indigenous people are violated in the construction of these stories.”
While this critique was not unexpected, it was a valid and important reminder of my project’s limitations. As I acknowledge in my positionality statement, my position as a white, highly-educated US citizen makes creating a nuanced, faithful story harder. The constraints imposed by the Master’s degree timeline and COVID-19 made direct contact with the migrants’ families unfeasible. Still, I believed that it was important to highlight individuals and include direct quotes for the reasons laid out in Requirement #3, and the stakeholders seemed to agree, stating, “I have seen that including ‘the human face’, the stories of particular people, has been an important narrative vehicle for understanding...It seems important to me to include the voices of Claudia, Jakelin, Felipe, Juan, Wilmer and Carlos.” To ensure the story avoided replicating the decontextualized trope of Indigenous peoples as poor, I made the following addition to Requirement #6: Shift Focus from Spectacle of Violence to the Infrastructures Producing Suffering (solution).

The story will focus on representing the infrastructural process of impoverishment, rather than the decontextualized result of poverty in Indigenous communities.

In addition, I planned to use different data in order to emphasize inequality and the massive wealth of the oligarch class, instead of the municipality-level poverty data described in the conceptual design’s data appendix.

The stakeholders underlined the limitations and uncertainty associated with two of the proposed data sources. Referring to the census data on linguistic/ethnic
identity, one stated, “the most recent censuses do not reflect the number that Guatemala has”. Emphasizing the limited scope of the CEH massacre data, they pointed out how the abbreviated historical clarification effort “helped to hide the pain of all the disappeared families and their relatives with the hope of finding them through this report and there was nothing”. While I agree about the intrinsic shortcomings and uncertainty of these two data sources, I posit that they remain valuable narrative assets so long as their deficiencies are foregrounded. To ensure the limitations would be presented front and center, I made the following addition to Requirement #7: Foreground Uncertainty and Expose Missing Data (solution).

The story will emphasize the uncertainty of key data sources, using supplemental data and estimates to show their shortcomings where possible.

For the massacre data, this could mean highlighting a case from another dataset to emphasize the partiality of the CEH report, while non-governmental population estimates could potentially help put the census data in context.

One of the most significant revisions to the requirements document was prompted by a stakeholder response that addressed the topics of users and utility, though not in those terms.

“I wonder who [the story] is addressed to and for what purpose. Is it more for people who work on immigration issues, migrants, organizations, politicians, people from the general public?...I think that some initiatives tend to be more to build social movements (for the migrants themselves, for the same indigenous people), and others to
explain or convince a general public about some problem. This initiative seems to want to do both, but possibly different tools should be used for different intentions and audiences...I wonder if you can make a tool that says, 'we do this in such a way, I propose that we do it in this other way.'”

This statement astutely noted a potential weakness of the story design—that users and utility are not explicitly defined. This departure from the typical UCD process stems from the hybrid nature of the story design protocol and the wide-ranging scope of the project. Unlike conventional UCD, where a tool or product is usually developed to be sold to particular users, the starting point of this project was scholarly, motivated by the critique of a broad array of conventional visual stories and the design of ethical alternatives. Thus, the core requirements were not an articulation of a particular set of user needs, but rather, an attempt to critically reimagine conventional cartographic approaches, and to emphasize voices, embodied experiences, and uncertainties that are normally omitted from visual stories of Guatemala-US migration. The visual stories assessed in the domain gap analysis were designed for various audiences including academics, professionals, and the general public, and the imagined audience of my story was correspondingly broad—in a way, the intended users are ‘anyone who has been misled by conventional representations’. I included Requirement #8: Ensure Usability and Accessibility, to ensure the story would be accessible to as many users as possible, bearing in mind inequitable access to technology. I considered designing user
 personas, but decided against specifying users explicitly, worried that the already complicated design process would become too elaborate.

Still, I agreed with the stakeholders that more explicitly signaling the story’s intended utility fit with the critical spirit of the project and would help indicate positionality. To ensure the story’s purpose would be made clear to both stakeholders and users, I added Requirement #9: Make an Explicit Call to Action. The requirement was laid out with the same problem-solution structure as the requirements from the first round of conceptual feedback. Before moving on to the visual development of the story, all of the changes and additions were incorporated into a second draft of the requirements document, which is included below with updates highlighted (Table 4.4).

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Problem</th>
<th>Proposed Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Combat the Silencing of History</td>
<td>The present day displacement of Guatemalans from their communities is fueled by centuries of dispossession, including the multi-generational effects of genocidal violence, neoliberal economics, and political marginalization. Yet most conventional visual stories of Guatemala-US migration omit this context, silencing history with representations that are ahistorical and decontextualized.</td>
<td>To combat this erasure, I propose using the concept of the four invasions, showing how present day migration is entangled with a history of cyclical invasion in Indigenous communities, including Spanish colonization (the 1st invasion), the advent of the plantation economy (2nd), the Guatemalan Civil War and Genocide (3rd), and the modern day incursion of industrial megaprojects (4th). In particular, I plan to emphasize historical connections between the third invasion (civil war/genocide) and present-day displacement. The story will name specific antagonists, especially politicians and corporations that continue to wield power today despite their criminal history.</td>
</tr>
<tr>
<td>2) Contest US-Centric Savior Rhetoric</td>
<td>The United States has played a significant role in stifling political and economic progress in Guatemala, consistently prioritizing corporate profits over the human rights of Guatemalans. Despite the complicity of the US government in creating structural conditions of inequality and impunity, most conventional visual stories of</td>
<td>To challenge this dominant narrative, I plan to highlight key moments of US intervention, including the role of the US in the 1954 coup and their support of genocidal military governments during the period 1960-1994. The story will present historical evidence on the close relationship between the US and Guatemalan governments and demonstrate that the US government had full knowledge of the extensive human rights</td>
</tr>
</tbody>
</table>
Guatemala-US migration omit the destructive history of US intervention, portraying the United States as a magnetic, benevolent sanctuary.

To contest this silencing, I plan to highlight and affirm the situated experiences and Indigenous identities of six displaced Maya youth, and to illustrate the particular histories of their communities. I intend to amplify proximate perspectives by including quotes from family and community members rather than using only distant, third-person, state-centric narration. **The story will also amplify the perspectives of community organizers and ancestral authorities on the collective strength and struggle of their communities to address structural injustice.**

Within the United States, much of the discourse on Guatemala-US migration focuses heavily or exclusively on the US-Mexico border, despite the fact that state bordering practices are increasingly outsourced beyond this border. Most conventional visual stories show this bias, reinforcing the performative power of the border, replicating nationalist modes of thinking, and obscuring violence and insecurity along transit routes.

To avoid replicating this bias, I plan to focus on events in Guatemala rather than happenings along the US-Mexico border. The story will visually deemphasize national borders where possible, using more specific, sub-national data wherever possible. If representations of migrant journeys are included, they will aim to depict the 'arterial border', a term coined by anthropologist Wendy Vogt that conceptualizes the border “not as a fixed entity, but as a constantly shifting and dynamic site of state legitimisation, individual agency, and contestation”.

Many conventional visual stories of Guatemala-US migration use static, smooth, and unidirectional flow arrows to represent migration towards the United States, reinforcing a xenophobic narrative of invasion and obscuring the turbulent, contested, and multi-directional nature of migratory movements. These aggregated representations suggest a false narrative of frictionless movement, unambiguous beginnings and endings, and one-way movement north.

I plan to avoid the use of conventional flow arrows. The visual story will go beyond the static flow model by depicting movement at multiple scales and in multiple directions, and by emphasizing emotional and embodied understandings of mobility. Unlike most conventional visual stories, the main narrative focus of the story will not be on the journey north, but on historical and structural context.

From neoliberal markets, to militarized immigration enforcement regimes, to debt, infrastructures extensively influence the lives of Guatemalan migrants before, during, and after migration. Yet many conventional visual stories fixate narrowly on the spectacle of violence against migrants, emphasizing gruesome details of migrant hardship and gang violence without providing structural context.

Instead of focusing narrowly on the spectacle of violence, I plan to emphasize the role of infrastructures in producing and compounding individual suffering. The visual story will show how the US–supported scorched earth campaigns systematically targeted Indigenous peoples, using multiple geographic and temporal scales to show the pattern of violence over time. The story will also emphasize how this pattern of violence has continued into the present with violence against land defenders protecting their communities from incursions by industrial megaprojects. **The story will focus on representing the infrastructural process of impoverishment, rather than the decontextualized**
7) Foreground Uncertainty and Expose Missing Data

Like the lived experiences it attempts to describe, quantitative data on Guatemala-US migration is fraught with uncertainty. Efforts to track violence against migrants are woefully limited, and the data compiled and disseminated by state actors is unreliable. Despite this fact, conventional visual stories project an illusion of certainty, exuding a false sense of scientific precision and governmental control by using "exact" figures and failing to foreground uncertainty. In my visual story, I plan to prominently foreground the uncertainty of the quantitative data used in the story, and use estimates made by researchers to put the partial nature of the visualized data in context. Instead of using exact figures such as "67,101 migrants", which implies certainty and government control, I will use rounded estimates such as 65,000+, and explicitly convey uncertainty to readers in the text. The story will emphasize the uncertainty of key data sources, using supplemental data and estimates to show their shortcomings where possible.

8) Ensure Usability and Accessibility

Ease of use and accessibility is extremely important to the success and uptake of visual stories. Yet many visual stories of Guatemala-US migration do not prioritize usability and accessibility, failing to take into account technological constraints, language barriers, and user expertise levels. I plan to design the visual story to be usable and accessible to a broad range of users. The visual story will be available for free on the web, and will be designed responsively so it works well for all screen sizes, from cell phones to desktop computers. The story will be designed in both English and Spanish so it is accessible to more users. The story will not assume expert knowledge, but will aim to be understandable to people with little or no previous knowledge of Guatemala-US migration. I will aim to keep the size and complexity of the story to a minimum so it works well for people accessing the story with slow internet connections.

9) Make an Explicit Call to Action

The utility, or intended purpose, of visual storytelling is not always clearly outlined. Many visual stories about Guatemala-US migration do not prominently foreground the positionality of their authors, nor do they convey a clear political message to mobilize the audience. The visual story will include an explicit call to action that clearly communicates the intended meaning of the story. The story has two core editorial purposes. First, the story aims to educate users by showing how migration is the result of cyclical invasion in Indigenous communities by the oligarchy, transnational corporations, and the US and Guatemalan governments. Second, the story will advocate for the dismantling of this status quo, arguing that real political change will only come through the empowerment of grassroots, collective, and Indigenous sovereignty movements fighting to end impunity, extractive neoliberalism, and the immigration-industrial complex.

Section 4.4 Prototyping

With the updated version of the requirements document finalized, the focus shifted to prototyping. During this stage, I developed a high fidelity, full-length prototype of the visual story, using Adobe Illustrator to create a realistic mockup of how the various multimedia elements would fit together. I opted for a high-fi
approach over a low-fi approach to prototyping because I was concerned that the novel and interactive map representations in the story might be challenging to understand via sketches. I also hoped that the hi-fi prototype would more fully convey the story’s nuances and mood, enabling better feedback from the stakeholders.

The creation of the hi-fi prototype included significant work, including writing the text of the story (~5000 words), finding photos for the story (~45 photos), designing the maps (10+), and curating all the elements into a cohesive whole. As the work progressed and the story grew in length, it became increasingly clear that the scope of the narrative was extremely broad, both in relation to the time allotted for development and possibly for the attention span of readers. This was true even with the fact that the story devoted relatively less attention to Requirements #4 and #5 by virtue of not focusing on the migratory journey. Still, I forged ahead with writing and designing the story, and eventually had a full prototype composed of three chapters.

The first chapter centers the stories of six Indigenous youths that tragically died migrating to the United States in 2018–2019. This chapter uses perspective maps, photos, and text to establish distinct identities for each of the characters and convey the complex interplay of “individual aspirations and structural forces” (Mainwaring & Brigden 2016, 246) driving people to migrate in each area. By using multiple, partial views and centering the voices of family and community members, I
hoped to convey a humanized and nuanced view of the plight faced by Indigenous communities in Guatemala.

The second chapter sheds light on the history that is so often omitted from stories of Guatemala-US migration, demonstrating how the structural problems driving contemporary migration are rooted in a history of cyclical invasion. Particular attention is devoted to tracing the unfolding of this history in the home regions of the characters introduced in the first chapter, as well as highlighting the complicity of the United States. The main feature of the second chapter is an interactive map that shows how and where massacres occurred during the internal
armed conflict, presented to the stakeholders in the prototype through a series of static views.

![Interactive map of massacres from Chapter 2 of the prototype.](image)

Figure 4.6: Interactive map of massacres from Chapter 2 of the prototype.

The third chapter of the story shows how violence has persisted in post-war Guatemala in the form of privatization and extractive projects, and highlights the stubborn, inspiring resistance of Indigenous communities, environmental defenders, and human rights activists in the face of criminalization and murder. The chapter tries to balance the continued severity of the challenges faced and the reasons for hope, namely the remarkable, inspiring solidarity and resistance of grassroots groups. The story concludes with a call to action—until the voices of those suffering and fighting for justice are heard, structural violence and migration will continue unabated.
Once completed, the prototype was converted to be viewable on the web with ai2html, a tool developed by data journalists at the *New York Times*. This allowed for easy sharing with the stakeholders via hyperlink, rather than sharing a large PDF file. The prototype can be viewed chapter by chapter at the following links.

**English**

https://nick-underwood.com/prototype/chapter1.html
https://nick-underwood.com/prototype/chapter2.html
https://nick-underwood.com/prototype/chapter3.html

**Spanish**

https://nick-underwood.com/prototype/espanol/capitulo1.html
https://nick-underwood.com/prototype/espanol/capitulo2.html
https://nick-underwood.com/prototype/espanol/capitulo3.html
**Section 4.5 Formative Evaluation (Survey II)**

Once the prototyping stage was complete, a second survey was conducted with the stakeholder group Colectivo Vida Digna to collect feedback about the completed prototype. The protocol for the second round of formative evaluation closely mirrored the first, with the updated requirements document and prototype translated to Spanish and the survey conducted via Google Forms. The full survey was screen-captured for posterity and is available in the appendix.

Like the first survey, the second survey had three sections and required about 45 minutes for the stakeholders to complete. The first section focused on the updated requirements document, the second section on the prototype, and the third section on tracking overall impressions.

In the first section, the updated draft of the requirements document was presented to the stakeholders in the same format it is shown in this document (Table 4.4), with changes and additions highlighted in red. The updated requirements document was included to demonstrate to the stakeholders that their feedback was being heard and incorporated into the story design, and to give a chance for approval and/or critique of the updates. The following questions were asked about the updated requirements document:

1) *What if anything do you like or appreciate about the updates and edits to the requirements?*
2) *Do you have any concerns or doubts about the updates and edits to the requirements?*

3) *Please provide any additional feedback you have about the updates and edits to the requirements (optional)*

In the second section, the full high fidelity prototype of the visual story was presented for feedback. Conscious of the considerable length of the story, it was presented chapter by chapter in three parts, with the intention of creating space for feedback at various points in the narrative and avoiding recency bias in the evaluation. The following questions were asked after each chapter of the story:

1) *What if anything do you like or appreciate about this chapter of the story?*

2) *Do you have any concerns or doubts about this chapter of the story?*

3) *Please provide any additional general feedback you have about this chapter of the story (optional)*

In the third and final section of the survey, Likert scales were used again to capture impressions of how well the visual prototype fulfilled each of the nine requirements. For example:

*Overall, how well does the story prototype support Requirement #1: Combat the Silencing of History?*
This section was designed to match the format of the analogous section in the first survey, in order to capture evolving impressions of the story's success on various requirements as the story design and development advanced.

4.5.1 Survey II Results

In contrast to the first survey, which several members of the stakeholder group responded to individually, the second survey was answered collectively by three members of the stakeholder group, who went through the survey and responded together. Their feedback was very positive, with both the Likert scales on overall impressions and the longform text responses indicating approval of the prototype and updated requirements.

In this round, the stakeholders rated the visual story prototype most successful at fulfilling Requirements #8 (Ensure Usability and Accessibility) and #9 (Make an Explicit Call to Action), with both receiving a perfect 5/5. The high approval of the prototype on Requirement #8 was a marked improvement from the first round of feedback, when it garnered the lowest rating of any requirement at 3.0/5, perhaps indicating that the stakeholders found the visual prototype to be exceptionally usable and accessible. The high rating for the newly added
Requirement #9 seemed to affirm its inclusion and convey strong approval of the call to action in the story prototype.

### Overall, how well does the story prototype support this requirement?

- [ ] Survey II rating  
- [ ] Survey I rating

![Survey Results Diagram]

**Figure 4.8:** Likert scale results for Survey II

The visual prototype received a solid positive rating of 4.0/5 on six of the remaining seven requirements, including Requirement #1 (Combat the Silencing of History), #2 (Contest US-Centric Savior Rhetoric), #3 (Amplify Proximate, Situated, and Marginalized Voices), #5 (Challenge the Static, Smooth, Unidirectional Flow
Model), #6 (Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering), and #7 (Foreground Uncertainty and Expose Missing Data). The low outlier was Requirement #4 (Shift Focus from US-MX Border to the Arterial Border), which received a neutral 3.0/5. This neutral rating tracked with the relatively low score given to Requirement #5 in the previous survey, both of which are somewhat unsurprising given that the story was largely focused on Guatemala and the precursors to migration, rather than transit experiences.

The stakeholders’ written responses to the survey were congruent with the Likert scale ratings. Overall, the feedback was very positive and indicated excitement for the final product, with the stakeholders stating, "It was a pleasure to collaborate with you in such good work, we await the final document and it will be very helpful to have this visual story about Guatemala’s migration." They also stated explicit approval of the updated requirements, stating, "We agree with the updates and additions to the requirements".

Several responses indicated particularly strong approval for the story's fulfillment of Requirement #1 (Combat the Silencing of History). The stakeholders wrote, "What appeals to us about the story is that the phases of the history of Guatemala are very clear", and suggested that sharing this history is critical because, "All the young migrants do not know the various phases of Guatemala’s history that their parents have lived through...therefore they become disconnected from their identity in the US and the fight for the autonomy of the native peoples." These
statements of support felt particularly affirming in light of the significant effort that went into the transcription of the historical data on massacres.

Some survey responses indicated the desire for possible additions to the visual story. When asked whether they had concerns or questions about the updated requirements, the stakeholders responded, "*The only thing is if we can talk more about the infrastructures and how they’re produced, about how migration is dealt with in the US and a little more about how migrant mobility is managed at the various borders*." The stakeholders also suggested that there is a need for grassroots groups to build organizational capacity, combat disinformation, and educate, stating, "*We have to think about how to organize ourselves...it is difficult to communicate internally to deal with all the problems that occur in the community...the population needs to wake up strongly, but religious groups and the education system are big obstacles*".

Given the already exceptional length and breadth of the story, and the fact that the stakeholders did not suggest specific avenues for exploring these topics, I opted against making significant additions to the narrative. Still, these responses point to possible directions for future work, adding weight to the need for visual storytelling that makes infrastructures of migratory control more visible and highlights the work of grassroots groups.

With the second round of formative evaluation complete, and confidence in the utility of the visual story bolstered by the stakeholders’ positive feedback, the focus shifted to the implementation stage.
Section 4.6 Implementation

During implementation, the focus shifted to the development of the final version of visual story in its interactive, web-friendly format. Much of the story's text and content was maintained from the high-fidelity prototype, with small tweaks in some places. Significant updates included the addition of hyperlinks throughout the story text as citations and the addition of an acknowledgements and data sources section at the conclusion of the story. Both of these were intended to acknowledge the intellectual labor of the many people whose work this story built upon.

Most of the focus during this stage was on usability. As stipulated by Requirement #8 (Ensure Usability and Accessibility), the story was designed to be responsive, dynamically updating its content, layout, and styling to work for different user devices and contexts. This included designing multiple versions of many of the maps, with layouts shifting for different screen sizes from mobile to desktop. Wherever possible, I optimized file sizes to minimize loading time for users with poor Internet or cell coverage, which was a significant challenge given the many images and complex datasets used in the story.

Unlike the previous stage, the three chapters of the story were combined into one seamless story hosted on a single website, with the intention of decreasing friction for users. The completed visual story can be found at the following link:
English
https://nick-underwood.com/thesis

Spanish
https://nick-underwood.com/tesis
Chapter 5: Conclusion

Section 5.1: Summary

The central problem motivating this research study was the persistent disconnect between conventional maps and critical geographic scholarship—specifically, the failure of cartographers to ethically and effectively represent Guatemala–US migration, despite recent theoretical and technical advances. To address this gap, I executed a hybrid approach to map-based visual storytelling that synthesized principles of feminist visualization with a user-centered design process. The experimental design process integrated methods from both professional and academic practice to successfully address my two research questions.

1) What voices, embodied experiences, and uncertainties of Guatemala-United States migration are missing from conventional cartographic narratives?

The study identified a wide array of voices, embodied experiences, and uncertainties that are missing from conventional cartographic narratives of Guatemala-US migration. The domain gap analysis revealed that many map-based visual stories mirror patterns of exclusion observed by previous scholars, presenting perspectives that are fundamentally state-centric, disembodied, and decontextualized.

Most conventional stories of Guatemala-US migration neglect any historical perspective, reproducing crisis rhetoric surrounding undocumented migration by
omitting voices speaking to the centuries of exclusion and dispossession that have led to their displacement. Likewise, many fail to challenge US-centric savior rhetoric, leaving out the destructive effects of US imperialism in Guatemala and the role of border militarization in producing migrant suffering. Most visual narratives also tend to omit proximate, situated, and marginalized voices, silencing the voices of Indigenous people, women, and migrants with representations that are aggregated, homogenized, and state-centric.

Few conventional visual stories represent embodied experiences of Guatemala-US migration along the arterial border—instead, they often reinforce a nationalistic worldview by emphasizing the US-Mexico border. The halting, contested, and multi-directional movements of migrants are often hidden behind static, smooth, and unidirectional flow arrows, which amplify xenophobic rhetoric about ‘invasion’ and conceal the massive scale of border militarization, detention, and deportation. When visual stories do highlight the embodied experiences of migrants in transit, they tend to fixate narrowly on the spectacle of violence, perpetuating the trope of migrants as victims and leaving out the critical role that infrastructures such as neoliberal markets, debt, and militarized border enforcement regimes play in shaping migratory journeys.

Many visual narratives also fail to foreground the uncertain and partial nature of their data, instead projecting an illusion of certainty with seemingly ‘exact’ quantitative figures that convey a sense of absolute state control and surveillance.
Stories regularly include numbers of migrant apprehensions or deaths without imparting any context on the incomplete nature of these datasets.

The domain gap analysis did identify some existing visual narratives that bucked the trends described here, but they were more the exception than the rule. For example, while almost all of the assessed stories neglected to include any migrant perspectives, the four sketch maps from Amalia Campos-Delgado’s counter-mapping study were authored by migrants and center embodied experiences of transit. While every assessed story fell into at least one of the conventional patterns, a few were transformative on balance, doing more to challenge reductive motifs than reinforce them. In addition to the sketch maps from Campos-Delgado, this included ‘Invisible Walls’ by the Washington Post, which uses a multimedia approach to illustrate the embodied experiences of three Central American women, and ‘The Great Climate Migration’ by the New York Times, which shows how several possible climate futures and enforcement regimes could shape future migration. The transformative representations observed during the domain gap analysis informed the design of my own story, which is discussed in the following section.

2) How can these voices, embodied experiences, and uncertainties of Guatemala-United States migration be ethically and effectively represented with map-based visual storytelling?

The hybrid visual storytelling design process successfully explored one approach to ethically and effectively representing voices, embodied experiences,
and uncertainties of Guatemala-US migration. Each stage of the design process proved critical to the success of the final visual story.

Writing a positionality statement at the beginning of the design process set a reflexive tone from the outset of the project and forced me to reflect on the limitations imposed by my positionality. Recognizing that I lacked proximity to the case study area of Guatemala-US migration, I partnered with community-based stakeholders who contributed valuable feedback during the story design. Making my ignorance explicit also motivated me to engage deeply with geographic scholarship on Guatemala, take several courses to improve my Spanish, and make several visits to Guatemala. While this attempt to engage deeply with the case study area and mitigate my ignorance took more time, it undoubtedly improved the domain gap analysis and the final visual story, forging a stronger personal and emotional connection to the project.

Together, the domain gap analysis and conceptual design ensured a strong focus on ethical representation in the visual story design. In addition to revealing harmful conventions to avoid and contest (summarized in the previous section), the transformative representations observed during the domain gap analysis influenced design decisions in my own visual story. For example, the inclusion of direct quotes from survivors of massacres in my own visual story was inspired in part by the powerful historical testimony of Holocaust survivors in Knowles & Westerveld’s “I Was There”. I used this representational strategy to contest the erasure of history, foregrounding the personal and emotional repercussion of the Guatemalan Army’s
scorched earth campaign in Indigenous territories. Another echo of the domain gap analysis in my own visual story design is evident in the 3D perspective viewpoints of the maps showing the home territories of the Mam, Q’eqchi’, Chuj, Ch’orti’, and Achi peoples, which emulate the embodied sense of ‘being there’ produced by the Washington Post’s ‘Borderline’. Instead of using this technique to highlight the US-Mexico border, I deployed it to present multiple, situated perspectives of the story characters’ home regions and the infrastructural causes of displacement.

Exposure to the case study area during domain gap analysis also led to data discovery, unearthing datasets that would later be used in my story design. This included one of the most notable datasets used in the story, a dataset on massacres from Guatemala’s genocidal armed conflict, which I transcribed from the appendices of the Commission for Historical Clarification’s landmark 1999 report. While transcribing the details of more than 600 massacres from the report’s appendix took significant time, it allowed me to map the Guatemalan army’s scorched earth campaign at the municipality level, showing in unprecedented detail how massacres affected particular Indigenous communities. The interactive map in my story uses multiple scales and the voices of survivors to show how the massacres left multi-generational dispossession and displacement in Indigenous communities, including those of the six Maya youth that the story centers on. As far as I know, this municipality-level data had never been transcribed to a structured format and mapped before. Pending more discussion with the stakeholders, I hope to publish
this data so that others can access this detailed historical dataset and benefit from the labor I invested in transcription.

In the conceptual design stage, I translated the identified needs directly into requirements for my own story, ensuring that my narrative would be centered around contesting conventional erasures. The decision to include all of the identified needs as requirements, rather than focus more narrowly on a subset, created challenges in later design stages because it resulted in a story with exceptionally broad scope. While I tried to craft a narrative that would ‘connect the dots’ between the requirements, some were prioritized more than others in the story design. The story design ended up focused less on Requirement #4 (Shift Focus from US-Mexico Border to the Arterial Border) and #5 (Challenge the Static, Smooth, Unidirectional Flow Model), in part because I wasn’t able to find reliable data on the experiences of migrants in transit.

Instead, the story ended up focused more on Requirement #1 (Combat the Silencing of History), Requirement #3 (Amplify Proximate, Situated, and Marginalized Voices), and Requirement #5 (Shift Focus from Spectacle of Violence to Infrastructures Producing Suffering), for which I discovered more data and opportunities for transformative representations. For instance, I was able to address Requirement #3 with census data on ethnic/linguistic identity from the Guatemalan government. To contest reductive, aggregated representations of migrants as ‘Guatemalan’ only, I created detailed dot-density maps, illustrating a complex geography of Indigenous identity that is often omitted from accounts of
Guatemala-US migration. While limited data availability precluded equal prioritization of all the requirements, it proved worthwhile to include them all because it ensured that I would at a minimum attempt to avoid replicating harmful conventions.

The formative evaluation and prototyping stages were also essential stages in the development of an ethical and effective visual story. The first round of formative feedback produced important insights from the stakeholders, informing several edits to the proposed requirements and data sources. One change was the removal of a proposed data source showing higher rates of poverty in Indigenous communities. Instead of mapping this data, which may have reinforced decontextualized tropes of Indigenous people as poor, I emphasized the infrastructural process of impoverishment by highlighting key statistics on wealth disparity and land ownership. Another improvement stemming from formative feedback was broadening the story to incorporate a wider range of voices, including community organizers and ancestral authorities. Doing so emphasized the agency, power, and collective wisdom of Indigenous communities by showing that while some are migrating because of structural problems, others are organizing and fighting for the right to dignity and security at home.

The most significant of the post-survey edits was the addition of a requirement stipulating that the story make an explicit call to action. This addition made the intended utility of the narrative clearer, and ultimately lent purpose and power to the conclusion of the story, which highlights inspiring groups and
individuals who are part of the collective struggle of Guatemalans against impunity, extractive neoliberalism, and militarized borders.

The edits were incorporated into the story design during the prototyping phase, where a hi-fi prototype was developed to demonstrate the story's novel and interactive representations to the stakeholders. While opting for hi-fi approach to prototyping took more time, it ensured clear communication with the stakeholders. In contexts where language barriers are not a concern, or the proposed representations are easier to convey through sketching, developing lo-fi storyboards and conducting formative feedback through a more interactive approach like workshops could save time. The second round of formative feedback confirmed stakeholder approval of the hi-fi prototype and garnered insight on possible future directions for work in the case study area, most notably a desire for visual storytelling focused on infrastructures of migratory control. This feedback, and the lower scores that the stakeholders gave the story on Requirements #4 and #5, was somewhat unsurprising given the aforementioned lack of focus on transit experiences in the story. In retrospect, it may have been useful to make the prioritization of certain requirements more explicit during formative feedback.

The implementation stage made the visual story significantly more effective, usable, and accessible by translating the static prototype into a seamless, interactive web format. My experience developing visual stories in professional settings was critical during this stage, as I relied heavily on my technical skills, and open-source tools and examples developed by data journalists. I followed conventions from data
journalism by linking out to sources and including a data appendix, foregrounding the intellectual labor of others that contributed to the final visual story. The implemented visual story is designed responsively to work for all screen sizes and is available to read in both English and Spanish. To make the story as usable as possible for users with limited bandwidth, I compressed images as much as possible without compromising their quality. Still, because of the story’s long length, loading time may be an issue where Internet coverage or cell reception is limited.

The end result of my exploratory design process was a finished visual story that ethically and effectively represents voices, embodied experiences, and uncertainties of Guatemala-US migration that are missing from most map-based visual stories. The limitations of my process and future directions for work in this vein are discussed in the section that follows.

**Section 5.2: Limitations and Future Directions**

The design study described here has a number of limitations, some of which could be addressed by future research at the intersection of critical and feminist cartography, visual storytelling, and user-centered design.

One limitation of this design study is that its transferability may be limited by time, resources, and expertise. Between conducting a robust domain gap analysis, designing the story, collecting formative feedback, and developing an interactive web application, prioritizing both ethics and usability takes a long time. Many visual story designers simply do not have years available to work on a single project,
especially in professional settings where data journalists often face much shorter deadlines. Moreover, many designers do not have the technical skills to complete a project of this scale, which required significant expertise with development, design, and writing. One potential solution to this dilemma is to approach the project with a team of collaborators, sharing the workload and defining narrower roles based on skillsets. Many of the visual stories assessed during the domain gap analysis were produced at newsrooms by teams of reporters, designers, and developers, and partnership is common in academic settings as well. It could be especially advantageous to see more collaboration between academic and professional visual storytelling, since each would bring a wealth of relative experience in centering ethics and usability respectively.

A second limitation was related to the visual story's broad scope. The story did not define a specific user group and conduct usability testing with the specified users. Rather, the visual story tried more broadly to contest the reductive conventions identified in the domain area, using the missing voices, embodied experiences, and uncertainties as the core requirements of the story rather than a set of specific user needs. Thus, while the design process incorporated some elements of user-centered design, it more closely resembled the loose, discount approach used in data journalism than a formal UCD process. Usability and accessibility were priorities during design, but formal feedback beyond a few stakeholder responses was not collected. Future studies could generate more robust
insights on the usability of critical visual stories produced with this approach by defining target users and collecting formative user feedback.

Lastly, despite writing a positionality statement and partnering with more proximate stakeholders, my positionality was a limitation during the design process. My lack of fluency in Spanish limited communication with the stakeholders and precluded more interactive methods of formative evaluation such as workshops. My positionality also affected the diversity of stories assessed during the domain gap analysis, with many of the stories from US data journalism. Upon reflection, my decision to focus on Guatemala and the history of US imperialism was in part influenced by my personal ignorance. I was surprised and angry at what I learned and imagined the readers of the story would be too—an assumption that may not hold true for users with more proximate positionality. Thus, I was unconsciously falling into the trap of designing for users like myself. Collecting feedback from stakeholders with various positionalities during the domain gap analysis could be a possible corrective to this bias.

The need for ethical and effective visual storytelling remains pressing. Despite recent theoretical and technological advances, a persistent chasm remains between critical theory and conventional practice. This separation remains visible in visual stories of Guatemala-US migration, which continue to reinforce dominant power relations with representations that are ahistorical, decontextualized, and reductive. The execution of this design study strengthened my belief that building bridges between academic and professional visual storytelling could be key to
addressing this disconnect. Data journalists working in newsrooms need to slow down, resist the relentless pressure of the news cycle, and take the time to more carefully consider how their visual stories are situated in larger political discourses. Cartographic scholars deconstructing cartographic conventions need to break out of academic silos, recognize the importance of usability, and propose transformative design alternatives that work for popular audiences. I hope that this research will play some small role in encouraging this convergence and inspiring future collaboration between academic and professional practitioners.
References


Roth, Robert E. “How do user-centered design studies contribute to cartography?” Geographie, 2019.


Trump, Donald. Tweet. @realDonaldTrump, April 13, 2019. https://twitter.com/realDonaldTrump/status/1117218059738079233.


Appendix
1) Working agreement with Colectivo Vida Digna

Nick Underwood
M.S. Candidate Cartography/GIS
University of Wisconsin-Madison

Presente,

Convenio de Cooperación-Colaboración

1. Fecha - Vigencia del Convenio de Cooperación:

| Desde: | 1 de abril 2020 | Hasta: | 31 de diciembre 2020 |

2. Nombre de la Organización: Asociación Colectivo Vida Digna

3. Objetivo(s) del Convenio de Cooperación:

Intercambiar conocimientos sobre la migración indígena y la cartografía narrativa para la tesis de maestría de Nick Underwood. Nick, el Investigador, es estudiante de la Universidad de Madison, Wisconsin y recibe respaldo financiero e institucional de la Universidad de Madison, Wisconsin.

4. Descripción de las actividades y roles de involucrados:

**Participantes de Vida Digna:**
Participar en un estudio destinado a mejorar la facilidad de uso y mejorar los estándares éticos de la narración visual basada en mapas. Específicamente, el estudio investiga consideraciones de diseño para una historia visual sobre la migración de Guatemala a Estados Unidos que se centra en las causas estructurales de la migración, el estudio consta de tres encuestas.

**Nick Underwood:**
1) Publicación en línea en idioma español de la historia visual para uso libre de Vida Digna.
2) Impartición de un taller con explicación de fundamentos de cartografía narrativa de migración como metodología y análisis estructural con equipo técnico de Vida Digna. Este taller será por medio de zoom/Skype y será grabado.
Ante cualquier evento que no corresponda a lo convenido, las partes que resolverán en conjunto son Carlos Escalante y Nick Underwood.
Si el proceso necesita ser modificado en base a la revisión del IRB, lo discutiremos a través de Skype.
5. Participantes en las Actividades de Cooperación:

Juan Pacay, Carlos Escalante, Nick Underwood

6. Resultados Esperados de las Actividades de Cooperación:

Actividades a cargo de Vida Digna:
- Habrá tres encuestas en diferentes etapas del proceso de diseño. Los participantes pueden participar en cualquiera de las encuestas o en todas. En cada encuesta, los participantes responderán a una serie de indicaciones preliminares y se le proporcionará espacio para obtener más comentarios abiertos y sugerencias sobre consideraciones éticas y facilidad de uso que deben incorporarse a la historia visual. Los materiales de diseño y las preguntas se enviarán por correo electrónico y la encuesta tomará aproximadamente una hora en completarse.

- La primera encuesta se centrará en identificar y modificar los objetivos principales de la historia visual, el público objetivo y las fuentes de datos. La segunda encuesta revisará los planes preliminares para la historia y el diseño y los medirá según los objetivos identificados en las primeras etapas del diseño. La tercera encuesta evaluará la historia visual final y evaluará si necesita cambios antes del lanzamiento.

Actividades a cargo de Nick Underwood:
- Una reunión previa a publicación de tesis para socializar hallazgos que involucran a Vida Digna y sus participantes. El objetivo de dicha reunión es para llegar a consenso de publicación de contenidos que puedan afectar el trabajo de Vida Digna.

- Reconocimiento explícito de Vida Digna como colaboradores y enlace a página de Vida Digna en cualquier publicación y presentación resultante.

- Publicación en línea en idioma español de la historia visual para uso libre de Vida Digna para fines pedagógicos.

- Taller de dos horas ante equipo técnico y junta directiva de la Cartografía para entender sus alcances, usos e implicaciones analíticas. Grabación del taller.

7. Seguimiento y Evaluación a las Actividades de Cooperación:

- Presentar ficha de consentimiento (requisito de IRB/Aval universitario)
- Reunión breve de evaluación de cooperación y colaboración con participantes al finalizar el intercambio.

8. Horarios de la Actividad de Cooperación:

- Flexible y según acordado entre Investigador Nick Underwood y participantes de Vida Digna.

Carlos Escalante
Representante de Asociación Colectivo Vida Digna

Nick Underwood
Investigador
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica

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Descripción de la investigación:
Está invitado a participar en un estudio para mejorar la usabilidad y los estándares éticos de la narración visual basada en mapas. Específicamente, el estudio investiga consideraciones de diseño para una historia visual sobre la migración de Guatemala-Estados Unidos.

Formulario de Consentimiento del Participante
¿Qué implicará mi participación?
Si decide participar en esta investigación, brindará comentarios sobre los productos de diseño asociados con la historia visual, respondiendo a una serie de preguntas mayormente abiertas sobre el diseño de la historia, las consideraciones éticas y la usabilidad general. Su aporte informará una revisión de la historia visual. La investigación consistirá en tres encuestas y puede optar por participar en cualquiera de las tres o todas. Las encuestas se realizarán electrónicamente y tardarán aproximadamente una hora en completarse.

¿Existe algún riesgo para mí?
El riesgo de participación es mínimo. Por lo tanto, no existen riesgos físicos o mentales previsibles para la participación más allá de los que se encuentran en el curso normal de la vida cotidiana.

¿Hay algún beneficio para mí?
No hay beneficios directos para usted. Sus comentarios se utilizarán para desarrollar una mejor comprensión de las consideraciones de usabilidad y ética para el diseño de historias visuales basadas en mapas. El producto resultante de esta investigación se utilizará para educar sobre los problemas estructurales que impulsan la migración de Guatemala- Estados Unidos.

¿Cómo se protegerá mi confidencialidad?
Las publicaciones que resultan de esta investigación no utilizarán nombres; las citas directas en las publicaciones resultantes serán anónimas. No se mantendrá ninguna información de identificación personal. Se citará el nombre de la organización, Colectivo Vida Digna.

¿Con quién debo comunicarme si tengo preguntas?
Puede hacer cualquier pregunta sobre la investigación en cualquier momento. Si tiene preguntas sobre la investigación después de que se vaya hoy, debe comunicarse con Nick Underwood al 518-791-7746. Si no está satisfecho con la respuesta del equipo de investigación, tiene más preguntas, o desea hablar con alguien sobre sus derechos como participante de la investigación, debe comunicarse con la Oficina del IRB de Investigación en Educación y Ciencias Sociales y del Comportamiento al 608-263-2320.

Tu participación es completamente voluntaria. Si decide no participar o retirarse del estudio, puede hacerlo sin penalización.

Si acepta participar en este estudio de investigación como se describe anteriormente, haga clic en "Siguiente" a continuación. Seleccionar este botón significa que comprende sus derechos como participante y ACEPTA participar en este estudio de investigación. Cierre su navegador si decide no participar.
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica

Resumen de Contenidos

La encuesta tiene tres secciones, cada una con contenido seguido de preguntas.

REQUISITOS: La primera sección presenta el documento de requisitos, una lista de requisitos éticos propuestos para la historia visual.

DATOS: La segunda sección contiene descripciones y preguntas sobre las fuentes de datos claves de la historia visual.

EVALUACIÓN RESUMIDA: La tercera sección corta solicita reacciones generales sobre la historia propuesta.
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica

Documento de Requisitos

Los objetivos generales de este proyecto de investigación son:
1) Evaluar historias visuales existentes de la migración de Guatemala-EE. UU. e identificar problemas éticos
2) Diseñar una historia visual que represente de manera más ética y efectiva la migración de Guatemala-U.S.

La siguiente lista de requisitos se basa en convenciones problemáticas identificadas en historias visuales existentes y representa los objetivos propuestos para mi propia historia visual. Los requisitos se utilizarán como rúbrica para evaluar el éxito de mi historia visual.

Requisito #1: Combatir el silenciamiento de la historia
PROBLEMA: El desplazamiento del día presente de guatemaltecos de sus comunidades está alimentado por siglos de despojo, incluyendo los efectos multigeneraionales de la violencia genocida, la economía neoliberal y la marginación política. Sin embargo, la mayoría de las historias visuales convencionales de la migración Guatemala-EE. UU. omiten este contexto, silenciando la historia con representaciones ahistóricas y descontextualizadas.

SOLUCIÓN: Para combatir este borrado, propongo utilizar el concepto de las cuatro invasiones, para mostrar cómo la migración actual está entrelazada con una historia de invasión cíclica en las comunidades indígenas, incluyendo la colonización española (la 1º invasión), el advenimiento de la economía de las plantaciones (2º), la Guerra Civil y Genocidio de Guatemala (3º), y la incursión moderna de los megaproyectos industriales (4º). En particular, planeo enfatizar las conexiones históricas entre la tercera invasión (guerra civil / genocidio) y el desplazamiento actual.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer
¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer

Requisito #2: Combatir la narrativa sesgada de EE. UU. Como Salvador

PROBLEMA: Estados Unidos ha jugado un papel importante en reprimir el progreso político y económico en Guatemala, priorizando consistentemente las ganancias corporativas sobre los derechos humanos de los guatemaltecos. A pesar de la complicidad del gobierno de los EE. UU. en la creación de condiciones estructurales de desigualdad e impunidad, la mayoría de las historias visuales convencionales de la migración de Guatemala-EE.UU omiten la historia destructiva de la intervención estadounidense, presentando a los Estados Unidos como un santuario magnético y benéfico.

SOLUCIÓN PROPUESTA: Para desafiar esta narrativa dominante, planeo destacar los momentos clave de la intervención de Estados Unidos, incluyendo el papel de los Estados Unidos en el golpe de 1954 y su apoyo a los gobiernos militares genocidas durante el período de 1960-1996. La historia presentará evidencia histórica sobre la estrecha relación entre los gobiernos de Estados Unidos y Guatemala y demostrará que el gobierno de Estados Unidos tenía pleno conocimiento de las extensas violaciones de derechos humanos que ocurrieron durante la tercera invasión y, por lo tanto, tiene la misma responsabilidad por la violencia.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer
Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer

Requisito #3: Amplificar las voces próximas, situadas y marginadas
PROBLEMA: Las experiencias de la migración de Guatemala-EE.UU difieren para personas de diversas identidades—por ejemplo, las migrantes mujeres y migrantes indígenas se enfrentan a una mayor vulnerabilidad a múltiples formas de violencia antes, durante y después del tránsito. A pesar de la desigual dinámica de poder que impulsa y da forma a la migración, muchas historias visuales de la migración de Guatemala-EE.UU. representan a los migrantes guatemaltecos como un grupo homogéneo, borrando estadísticamente la identidad indígena y omitiendo las voces próximas, situadas y marginadas.

SOLUCIÓN PROPUESTA: Para impugnar este silenciamiento, planeo resaltar y afirmar las experiencias situadas y las identidades indígenas de seis jóvenes mayas desplazados, e ilustrar las historias particulares de sus comunidades. Tengo la intención de ampliar las perspectivas próximas al incluir citas de miembros de la familia y la comunidad en lugar de usar solo una narración distante, en tercera persona y centrada en el estado.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer
Requisito #4: Cambiar el enfoque de la frontera México-EE.UU. a la frontera arterial

PROBLEMA: Dentro de los Estados Unidos, gran parte del discurso sobre la migración Guatemala-EE.UU. se concentra en gran medida o exclusivamente en la frontera entre Estados Unidos y México, a pesar de que las prácticas fronterizas estatales se subcontratan cada vez más más allá de esta frontera. La mayoría de las historias visuales convencionales muestran este sesgo, reforzando el poder performativo de la frontera, replicando modos de pensamiento nacionalistas y ocultando la violencia y la inseguridad a lo largo de las rutas de tránsito.

SOLUCIÓN PROPUESTA: Para evitar replicar este sesgo, planeo concentrarme en los eventos en Guatemala en lugar de en los eventos a lo largo de la frontera entre Estados Unidos y México. La historia restará importancia visual a las fronteras nacionales donde sea posible, utilizando datos subnacionales más específicos donde sea posible. Si se incluyen representaciones de los viajes de los migrantes, tendrán como objetivo representar la ‘frontera arterial’, un término acuñado por la antropóloga Wendy Vogt que conceptualiza la frontera ‘no como una entidad fija, sino como un lugar dinámico y en constante cambio de legitimación estatal, agencia individual y contestación’.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer
Requisito #5: Desafiar el modelo de flujo estático, suave y unidireccional

PROBLEMA: Muchas historias visuales convencionales de la migración de Guatemala-EE. UU. utilizan flechas de flujo estáticas, suaves y unidireccionales para representar la migración hacia los Estados Unidos, reforzando una narrativa xenófoba de invasión y oscureciendo la naturaleza turbulenta, controvertida y multidireccional de los movimientos migratorios. Estas representaciones agregadas sugieren una narrativa falsa de movimiento sin fricción, comienzos y finales inequívocos, y movimiento en un solo sentido hacia el norte.

SOLUCIÓN PROPUESTA: Planeo evitar el uso de flechas de flujo convencionales. La historia visual irá más allá del modelo de flujo estático al representar el movimiento a múltiples escalas y en múltiples direcciones, y al enfatizar la comprensión emocional y encarnada de la movilidad. A diferencia de la mayoría de las historias visuales convencionales, el enfoque narrativo principal de la historia no estará en el viaje hacia el norte, sino en el contexto histórico y estructural.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer
Requisito #6: Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento

PROBLEMA: Desde los mercados neoliberales, hasta los regímenes militarizados de aplicación de la ley de inmigración, y la deuda, las infraestructuras influyen ampliamente en las vidas de los migrantes guatemaltecos antes, durante y después de la migración. Sin embargo, muchas historias visuales convencionales se centran estrictamente en el espectáculo de la violencia contra los migrantes, enfatizando los detalles espantosos de las dificultades de los migrantes y la violencia de las pandillas sin proporcionar un contexto estructural.

SOLUCIÓN PROPUESTA: En lugar de centrarme estrictamente en el espectáculo de la violencia, planeo enfatizar el papel de las infraestructuras en producir y agravar el sufrimiento individual. La historia visual mostrará cómo las campañas de tierra arrasada apoyadas por Estados Unidos se dirigieron sistemáticamente a los pueblos indígenas, utilizando múltiples escalas geográficas y temporales para mostrar el patrón de violencia a lo largo del tiempo. La historia también enfatizará cómo este patrón de violencia ha continuado hasta el presente con la violencia contra los defensores de la tierra que protegen a sus comunidades de las incursiones de los megaproyectos industriales.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer
Requisito #7: Mostrar incertidumbre y exponer datos faltantes

PROBLEMA: Al igual que las experiencias vividas que intenta describir, los datos cuantitativos sobre la migración de Guatemala-EE.UU. están plagados de incertidumbre. Los esfuerzos para rastrear la violencia contra los migrantes son lamentablemente limitados y los datos recopilados y difundidos por los actores estatales no son confiables. A pesar de este hecho, las historias visuales convencionales proyectan una ilusión de certeza, exudando un falso sentido de precisión científica y control gubernamental al utilizar cifras "exactas" y no poner en primer plano la incertidumbre.

SOLUCIÓN PROPUESTA: En mi historia visual, planeo destacar de manera prominente la incertidumbre de los datos cuantitativos utilizados en la historia y utilizar estimaciones realizadas por los investigadores para poner en contexto la naturaleza parcial de los datos visualizados. En lugar de usar cifras exactas como "67,101 migrantes", lo que implica certeza y control gubernamental, usaré estimaciones redondeadas como "65,000+" y transmitiré explícitamente incertidumbre a los lectores en el texto.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer
Requisito #8: Garantizar la usabilidad y la accesibilidad

PROBLEMA: La facilidad de uso y la accesibilidad son extremadamente importantes para el éxito y la aceptación de las historias visuales. Sin embargo, muchas historias visuales de la migración de Guatemala-EE. UU. no priorizan la usabilidad y la accesibilidad, sin tener en cuenta las limitaciones tecnológicas, las barreras del idioma y los niveles de experiencia de los usuarios.

SOLUCIÓN PROPUESTA: Planeo diseñar la historia visual para que sea utilizable y accesible para una amplia gama de usuarios. La historia visual estará disponible de forma gratuita en la web y se diseñará de manera receptiva para que funcione bien para todos los tamaños de pantalla, desde teléfonos celulares hasta computadoras de escritorio. La historia se diseñará tanto en inglés como en español para que sea accesible a más usuarios. La historia no asumirá conocimientos de expertos, sino que tendrá como objetivo ser comprensible para personas con poco o ningún conocimiento previo de la migración de Guatemala-EE. UU. Intentaré mantener el tamaño y la complejidad de la historia al mínimo para que funcione bien para las personas que acceden a la historia con conexiones lentas a Internet.

¿Qué le gusta o aprecia de este requisito, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este requisito?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este requisito (opcional)

Your answer

¿Le gustaría ver algún requisito adicional para la historia visual? (Opcional)

Your answer
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica

La historia visual incluirá datos tanto cualitativos como cuantitativos, integrando mapas, gráficos, fotos y texto en un formato web multimedia. La siguiente sección presenta las fuentes de datos clave que planeo usar en la historia visual, solicita comentarios sobre sus posibles pros y contras, y brinda espacio para sugerencias adicionales. Los datos están organizados por capítulos para dar una idea de cómo encaja todo.

Capítulo 1: En busca de vida

Datos 1.1: Voces de los desplazados (cualitativo)
En la primera sección de la historia, planeo ilustrar las causas y efectos de la migración en las comunidades indígenas, destacando las historias de seis jóvenes mayas que trágicamente perdieron la vida en tránsito.

Claudia Patricia Gómez González | Maya Mam | 20 años | 23/05/2018
Jakelin Caal Maquin | Maya Q’eqchi’ | 7 años | 8/12/2018
Felipe Gómez Alonzo | Maya Chuj | 8 años | 25/12/2018
Juan de León Gutiérrez | Maya Ch’ortí’ | 16 años | 30/4/2019
Wilmer Josué Ramírez Vasquez | Maya Ch’ortí’ | 2 años | 16/05/2019
Carlos Gregorio Hernández Vásquez | Maya Achi | 16 años | 20/5/2019
En lugar de enfatizar los detalles de sus viajes, planeo enfocarme en los problemas estructurales que desplazaron a estos jóvenes mayas y el costo humano y emocional de la migración al amplificar las voces de sus familias y comunidades. Por ejemplo, incluiría voces de la comunidad de Jakelin de San Antonio Secortez, Raxruhá:

"Aquí no hay oportunidad de trabajar, estamos recibiendo un salario bajo por lo que producimos y las cosas cotidianas son más caras ... Mi esposo decidió irse a Estados Unidos a buscar los medios para mantener a nuestra familia". -Claudia Maquin (madre), Al Jazeera

"Cada día llueve menos y hace más calor". –Domingo (abuelo), Al Jazeera

Al centrar las voces indígenas y enfatizar la comprensión personal / emocional de la migración, estos datos están destinados a contribuir a los siguientes requisitos:
Requisito #3: Amplificar las voces próximas, situadas y marginadas.
Requisito #5: Desafiar el modelo de flujo estático, suave y unidireccional

¿Qué le gusta o aprecia de esta fuente de datos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre esta fuente de datos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre esta fuente de datos o sugerencias para fuentes de datos alternativas (opcional)

Your answer
Datos 1.2: Identidad indígena y desigualdad de ingresos (cuanitativo)

Para enfatizar cómo problemas estructurales como la desigualdad y la pobreza están afectando de manera desproporcionada a las comunidades indígenas, planeo mapear los datos del censo del Instituto Nacional de Estadísticas de Guatemala que mostrarán la distribución de la población por identidad étnica / lingüística y el porcentaje de la población en pobreza en cada municipio. Los datos se utilizarán para mostrar que cada uno de los seis jóvenes mayas proviene de distintas comunidades mayas y para demostrar que la pobreza es peor en las comunidades indígenas. Por ejemplo, estos datos muestran que los seis jóvenes provienen de municipios mayoritarios mayas donde la tasa de pobreza es superior al 70%.

Claudia, San Juan Ostuncalco | 84% Maya Mam | Pobreza 72%
Jakelin, Raxruhá | 80% Maya Q’eqchi’ | Pobreza 92%
Felipe, Nentón | 58% Maya Chuj | Pobreza 83%
Juan, Camotán | 63% Maya Ch’ortí | Pobreza 88%
Wilmer, Olopa | 51% Maya Ch’ortí | Pobreza 84%
Carlos, Cubulco | 73% Maya Achi | Pobreza 81%

Al enfatizar las condiciones estructurales que están impulsando la migración y enfatizando la compleja geografía de la identidad indígena, estos datos están destinados a contribuir a los siguientes requisitos:
-Requisito #3: Amplificar las voces próximas, situadas y marginadas
-Requisito #6: Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento

¿Qué le gusta o aprecia de esta fuente de datos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre esta fuente de datos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre esta fuente de datos o sugerencias para fuentes de datos alternativas (opcional)

Your answer
Capítulo 2: Una historia de invasión

Datos 2.1: Datos de la CEH sobre masacres (cuantitativos y cualitativos)

En la segunda sección de la historia, planeo mostrar cómo la marginación actual de los pueblos indígenas en Guatemala está relacionada con una historia de invasión cíclica. Para mostrar cómo el conflicto armado genocida provocó el despojo y el desplazamiento multigeneracional en las comunidades indígenas, incluyendo las de los seis jóvenes mayas, planeo mapear datos sobre masacres publicados en el histórico informe de 1999 de la Comisión de Esclarecimiento Histórico (CEH). Transcribí datos detallados sobre más de 600 masacres cometidas por las fuerzas del gobierno guatemalteco en municipios particulares. Aquí hay una entrada típica:

Número de caso CEH: 9351
Autor: Ejército
Departamento: Alta Verapaz
Municipio: Chisec
Descripción: El 20 de agosto de 1982 en las montañas cercanas a Setzi, municipio de Chisec, departamento de Alta Verapaz, hubo un bombardeo. En el vuelo, algunas personas perdieron a sus hijos. Una mujer resultó herida. Dos días después llegaron tropas del Ejército de Guatemala y continuaron persiguiendo a las personas. Mataron a María Coy y a su hijo Santiago Ic. Cinco niños, ancianos y enfermos, no pudieron huir y fueron ejecutados por miembros del Ejército de Guatemala. Asimismo, soldados del Ejército de Guatemala secuestraron a las niñas Mercedes Pop Chub y Romelia Pop Chub, a quienes nunca se les volvió a ver. Domingo Chuc también desapareció.
Identificados: María Coy, Santiago Ic, Domingo Chuc, Mercedes Pop Chub (Niña), Romelia Pop Chub (Niña)
Víctimas desconocidas: 7

Me concentré en las masacres porque eran, como dice el informe, “la expresión más concentrada del poder represivo del Estado”. Al mapear dónde y cuándo ocurrieron estos eventos, la historia visual mostrará cómo las campañas genocidas de tierra arrasada de los militares apuntaron a los pueblos mayas en particular, exacerbando la desigualdad estructural que impulsó la migración forzada en la actualidad. Además, planeo incluir voces de sobrevivientes citadas en el informe de la CEH. Por ejemplo, incluiría la siguiente cita sobre el desplazamiento después de la masacre del Cajón del Río en el municipio de Camotán, el hogar de Juan:

"Muchos de aquí todavía están en Honduras. Casi la mitad de la aldea se fue". -Superviviente, informe CEH

Al conectar la lucha moderna por la justicia con la historia de la invasión en las comunidades mayas, estos datos están destinados a contribuir al Requisito #1: Combatir el silenciamiento de la historia.
¿Qué le gusta o aprecia de esta fuente de datos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre esta fuente de datos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre esta fuente de datos o sugerencias para fuentes de datos alternativas (opcional)

Your answer

 Datos 2.2: Intervención de EE. UU. (Cualitativa)

Para mostrar cómo el gobierno de Estados Unidos participó en el cambio de régimen y apoyó a gobiernos militares brutales en Guatemala, planeo incluir datos cualitativos que muestren el alcance de la intervención del gobierno de Estados Unidos. Estos datos mostrarán cómo Estados Unidos apoyó a los gobiernos genocidas durante todo el conflicto armado, tanto diplomáticamente como financieramente. Por ejemplo, el presidente de los Estados Unidos, Ronald Reagan, se reunió con el presidente guatemalteco Ríos Montt en diciembre de 1982 durante el apogeo de las campañas de tierra arrasada y emitió la siguiente declaración de apoyo:

"Sé que el presidente Ríos Montt es un hombre de gran integridad y compromiso personal ... Estados Unidos está comprometido a apoyar sus esfuerzos para restaurar la democracia y abordar las causas fundamentales de esta violenta insurgencia. Sé que quiere mejorar la calidad de vida de todos los guatemaltecos y promover la justicia social. Mi administración hará todo lo posible para apoyar sus esfuerzos progresistas." (Biblioteca Reagan)

Los datos también destacan el apoyo financiero y militar de Estados Unidos. Por ejemplo, a fines de la década de 1980, Estados Unidos contribuyó con cientos de millones en ayuda a regímenes que estaban cometiendo violaciones de derechos humanos:

"Estados Unidos entregó un estimado de $ 109.5 millones en asistencia económica y militar a Guatemala en 1986 y $ 117.6 millones en 1987. El secretario de Estado George Shultz, en nombre del presidente Reagan, certifica al Congreso que "el gobierno de Guatemala logró un progreso demostrado durante el año anterior" en "lograr el control sobre sus fuerzas militares y de seguridad, en la eliminación de abusos de derechos humanos y en el respeto de los derechos humanos de la población indígena indígena" (Broder & Lambek, 113)
Al mostrar momentos clave del apoyo de los EE.UU. y demostrar su complicidad en las violaciones de los derechos humanos de la guerra, estos datos contribuyen al Requisito #2: Combatir la narrativa sesgada de EE.UU. Como Salvador

¿Qué le gusta o aprecia de esta fuente de datos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre esta fuente de datos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre esta fuente de datos o sugerencias para fuentes de datos alternativas (opcional)

Your answer

Capítulo 3: Defensa de la vida
Datos 3.1: Defensores indígenas y violencia del estado (cuantitativa y cualitativa)

En la tercera sección de la historia, planeo mostrar cómo la invasión de territorios indígenas no terminó con los Acuerdos de Paz, sino que continuó hasta el presente con megaproyectos extractivos liderados por empresas transnacionales y violencia contra defensores de tierras Indígenas. Esta sección destacará las voces de líderes indígenas y defensores de la tierra que hablan sobre la resistencia y la represión continua, como la lideresa del Consejo de Comunidades Kiché, Aura Lolita Chávez Ixcauic:

"La disputa territorial se centra principalmente en las empresas transnacionales que se lucrán ilícitamente del agua, la tierra y los recursos naturales - especialmente los minerales - en nuestros territorios. Entonces nos levantamos en oposición. Por supuesto, como resultado, vienen y atacan a comunidades enteras que defienden el territorio, autoridades ancestrales y defensores de derechos". - Aura Lolita Chávez (Diario de Earth Island)

Para ilustrar el alcance y la severidad de la represión por parte de las empresas transnacionales y el Estado, mapeará datos que muestran el asesinato de defensores de derechos humanos y tierras en 2018-2020 publicados por la Unidad para la Protección de Defensores de Derechos Humanos en Guatemala (UDEFEGUA). Los datos muestran dónde 57 defensores perdieron la vida en defensa de sus comunidades, por ejemplo:

Nery Esteban Pedro | Defensor del Territorio | San Mateo Ixtatán, Huehuetenango | 2018
Dominga Ramos Saloj | CODECA | Santo Domingo Suchitepéquez | 2020
Domingo Choc Ché (Abuelo Kú) | Guía espiritual Maya Q’eqchi’ | San Luis, Petén | 2020

Al amplificar las voces de los líderes indígenas que hablan sobre los problemas estructurales en las comunidades que experimentan la migración y mostrando cómo continúa la violencia estatal en la actualidad, estos datos están destinados a contribuir al Requisito #6: Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento.

¿Qué le gusta o aprecia de esta fuente de datos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre esta fuente de datos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre esta fuente de datos o sugerencias para fuentes de datos alternativas (opcional)
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica

Evaluación resumida

En general, ¿qué tan bien respalda la historia propuesta el Requisito #1: Combatir el silenciamiento de la historia?

1  2  3  4  5
Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

En general, ¿qué tan bien respalda la historia propuesta el Requisito #2: Combatir la narrativa sesgada de EE. UU. Como Salvador

1  2  3  4  5
Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

En general, ¿qué tan bien respalda la historia propuesta el Requisito #3: Amplificar las voces próximas, situadas y marginadas

1  2  3  4  5
Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien
<table>
<thead>
<tr>
<th>Requisito</th>
<th>Pregunta</th>
<th>Escala</th>
<th>Opiniones</th>
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<td>#4</td>
<td>Cambiar el enfoque de la frontera México-EE.UU. a la frontera arterial?</td>
<td>1 2 3 4 5</td>
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</tr>
<tr>
<td>#5</td>
<td>Desafiar el modelo de flujo estático, suave y unidireccional?</td>
<td>1 2 3 4 5</td>
<td>Extremadamente mal ○ ○ ○ ○ ○ Extremadamente bien</td>
</tr>
<tr>
<td>#6</td>
<td>Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento?</td>
<td>1 2 3 4 5</td>
<td>Extremadamente mal ○ ○ ○ ○ ○ Extremadamente bien</td>
</tr>
<tr>
<td>#7</td>
<td>Mostrar incertidumbre y exponer datos faltantes?</td>
<td>1 2 3 4 5</td>
<td>Extremadamente mal ○ ○ ○ ○ ○ Extremadamente bien</td>
</tr>
</tbody>
</table>
En general, ¿qué tan bien respalda la historia propuesta el Requisito #8: Garantizar la usabilidad y la accesibilidad?

1  2  3  4  5

Extremadamente mal   ○   ○   ○   ○   ○   Extremadamente bien

Gracias por participar en la encuesta!
Survey 2, Spanish

Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica—Encuesta 2

Formulario de Consentimiento del Participante

Título del estudio:
Cartografía de la migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica
Investigador principal:
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Descripción de la investigación:
Está invitado a participar en un estudio para mejorar la usabilidad y los estándares éticos de la narración visual basada en mapas. Específicamente, el estudio investiga consideraciones de diseño para una historia visual sobre la migración de Guatemala-Estados Unidos.

¿Qué implicará mi participación?
Si decide participar en esta investigación, brindará comentarios sobre los productos de diseño asociados con la historia visual, respondiendo a una serie de preguntas mayormente abiertas sobre el diseño de la historia, las consideraciones éticas y la usabilidad general. Su aporte informará una revisión de la historia visual. La investigación consistirá en tres encuestas y puede optar por participar en cualquiera de las tres o todas. Las encuestas se realizarán electrónicamente y tardarán aproximadamente una hora en completarse.

¿Existe algún riesgo para mí?
El riesgo de participación es mínimo. Por lo tanto, no existen riesgos físicos o mentales previsibles para la participación más allá de los que se encuentran en el curso normal de la vida cotidiana.
¿Hay algún beneficio para mí?
No hay beneficios directos para usted. Sus comentarios se utilizarán para desarrollar una mejor comprensión de las consideraciones de usabilidad y ética para el diseño de historias visuales basadas en mapas. El producto resultante de esta investigación se utilizará para educar sobre los problemas estructurales que impulsan la migración de Guatemala-Estados Unidos.

¿Cómo se protegerá mi confidencialidad?
Las publicaciones que resultan de esta investigación no utilizarán nombres; las citas directas en las publicaciones resultantes serán anónimas. No se mantendrá ninguna información de identificación personal. Se citará el nombre de la organización, Colectivo Vida Digna.

¿Con quién debo comunicarme si tengo preguntas?
Puede hacer cualquier pregunta sobre la investigación en cualquier momento. Si tiene preguntas sobre la investigación después de que se vaya hoy, debe comunicarse con Nick Underwood al 518-791-7746. Si no está satisfecho con la respuesta del equipo de investigación, tiene más preguntas, o desea hablar con alguien sobre sus derechos como participante de la investigación, debe comunicarse con la Oficina del IRB de Investigación en Educación y Ciencias Sociales y del Comportamiento al 608-263-2320.

Tu participación es completamente voluntaria. Si decide no participar o retirarse del estudio, puede hacerlo sin penalización.

Si acepta participar en este estudio de investigación como se describe anteriormente, haga clic en "Siguiente" a continuación. Seleccionar este botón significa que comprende sus derechos como participante y ACEPTA participar en este estudio de investigación. Cierre su navegador si decide no participar.
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica—Encuesta 2

Resumen de Contenidos

La encuesta tiene tres secciones, cada una con contenido seguido de preguntas.

REQUISITOS ACTUALIZADOS: La primera sección presenta el documento de requisitos actualizado, con modificaciones y adiciones realizadas en función de los comentarios de la primera encuesta.

PROTOTIPO DE LA HISTORIA: La segunda sección presenta el prototipo visual completo de la historia y solicita comentarios generales sobre cada uno de los tres capítulos de la historia.

EVALUACIÓN RESUMIDA: La tercera sección solicita evaluaciones sobre el éxito o fracaso de la historia para cumplir con cada uno de los requisitos actualizados.
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica—
Encuesta 2

Documento de Requisitos Actualizado

Con base en los comentarios de la primera encuesta, se realizaron actualizaciones y
adiciones al documento de requisitos, que representa los objetivos de la historia visual y se
usará como una rúbrica para evaluar su éxito.

Documento de Requisitos Actualizado
Ediciones y adiciones resaltadas.

<table>
<thead>
<tr>
<th>Requisito</th>
<th>Problema</th>
<th>Solución propuesta</th>
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<tbody>
<tr>
<td>1) Combatir el silenciamiento de la historia</td>
<td>El desplazamiento del día presente de guatemaltecos de sus comunidades está alimentado por siglos de despojo, incluyendo los efectos multigeneracionales de la violencia genocida, la economía neoliberal y la marginación política. Sin embargo, la mayoría de las historias visuales convencionales de la migración Guatemala-E.E. UU. omiten este contexto, silenciando la historia con representaciones ahistóricas y descontextualizadas.</td>
<td>Para combatir este borrado, propongo utilizar el concepto de las cuatro invasiones, para mostrar cómo la migración actual está entrelazada con una historia de invasión cíclica en las comunidades indígenas, incluyendo la colonización española (la 1ª invasión), el advenimiento de la economía de las plantaciones (2ª), la Guerra Civil y Genocidio de Guatemala (3ª), y la incursión moderna de los megaproyectos industriales (4ª). En particular, planeo enfatizar las conexiones históricas entre la tercera invasión (guerra civil / genocidio) y el desplazamiento actual. La historia nombrará antagonistas específicos, especialmente políticos y corporaciones que continúan ejerciendo el poder hoy en día a pesar de sus antecedentes penales.</td>
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<td>2) Combattir la narrativa sesgada de EE. UU. como Salvador</td>
<td>Estados Unidos ha jugado un papel importante en reprimir el progreso político y económico en Guatemala, priorizando consistentemente las ganancias corporativas sobre los derechos humanos de los guatemaltecos. A pesar de la complicidad del gobierno de los EE. UU. en la creación de condiciones estructurales de desigualdad e impunidad, la mayoría de las historias visuales convencionales de la migración de Guatemala-EE.UU. omiten la historia destructiva de la intervención estadounidense, presentando a los Estados Unidos como un santuario magnético y benévolo.</td>
<td>Para desafiar esta narrativa dominante, planeo destacar los momentos clave de la intervención de Estados Unidos, incluyendo el papel de los Estados Unidos en el golpe de 1954 y su apoyo a los gobiernos militares genocidas durante el período de 1960-1996. La historia presentará evidencia histórica sobre la estrecha relación entre los gobiernos de Estados Unidos y Guatemala y demostrará que el gobierno de Estados Unidos tenía pleno conocimiento de las extensas violaciones de derechos humanos que ocurrieron durante la tercera invasión y, por lo tanto, tiene la misma responsabilidad por la violencia.</td>
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<td>3) Amplificar las voces próximas, situadas y marginadas</td>
<td>Las experiencias de la migración de Guatemala-EE.UU. difieren para personas de diversas identidades—por ejemplo, las migrantes mujeres y migrantes indígenas se enfrentan a una mayor vulnerabilidad a múltiples formas de violencia antes, durante y después del tránsito. A pesar de la desigual dinámica de poder que impulsa y da forma a la migración, muchas historias visuales de la migración de Guatemala-EE.UU. representan a los migrantes guatemaltecos como un grupo homogéneo, borrando estadísticamente la identidad indígena y omitiendo las voces próximas, situadas y marginadas.</td>
<td>Para impugnar este silenciamiento, planeo resaltar y afirmar las experiencias situadas y las identidades indígenas de seis jóvenes mayas desplazados, e ilustrar las historias particulares de sus comunidades. Tengo la intención de ampliar las perspectivas próximas al incluir citas de miembros de la familia y la comunidad en lugar de usar solo una narración distante, en tercer persona y centrada en el estado. <strong>La historia también ampliará las perspectivas de los organizadores comunitarios y las autoridades ancestrales sobre la fuerza colectiva y la lucha de sus comunidades para abordar la injusticia estructural.</strong></td>
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<td>4) Cambiar el enfoque de la frontera México-EE.UU. a la frontera arterial</td>
<td>Dentro de los Estados Unidos, gran parte del discurso sobre la migración Guatemala-EE.UU. se concentra en gran medida o exclusivamente en la frontera entre Estados Unidos y México, a pesar de que las prácticas fronterizas estatales se subcontratan cada vez más allá de esta frontera. La mayoría de las historias visuales convencionales muestran este sesgo, reforzando el poder formativo de la frontera, replicando modos de pensamiento nacionalistas y ocultando la violencia y la inseguridad a lo largo de las rutas de tránsito.</td>
<td>Para evitar replicar este sesgo, planeo concentrarme en los eventos en Guatemala en lugar de en los eventos a lo largo de la frontera entre Estados Unidos y México. La historia restará importancia visual a las fronteras nacionales donde sea posible, utilizando datos subnacionales más específicos donde sea posible. Si se incluyen representaciones de los viajes de los migrantes, tendrán como objetivo representar la &quot;frontera arterial&quot;, un término acuñado por la antropóloga Wendy Vogt que conceptualiza la frontera &quot;no como una entidad fija, sino como un lugar dinámico y en constante cambio de legitimación estatal, agencia individual y contestación&quot;.</td>
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<td>5) Desafiar el modelo de flujo estático, suave y unidireccional</td>
<td>Muchas historias visuales convencionales de la migración de Guatemala-EE. UU. utilizan flechas de flujo estáticas, suaves y unidireccionales para representar la migración hacia los Estados Unidos, reforzando una narrativa xenófoba de invasión y oscureciendo la naturaleza turbulenta, controvertida y multidireccional de los movimientos migratorios. Estas representaciones agregadas sugieren una narrativa falsa de movimiento sin fricción, comienzos y finales inequívocos, y movimiento en un solo sentido hacia el norte.</td>
<td>Planeo evitar el uso de flechas de flujo convencionales. La historia visual irá más allá del modelo de flujo estático al representar el movimiento a múltiples escalas y en múltiples direcciones, y al enfatizar la comprensión emocional y encarnada de la movilidad. A diferencia de la mayoría de las historias visuales convencionales, el enfoque narrativo principal de la historia no estará en el viaje hacia el norte, sino en el contexto histórico y estructural.</td>
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<td>6) Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento</td>
<td>Desde los mercados neoliberales, hasta los regímenes militarizados de aplicación de la ley de inmigración, y la deuda, las infraestructuras influyen ampliamente en las vidas de los migrantes guatemaltecos antes, durante y después de la migración. Sin embargo, muchas historias visuales convencionales se centran estrictamente en el espectáculo de la violencia contra los migrantes, enfatizando los detalles espantosos de las dificultades de los migrantes y la violencia de las pandillas sin proporcionar un contexto estructural.</td>
<td>En lugar de centrarme estrictamente en el espectáculo de la violencia, planeo enfatizar el papel de las infraestructuras en producir y agravar el sufrimiento individual. La historia visual mostrará cómo las campañas de tierra arrasada apoyadas por Estados Unidos se dirigieron sistemáticamente a los pueblos indígenas, utilizando múltiples escalas geográficas y temporales para mostrar el patrón de violencia a lo largo del tiempo. La historia también enfatizará cómo este patrón de violencia ha continuado hasta el presente con la violencia contra los defensores de la tierra que protegen a sus comunidades de las incursiones de los megaproyectos industriales. La historia se centrará en representar el proceso infraestructural de empobrecimiento, en lugar del resultado descontextualizado de la pobreza en las comunidades indígenas.</td>
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<td>7) Mostrar incertidumbre y exponer datos faltantes</td>
<td>Al igual que las experiencias vividas que intenta describir, los datos cuantitativos sobre la migración de Guatemala-EE.UU. están plagados de incertidumbre. Los esfuerzos para rastrear la violencia contra los migrantes son lamentablemente limitados y los datos recopilados y difundidos por los actores estatales no son confiables. A pesar de este hecho, las historias visuales convencionales proyectan una ilusión de certeza, exudando un falso sentido de precisión científica y control gubernamental al utilizar cifras &quot;exactas&quot; y no poner en primer plano la incertidumbre.</td>
<td>En mi historia visual, planeo destacar de manera prominente la incertidumbre de los datos cuantitativos utilizados en la historia y utilizar estimaciones realizadas por los investigadores para poner en contexto la naturaleza parcial de los datos visualizados. En lugar de usar cifras exactas como &quot;67,101 migrantes&quot;, lo que implica certeza y control gubernamental, usaré estimaciones redondeadas como &quot;65,000+&quot; y transmitiré explícitamente incertidumbre a los lectores en el texto. La historia enfatizará la incertidumbre de las fuentes de datos clave, utilizando datos complementarios y estimaciones para mostrar sus deficiencias cuando sea posible.</td>
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<td>8) Garantizar la usabilidad y la accesibilidad</td>
<td>La facilidad de uso y la accesibilidad son extremadamente importantes para el éxito y la aceptación de las historias visuales. Sin embargo, muchas historias visuales de la migración de Guatemala-EE. UU. no priorizan la usabilidad y la accesibilidad, sin tener en cuenta las limitaciones tecnológicas, las barreras del idioma y los niveles de experiencia de los usuarios</td>
<td>Planeo diseñar la historia visual para que sea utilizable y accesible para una amplia gama de usuarios. La historia visual estará disponible de forma gratuita en la web y se diseñará de manera receptiva para que funcione bien para todos los tamaños de pantalla, desde teléfonos celulares hasta computadoras de escritorio. La historia se diseñará tanto en inglés como en español para que sea accesible a más usuarios. La historia no asumirá conocimientos de expertos, sino que tendrá como objetivo ser comprensible para personas con poco o ningún conocimiento previo de la migración de Guatemala-EE. UU. Intentaré mantener el tamaño y la complejidad de la historia al mínimo para que funcione bien para las personas que acceden a la historia con conexiones lentas a Internet.</td>
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9) Hacer un llamado a la acción explícito

La utilidad, o el propósito previsto, de la narración visual no siempre se describe claramente. Muchas historias visuales sobre Guatemala–EE.UU. la migración no destacan de manera destacada la posición de sus autores, ni transmiten un mensaje político claro para movilizar a la audiencia.

La historia visual incluirá un llamado a la acción explícito que comunique claramente el significado previsto de la historia. La historia tiene dos propósitos editoriales centrales. Primero, la historia puede ser objetivo educar a los usuarios mostrando cómo la migración es el resultado de la invasión cíclica de las comunidades indígenas por parte de la oligarquía, las empresas transnacionales y los gobiernos de Estados Unidos y Guatemala. En segundo lugar, la historia abogará por el desmantelamiento de este statu quo, argumentando que el cambio político real solo vendrá a través del empoderamiento de los movimientos de soberanía indígena, colectivos y de base que luchan para acabar con la impunidad, el neoliberalismo extractivo y el complejo industrial de inmigración.

¿Qué le gusta o aprecia de las actualizaciones y ediciones a los requisitos, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre las actualizaciones y ediciones a los requisitos?

Your answer

Proporcione cualquier comentario adicional que tenga sobre las actualizaciones y ediciones a los requisitos (opcional)

Your answer
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica—Encuesta 2

Prototipo de historia

Los tres capítulos del prototipo de la historia se presentan en esta sección para comentarios y críticas. Siempre que sea posible, mencione los requisitos específicos en sus comentarios.

Capítulo 1: En busca de vida


¿Qué le gusta o aprecia de este capítulo de la historia, si hay algo?

Your answer
¿Tiene alguna inquietud o duda sobre este capítulo de la historia?
Your answer

Proporcione cualquier comentario adicional que tenga sobre este capítulo de la historia (opcional)
Your answer

https://nick-underwood.com/thesis/espanol/capitulo2.html

¿Qué le gusta o aprecia de este capítulo de la historia, si hay algo?
Your answer

¿Tiene alguna inquietud o duda sobre este capítulo de la historia?
Your answer
Proporcione cualquier comentario adicional que tenga sobre este capítulo de la historia (opcional)

Your answer

Capítulo 3: Defensa de la vida


¿Qué le gusta o aprecia de este capítulo de la historia, si hay algo?

Your answer

¿Tiene alguna inquietud o duda sobre este capítulo de la historia?

Your answer

Proporcione cualquier comentario adicional que tenga sobre este capítulo de la historia (opcional)

Your answer
Cartografía de la Migración de Guatemala-Estados Unidos: un estudio de caso en la narración visual crítica—Encuesta 2

Evaluación resumida

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #1: Combatir el silenciamiento de la historia?

1 2 3 4 5

Extremadamente mal   ○ ○ ○ ○ ○ Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #1 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #2: Combatir la narrativa sesgada de EE. UU. Como Salvador

1 2 3 4 5

Extremadamente mal   ○ ○ ○ ○ ○ Extremadamente bien
Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #2 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #3:
Amplificar las voces próximas, situadas y marginadas

1  2  3  4  5

Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #3 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #4:
Cambiar el enfoque de la frontera México-EE.UU. a la frontera arterial?

1  2  3  4  5

Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #4 aquí (opcional)

Your answer
En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #5: Desafiar el modelo de flujo estático, suave y unidireccional?

1 2 3 4 5

Extremadamente mal ☐ ☐ ☐ ☐ ☐ Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #5 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #6: Cambiar el enfoque del espectáculo de la violencia a las infraestructuras que producen sufrimiento?

1 2 3 4 5

Extremadamente mal ☐ ☐ ☐ ☐ ☐ Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #6 aquí (opcional)

Your answer
En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #7: Mostrar incertidumbre y exponer datos faltantes?

1 2 3 4 5

Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #7 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #8: Garantizar la usabilidad y la accesibilidad?

1 2 3 4 5

Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien

Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #8 aquí (opcional)

Your answer

En general, ¿qué tan bien respalda el prototipo de la historia el Requisito #9: Hacer un llamado a la acción explícito?

1 2 3 4 5

Extremadamente mal  ○  ○  ○  ○  ○  Extremadamente bien
Proporcione cualquier comentario adicional que tenga sobre la implementación del Requisito #9 aquí (opcional)

Your answer

Gracias por participar en la encuesta!