

# +A State of (Betweenness)

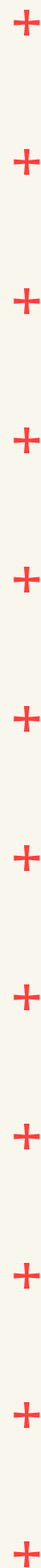
Narrating Transnational Family  
Histories in Dynamic and Multi-Dimensional  
Digital Archives

**Randa Hadi**

Department of Graphic and Industrial Design  
College of Design  
North Carolina State University

April 30, 2020  
Master of Graphic Design

Submitted in partial fulfillment for the  
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# +Acknowledgments

**To Denise,** Thank you for being a great mentor. I really appreciate your continued support, encouragement, and insight. You have guided me with challenging questions, pushed me to take risks, think differently, and embrace uncertainty. Thank you for inspiring me with your passionate, curious mind and unprecedented improvisational methods. I am forever grateful for the things I have learned from you. You single-handedly made my experience as an MGD student worth all the late nights.

**To Derek and Scott,** Thank you for your invaluable time and guidance throughout this research process.

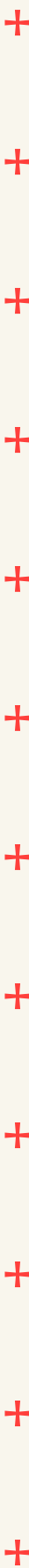
**To the MGD family,** Thank you for your infectious energy, work ethic, and friendship that I value dearly. I will forever remember our late nights working and laughing in studio. Thank you for making studio a second home; this experience wouldn't be the same without you.

**To my parents, my sister, and brother,** Thank you for your support and for sharing your love of documenting family memories with me.

**To Fatima,** Thank you for your unwavering dedication to be there for me and for encouraging me through the last three years. Thank you for always believing in me and never doubting my path.

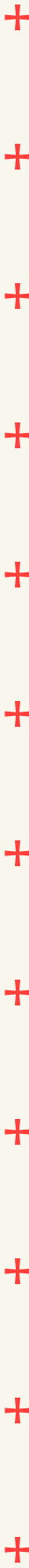
**To those who had to leave home,** You are courageous. Migration is not an experience solely for the ones who have had to leave home. It's an emotional separation for those who left, those who stayed, and those who follow. I hear you and see you.

**Lastly,** This project is dedicated to my two grandmothers— Sadeeqa (may she Rest in Peace) and Jawahir— for inspiring this project and setting an example of what it means to be a family storyteller. Thank you for being the glue that holds these family stories together and your willingness to share memories with me. I will forever remember our family gatherings with both of you sitting on the couch drinking tea and telling me stories about your childhood, my parents' childhoods, and my childhood. Losing my grandma, Sadeeqa, while being far away from home and exploring a project inspired by her was a rough experience. Here's to continuing my grandma's legacy and passing on those family stories to future generations.



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# +Abstract

Transnational issues are complex. Transnationalism refers to the process of migrating, moving, and settling across international borders. These individuals and families still maintain connections to their country of origin while at the same time settling into a new environment. This is highly common in the Middle East and North African (MENA) region.

Transnational families are characterized by their geographical dispersion. These families become fragmented and scattered due to social, economic, and political reasons but often continue to keep close relationships across borders. Transnational families lack a concrete connection to their families and home. This study proposes a dynamic, multidimensional digital family archive that provides a space for transnational families to share, annotate, experience, explore, connect, and promote representation through family histories. Rather than attempting to draw out the truth, this study exploits family narratives to create a sense of connection. This research combines family narrative characteristics and multimodal digital storytelling to inform the design of an interface that provides a space for individuals to feel connected through stories — giving transnationals a space to weave together seemingly disparate past events into a story about where they have been, where they are, and where they are going. The research proposes multiple options to suggest how such a system might function.



# +Introduction

*Stories — A description of past events or experience in someone's life or the retelling of something that occurred.*

*Family — A unit of people with at least one parent and one child, which can be immediate or extended and includes grandparents, uncles, aunts, or cousins.*

We inhabit several worlds throughout our life. The world we are first born into is a material world. It is tangible, physical, something we can see, feel, and hear. The other world we inhabit is made up of immaterial appurtenances — ideologies, cultures, memories, collective beliefs, and stories. Although the immaterial world is invisible, it is just as powerful and influential in shaping us — just like stories. We do not just tell, hear, and experience stories; we make them by piecing together fragments that we have heard. We live in and out of stories, wandering through them with the purpose to know and learn more about where we come from [past], who we are [present], and where we are headed [future]. Stories are part of our everyday life; both of my grandmothers transmit cultural and family values through descriptive storytelling. I often find myself asking them questions about specific events like the first Gulf War, past family events, and their childhoods. What emerges are fragments of stories told from two different perspectives and experiences. These stories have shaped me as an individual. The stories help me make sense of the chaotic world in which I live, making stories a tool for reflectivity, and shaping my perspective. I have learned to tell stories by hearing and immersing myself in them; these stories have become part of my narrative ecology (see Figure 1.1), which is composed of personal stories, others' stories, and cultural stories (McLean, 2016). Family stories have a special place in the narrative ecology; we use family stories first to understand ourselves, for better or worse. Though we do not remember all the stories we hear, we naturally grab onto specific stories that we listen

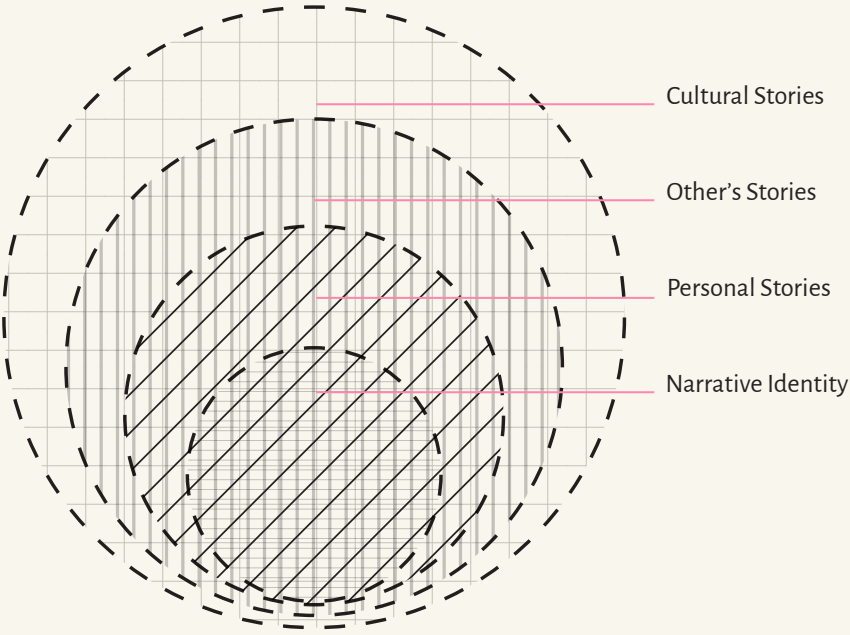
to — ones with which we can relate and those that make the most sense to us. Stories make the world known, and it is those family stories that shape us first and make the self-known (McLean, 2016).

Our family archives take many forms, whether a shoebox, an album, or a drawer filled with photos, we archive those moments that tell stories. The archive allows an individual to engage and connect with their past family stories. People living far from home have a harder time accessing their archives, especially their family storytellers. Oral storytelling is the most common way to express these narratives, which is an intimate activity where family members share personal experiences and life stories for listeners. Transnational family members are shaped by their memories of their home and the individuals they left behind. A daughter from Iran living in New York may experience a state of betweenness, with one foot in one world and another in a completely different place at the same time (Chamberlain & Leydesdorf, 2004).

This design investigation places storytelling at the center of transnational family archives, giving families a place to interact with each other through collaborative storytelling. Collaborative storytelling gives individuals an opportunity to express themselves and their experiences to create a living family archive. Families collaborate on stories in the way that they tell them, in a shared space where individuals can chime in at any given time. Digital family archives can provide a space for individuals to share, create, and expand on family stories and promote a sense of representational belonging. Representational belonging is one way of empowering transnational families, allowing them to establish, enact, and reflect on their current presence: the now.

*Transnational Families — Family members that are multi-positional; living apart but creating a sense of collective familyhood. A state of in-betweenness.*

*Representational Belonging — Representing individuals using community archives to empower those who have not been reflected by mainstream media*



*Figure 1.1 — Adapted narrative Ecology of Self (McLean, 2016); nesting stories within each other*



## + Problem Statement & Justification

As we try to navigate this chaotic world in which we live, we embed ourselves into the physical world and landscape of stories, they make the world known (McLean, 2016). It is through interpretation that we make sense of the world around us and shape our perspective of it. Research shows that storytelling is one of the ways that families and family members contemplate everyday life, including difficult events, constructing individual and group identity (Koenig Kellas, 2010). Storytelling creates a space for individuals to tell and hear stories about their life experiences, making the stories part of their “narrative ecology,” as described by McLean (2016). The narrative ecology of self includes not only personal stories and experiences, but also the stories of friends, teachers, and partners, stories that exist in the cultural realm at large, and the stories that this investigation explores — family stories. The narrative ecology of self nests these different types of stories as they relate to one another (see Figure 1.1), making the construction of self-visible.

Archives also tell a story. The archive tells two types of stories: an archive and to archive. An archive [noun] is a representation of all the stories that it holds. To archive [verb] is the act of documenting these stories. Archives have traditionally been used as a tool to preserve documents and memories that were deemed as evidence through a neutral, objective, and impartial lens (Huvila, 2008; Cook, 2013). Archivists are active curators with the power to build society’s memories by preserving certain artifacts and documents. Storytelling is an important

aspect of memory preservation. Extending the act of archiving to individuals is a way for them to engage with and preserve family histories. Fundamentally, the experience of the archive is highly personal regardless of the larger history the archive represents (Blair, 2019).

When family members tell stories, they are contemplating a world that would not exist otherwise. They create it by telling it, even after they have discovered this world (Turchi, 2004). Assuming that people have a memorable past, individuals use family stories above others to create and understand themselves, which family archives can provide. However, even the people who do not have a memorable past still go back and revisit their family stories to make sense of themselves through time (McLean, 2016). Family archives create a space for family members to travel back in time using artifacts such as photos, objects, oral stories, and documents to create a deeper sense of belonging, ontological security, and identity construction (Bennett, 2015). These family archives frequently exist in the home — whether or not the archives are created intentionally. The impact a family archive has on an individual is created through the telling and experiencing of stories, memories, and the way the archives are interpreted by the individual (Bennett, 2015). Individuals who know and tell their family narratives show higher levels of identity development and psychological well-being (Fivush & Merrill, 2016).

Transnational families straddle two or more nation-states, and therefore some members cannot access their family archives. This deficit can negatively affect representational belonging. Representational belonging refers to archives that “empower people marginalized by mainstream media outlets... to reflect on their presence in ways that are complex, meaningful, substantive, and positive to them” (Caswell et al., 2016). Family archives might be used as a tool for reflection, creating a space for transnational families to prompt a sense of belonging (Lindley, 2012). Transnationals experience a state of betweenness, trying to be aware of and to be present in two places simultaneously (Gomez et al., 2005). When transnational families split, the whole family feels the sense of separation. During separation, the member(s) leaving the family loses access to the physical environment that not only collects family stories and histories, but that also ties the person to their home. Transnational families keep close connections with each other, even after they have separated (Skrbis, 2008).

A key motivation for accessing information and discussing the family and material possessions comes from a self-led perspective of wanting to know (Blair, 2019). A digital archive shifts the emphasis from individuals identifying as transnationals to negotiating their identities (Wei and Hua, 2013). To negotiate your identity is to establish, maintain, and change their identities; constantly asking themselves “who am I?” to create a stable identity across time (Swann & Bosson, 2008).

Digital technologies can help mitigate the effects of separation by providing means to connect with family stories. Importantly, digital technologies

democratize archival collection. Participatory family archives create a space for family members to share collective memories through narratives and photos, for instance, as well as annotations. A digital system lends itself to compiling and bringing together incremental, anecdotal compilations. Currently, an extensive digital platform that encourages participatory archiving does not exist. Commercially available systems exist, but only allow digital organization and storage of physical materials (Stevens et al., 2003).

This project proposes that a multi-dimensional, dynamic, digital archive for transnational families could foster representational belonging by allowing individuals to add to and expand upon family stories using photos, artifacts, and oral stories. In other words, a dynamic archive that is continuously changing. Exploring multi-dimensionality in family archives is an important consideration due to the spatial qualities of a storytelling experience that we usually practice in the physical world. This investigation looks at the archive as having the potential to capture invisible characteristics of family histories including rituals, oral stories, and cultural visual languages. This investigation, then, reconsiders archives as a representational tool for capturing family histories. The blind spots, the untold, the disappeared, the out of frame, and the things of unrecognizable importance. The studies within this research illuminate these aspects of family histories that might not be deemed important, but through archiving, renders a truer, more complex collection.

Archives tend to be conceived of as systematic, structured, and organized. This research suggests that archives that live and interact with each other provide more meaningful interpretations of family histories. For example, when artifacts and narratives are situated and contextualized within each other, the archive creates unseen connections and patterns. This investigation explores the potential for archives beyond translating physical artifacts into digital form. By situating these studies in the future, I can speculate on how new technologies let us experience family archives in new ways. The studies documented here propose various narrative characteristics and ways in which they might be visualized to create a storytelling experience within the archive. The benefits of a family digital archive can be an important place to go to beyond discovering yourself, existing, and being documented. Representation in the archives catalyzes an ontological shift from not being, not existing, not being documented to being, existing, and being documented with profound personal implications.

There are different types of family narrative characteristics, which consist of shared family narratives, communicative family narratives, and family history (Fivush and Merrill, 2016). There are multiple characteristics that family narratives can have, and they include disharmonious, collaborative, cooperative, facilitated, and moderated (Pratt & Fiese, 2004). Each narrative speaks to how families communicate with each other while telling a story. I propose that these qualities exist in the archive as a storytelling experience.



CHAPTER 3	019	3.1 Assumptions
	020	3.2 Limitations

# +Assumptions & Limitations

## 3.1 Assumptions

This investigation makes the following assumptions: I assume that individuals and families want to actively and willingly interact and access their family histories. While there are opportunities to create a system that would search and find an individual's family history, this project assumes that individuals have access to photos, videos, documents, artifacts, and oral histories. This investigation does not focus on one use of technology, rather, it focuses on the experience, the representation of the archives, and how it could increase belonging, ontological security, and identity construction. This research assumes that the experience of the archives requires more attention, therefore shifting the focus from the technology to what the representation feels like. The studies are then situated in this “non-place” space. This project also assumes that individuals understand that this system is aggregating personal information, therefore leaving a personal digital footprint or “data shadow”. I assume that individuals are contributing factual information based on their experiences to create a representation of their real-life family stories. This project assumes that individuals have ample, unlimited storage and memory on their devices and that their data plans are unlimited, therefore, always having access to deep information without any lags in their experience.

For this whole investigation, I assume and define the term archive not as its totality, rather, as the fragments that create the total cohesive whole with its gaps, pauses, and breaks. Due to the fragmented nature of archives (as well

*Ontological — A state of being and existing in the world; asserts identity through time (present and future).*



as our memories) these pieces of information can be re-contextualized and fractured once again — a never-ending cyclical process of reinventing itself. Archives can then be seen as a gathering of these pieces of information in digital spaces that can be used to access past information in the present and in the future.

My studies address the different levels of engagement and activities that happen within a digital archive experience. The terms have been changed from being rooted in the digital world to terms that address human aspects (Table 3.1). I assume the following for the terms that I will be using:

Table 3.1 — Differentiating between terminology that is rooted in the physical world vs. in the digital world

ROOTED IN HUMAN ASPECTS	ROOTED IN THE DIGITAL WORLD
Experiencing	Experiencing
Telling	Sharing
Adding	Annotating
Finding	Searching

3.2 Limitations

This investigation focuses on transnational family members: individuals who are no longer living in their home country and who have a member living in their home country. This study does not address the validity or accuracy of the information that is provided by individuals to describe family histories. With regards to belonging, ontological security, and identity construction, it is important to note that each individual experiences those emotions differently and that such emotions cannot be measured. This research does not consider psychological testing to validate results. The persona and scenario map of this investigation may not apply to all transnational family members but aspects of the maps will apply to a broader range of possible participants. The prototypes created for this investigation are not embedded with a specific technology in mind, therefore they will not be able to test the results with certainty.



# +Annotated Bibliography

<b>Self Discovery / Ontological Belonging</b>	Connecting to one's family history creates a sense of ontological security and belonging, which can be tied to a specific place and location (Bennet, 2013). The creation of someone's identity of a place is created through family histories and connections over time; looking back at their historical roots to understand themselves better (Bennet, 2013). Memories of one's own past and their autobiographical memory leads to the discovery and strengthening of their ontological belonging (Lindley, 2012). See Table 4.1 for a detailed annotated bibliography.
<b>Identity Construction</b>	Identity construction is co-authored, it weaves together an individual's personal experience into a narrative including multiple layers of narratives that surround the individual (McLean, 2016). Individuals not living at home don't see themselves represented in the country they're living in, however, an archive of their cultural heritage resonates with individuals' own sense of identity (Caswell et al., 2016). Identities should be considered as they are constructed, socially embedded and is considered to be a process, constantly influenced by their surroundings (Kraus, 2006). Alternatives to mainstream repositories such as community archives have an important impact on the construction of identities (Caswell et al., 2016). The role of narrative in human cognition suggests that the construction of self is created throughout the storytelling process (Caswell, 2016).

Digital Archiving	Archiving has evolved into digital archiving, giving it to the hands of the participants as a way to keep their information alive and easily accessible (Sabharwal, 2015). Permeable Archive is a project that focuses on publishing and archiving past projects; rethinking the structure, creation, accessibility of the archives by proposing a permeable, seeping, post archival mode (Dekker, 2017).
Family Histories & Narratives	Narratives of families are created through memories and experiences that can construct one's self (Bennet, 2013). Family history storytelling is one of the primary ways family members make sense of the world and a sense of themselves as individuals (Kellas, 2010). Using a family-centric visualization to give a historical family narrative gives individuals their family relationships to understand the complete story of people's lives (Ball, 2017). Narratives are more than just chronological events; they include emotions, thoughts, motivations, and intentions (Fivush & Merril, 2016). Family narratives are important because family members reconstruct their personal and shared experiences by reevaluating what happened and what the family story meant, which can be shared or unshared as well as recent or remote (Bohanek et al., 2009). Pratt and Fiese (2004) provide a framework for family narrative characteristics that include: collaborative, cooperative, child-centered, facilitated/moderated, and disharmonious.
Immersive Technologies	Immersive technologies use realistic three-dimensional digital interfaces as a way to suspend disbelief to draw on different senses like sensory, actional, and symbolic factors (Dede, 2019). Virtual reality can be a form of transporting and transforming the viewer into another environment (Kelly et al., 1989). Many research institutes have archives that are underutilized but by creating a digital immersive archive, resources are made accessible (Huang et al., 2018).
Transnational Families	Transnational families straddle between two or more nations, leaving behind their homeland and families, making families sites of belonging (Chamberlain and Leydesdorff, 2004). Transnationalism is defined as living in one or more cultures and maintaining connections to both; sharing their stories often refers back to the individuals' birthplace (Gomez et al., 2005). Although the term transnationalism offers an attractive (yet deceiving) imagined possibility of "living" in two places rather than one, most individuals face divided living and relations across borders (Falicov, 2005). Transnational families communicate across distances, which occurs via the internet using phone calls or through letters (Wilding, 2006). Key dimensions of the transnational family experience are migration, emotions, and belonging; these family ties can be seen as a rubber band, which can be stretched and not broken, always going back to its original form (Skrbis, 2008).

TOPIC	TITLE	CITATION
Self Discovery & Ontological Belonging	Gifted places: the inalienable nature of belonging in place	Bennett, 2013
	Before I Forget: from personal memory to family history	Lindley, 2012
Identity Construction	The Co-authored Self: Family Stories and the Construction of Personal Identity	McLean, 2016
	The narrative negotiation of identity and belonging	Kraus, 2006
	Autobiographical memory and the construction of a narrative self. Developmental and cultural perspectives.	Caswell, 2016
	"To suddenly discover yourself existing": uncovering the impact of community archives	Caswell et al., 2016
Digital Archiving	Digital history, archives, and curating digital cultural heritage	Sabharwal, 2015
	Lost and living (in) archives, collectively shaping new memories	Dekker, 2017
	The archive as a productive space of conflict	Miessen & Chateigné, 2016
Family History & Narratives	We are what we keep: the "family archive", identity and public/private heritage	Woodham et al., 2017

Family History & Narratives	Narrating family histories: negotiating identity and belonging through tropes of nostalgia and authenticity	Bennett, 2015
	The narrative construction of reality	Bruner, 1991
	Narrating Family: introduction to the special issue on narratives and storytelling in the family	Kellas, 2010
	Visualizing genealogy through a family-centric perspective	Ball, 2017
	An ecological systems approach to family narratives	Fivush and Merrill, 2016
	Narrative Interaction in Family Dinnertime Conversations	Bohanek et al., 2009
	Family stories and the life course: Across time and generations	Pratt & Fiese, 2004
Immersive Technologies	Immersive Interfaces for Engagement & Learning	Dede, 2019
	From archive, to access, to experience — historical documents as a basis for immersive experiences	Huang et al., 2018
Transnational Families	Transnational families: memories and narratives	Chamberlain and Leydesdorff, 2004
	Transnationalism as a Motif in Family Stories	Gomez et al., 2005

Transnational Families	Emotional Transnationalism and Family Identities	Falicov, 2005
	‘Virtual’ intimacies? Families communicating across transnational contexts	Wilding, 2006
	Transnational families: theorising migration, emotions, and belonging	Skrbis, 2008

Table 4.1 — Annotated bibliography



CHAPTER 5	029	5.1 Conceptual Framework
	036	5.2 Research Questions

# +Conceptual Framework & Research Questions

## 5.1 Conceptual Framework

The framework developed for this investigation synthesizes four extant frameworks: [a] multimodal digital storytelling (Belmonte et al., 2013), [b] construal level theory (Trope & Liberman, 2010), [c] narrative characteristics (Pratt & Fiese, 2004), and [d] honeypot effect (Cox et al., 2016). Using these frameworks helped guide and situate my studies by identifying ways that a digital archive could use family narrative characteristics to experience a story using multimodal communication.

Multimodal Digital Storytelling

Belmonte et al. (2013) provides a framework for multimodal digital stories from a cognitive point of view; narratives are regarded as more than a mere succession of causal or temporal events. The framework is summarized in Figure 5.1 and definitions can be found in Table 5.1. The investigation will focus on the information tracks and how those modes of communication construct the narratives. See Figure 5.1.

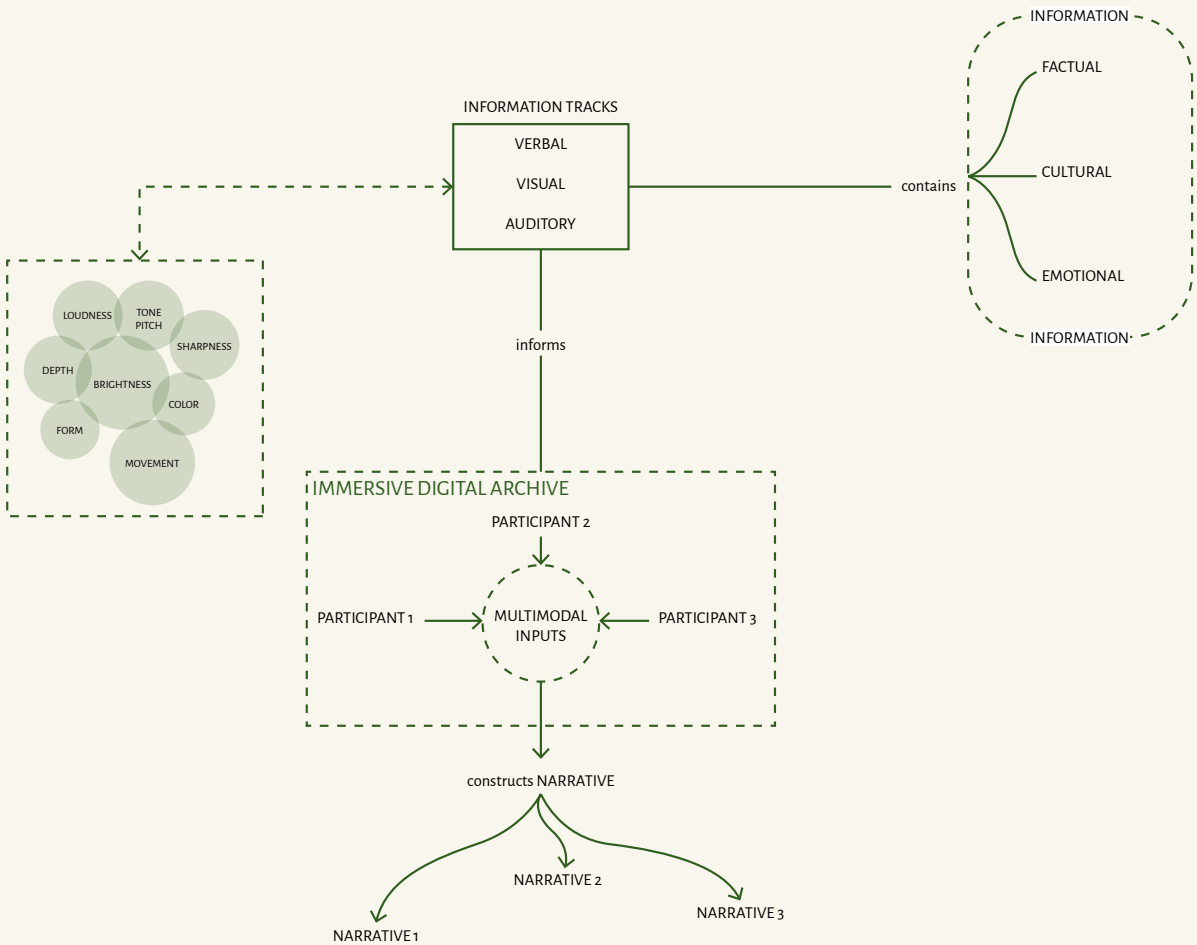


Figure 5.1 — Multimodal digital storytelling can be seen from a cognitive point of view where participants can use multiple modes to communicate a story (Belmonte et al., 2013)

Construal Level Theory

Trope and Liberman (2010) theorize that psychological distance is egocentric; placing an individual as a reference point to an event in comparison to a place or a person — in the here and now. An individual uses him/herself as a point to think about an event and how that relates to them using different distance dimensions — temporal, spatial, hypothetical, and social. The farther away an event is from direct experience, the higher the level of construal, and the more likely that an event becomes an abstract representation. The closer an event is from direct experience, the lower level of construal, which becomes a concrete representation. Psychological distance is a subjective experience. The study will focus on how the self relates to family narratives using psychological distance to visualize the storytelling experience. See Figure 5.2.

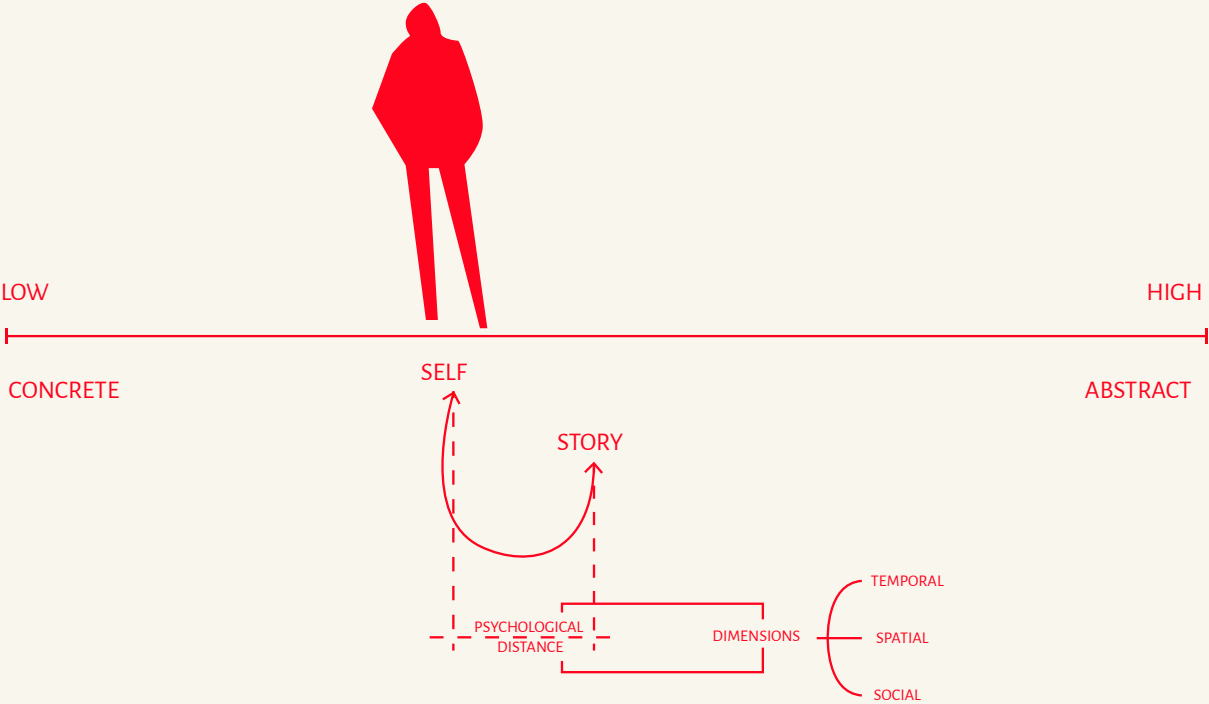


Figure 5.2 — Construal level theory adapted from Trope & Liberman, 2010; uses the self as a reference point to event or story

**Narrative Characteristics** Fivush et al. (2004) coded and analyzed how family narratives are co-constructed into five characteristics — collaborative, cooperative, child-centered, facilitated/moderated, and disharmonious. The characteristics are not mutually exclusive; families can display multiple characteristics at any given event. These family narrative characteristics can be seen as a way to make a story. See Figure 5.3.

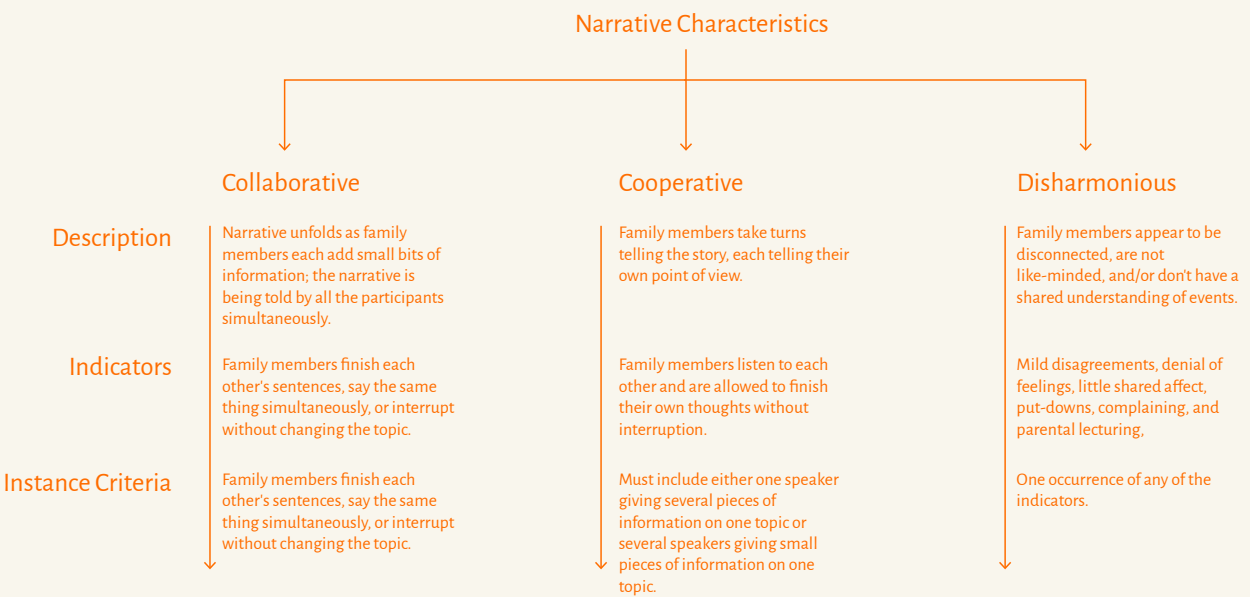


Figure 5.3 — Narrative characteristics adapted from Fivush et al., 2004; looking at ways families tell stories

**Honeypot Effect** Cox et al., (2016) describe how people interact with, approach, and engage with a system by breaking down the experience into smaller experiences. The process is broken down into two types of people who are engaging with the information: an observer or an interactor. The framework looks at the influence of the spatial configuration, the zones of engagement, and the activities that take place to get an understanding of where people feel the most compelled to interact with the system. See Figure 5.4.

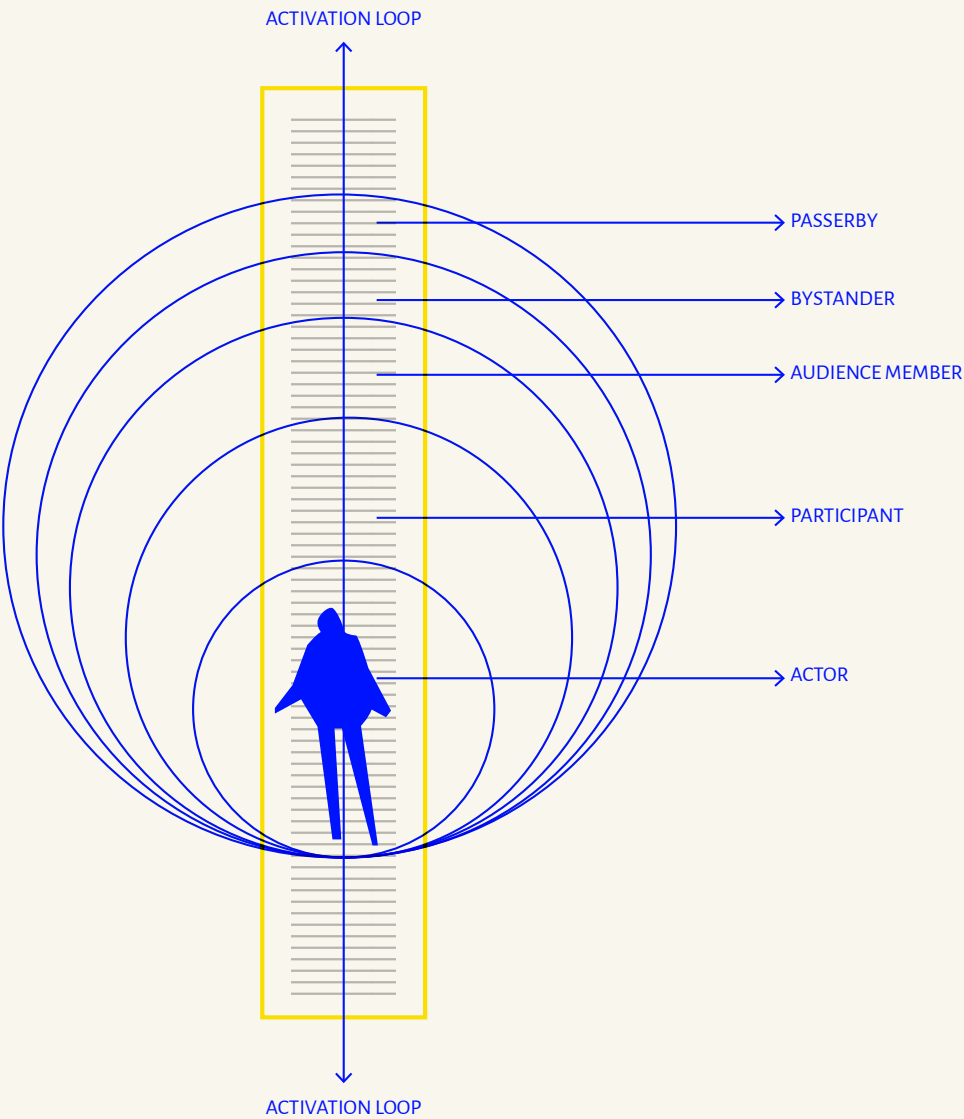


Figure 5.4 — Honeypot Effect adapted from Cox et al., 2016; showing the different levels of engagement

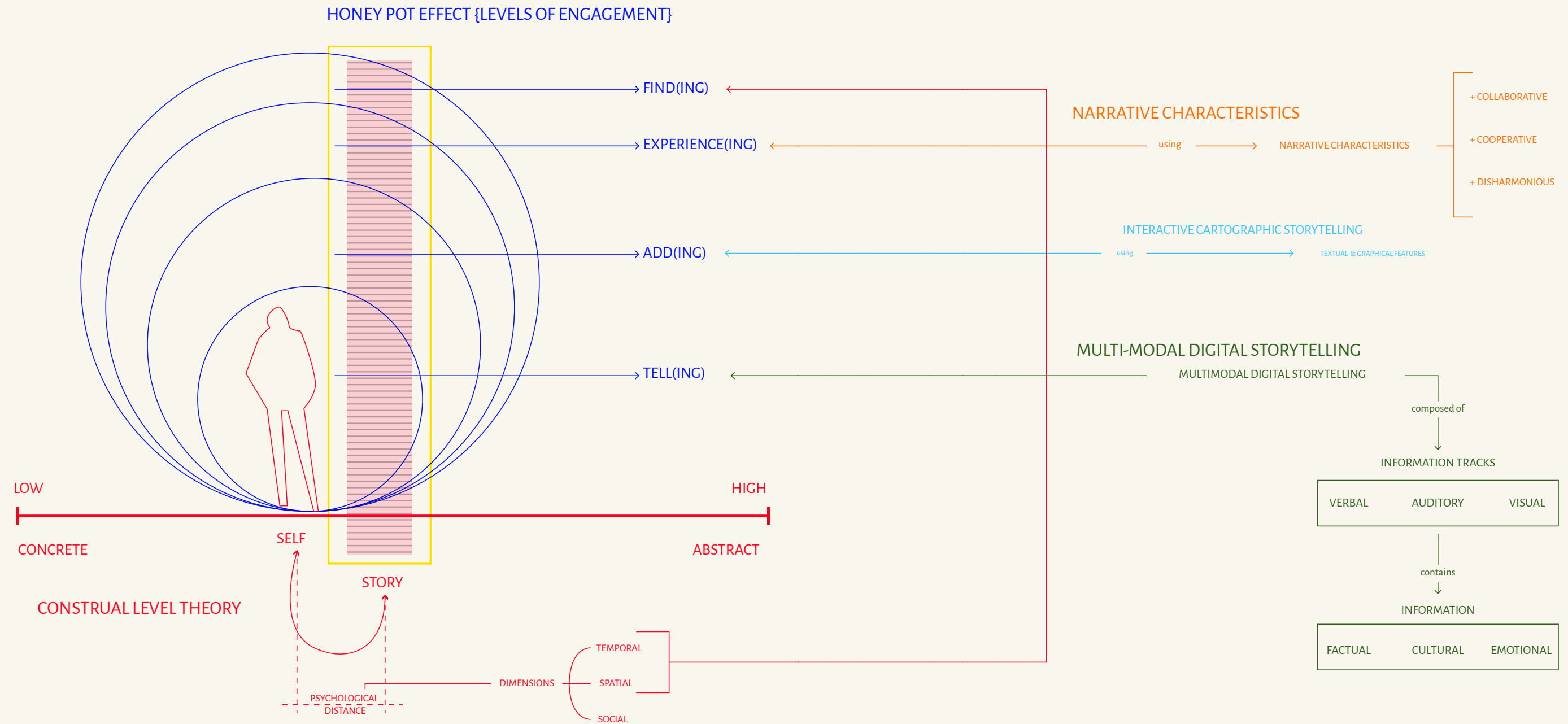


Figure 5.5 — Conceptual framework blends multimodal digital storytelling, construal level theory, narrative characteristics, and the honeypot effect



5.2 Research Questions

- Main Research Question

How can a *dynamic* and *multi-dimensional digital archive* interface promote *representational belonging* amongst distant, *transnational family members* using *multimodal inputs* to visualize and experience a narrative?
- Subquestions

01

How can the design of a visualized story reflect the behavior of its narrative construction using experiential space and time?

02

How can the design of a multimodal input interface promote the telling and re-telling of family stories?

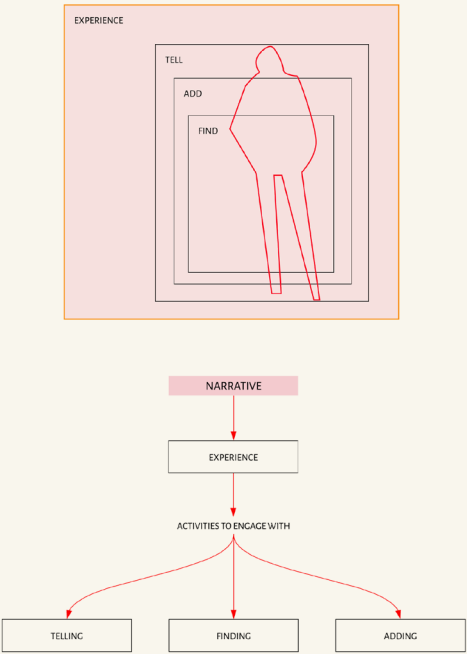
03

How can the design of an additive space encourage individuals to build on existing stories in the digital archive using graphical and textual features?

04

How might temporal and implied spatial distance in an interface help individuals navigate and find stories in an archival landscape?

Figure 5.6 — A diagram to illustrate the different parts of this investigation: experiencing, telling, adding, and finding



Investigation Framework

I developed and adjusted the investigation framework throughout my research and visual explorations to refine and situate the studies in (Figure 5.7). The components that make up a storytelling experience is diagrammed out in Figure 5.6. Narrowing and focusing down these activities into experiencing, telling, adding, and finding defines the scope of this research, which allowed me to design for these specific moments rather than the whole storytelling experience. Each activity that takes place in the storytelling experience becomes a subquestion. See Table 5.1 for the definition of terms.

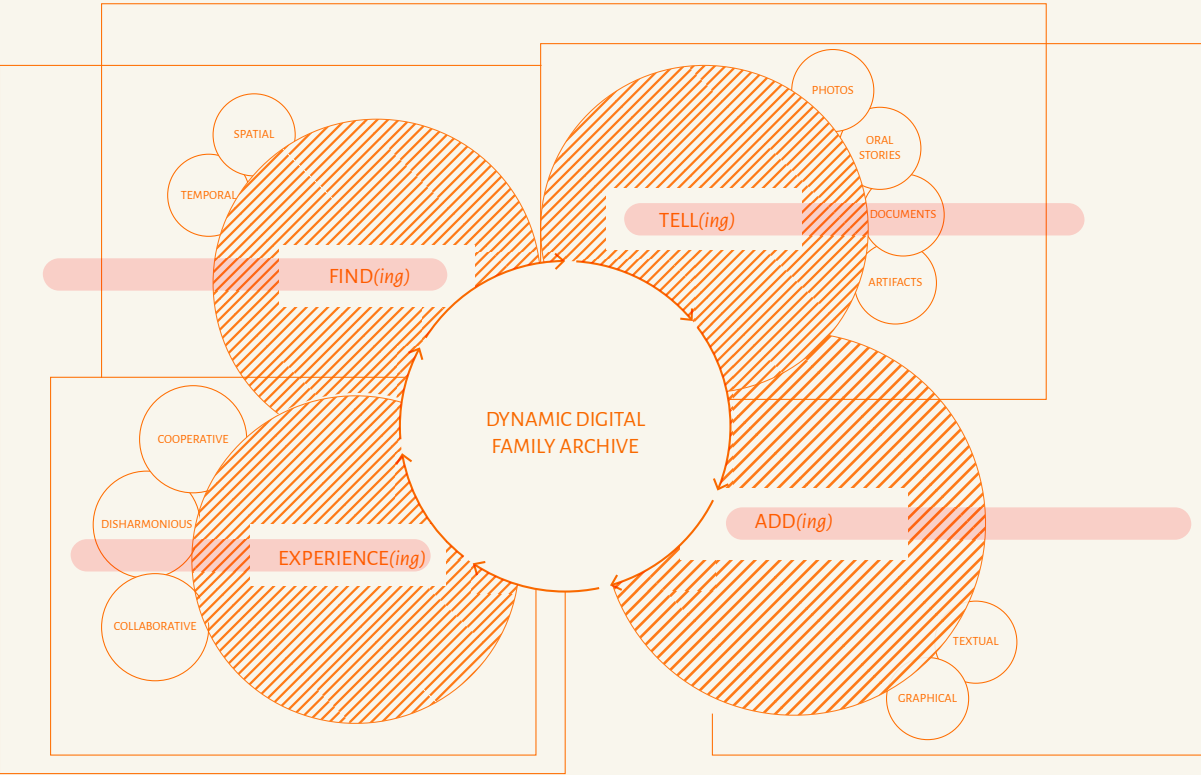


Figure 5.7 — Holistic overview of the investigation framework, each representing a different activity in the storytelling process

TERM	DEFINITION
Ontological security	A state of being and existing in the world; asserts identity through time (present and future).
Representational belonging	Representing individuals using community archives to empower those who have not been reflected by mainstream media.
Transnational families	Family members that are multi-positional; living apart but creating a sense of collective familyhood. A state of in-betweenness.
Multimodality	A theory of communication where more than one mode is used to communicate.
Mode	A means of communicating, the five modes are: visual, linguistic, spatial, aural, and gestural.
Information tracks	The three channels that are used to communicate and construct a narrative (verbal, visual, and auditory).
Storytelling	Social and cultural sharing of stories to create a narrative.
Digital archiving	A space to preserve and provide access on a digital platform.
Meaning-making	A process of how people construe, understand, make sense of life events, and self.
Family archive	An organized collection of personal heirlooms and meaningful documents, the purpose to collect, gather, and preserve those moments.
Archivist	A person who collects and maintains fragmented pieces of information or the archives.
Archive	A collection of historical fragmented pieces of information, documents, or records about a place, person, or institution that creates a cohesive whole meant to be accessed for the present and future.

TERM	DEFINITION
Curator	A person who is in charge of assembling, cataloging, and managing the archives.
Narrative	Narratives are a particular modality and form of human thought, it is a way of thinking; a creative act. Narratives are created through individual experiences that place them as a unique historical event and require thinking about these events in terms of meaningful temporal episodes based on human intention and motives. Narratives are used to understand everyday human life and activity, they are not just reproductions of personal life experiences, but reconstructions of the past in the present. It involves the possibility of reconstructing the narrative differently at different points of an individual's life depending on their perspective. (Pratt & Fiese, 2004)
Story	A description of past events or experience in someone's life or the retelling of something that occurred — stories can be experienced first-hand or retold second hand.
Collection	A group of artifacts — documents, photos, records — systematically collected and ordered.
Family	A unit of people with at least one parent and one child, which can be immediate or extended and includes grandparents, uncles, aunts, or cousins.
Memory	When the mind stores information and can be retrieved to relive moments of the past or to remember something.
Oral stories	A story that is told orally, speaking out loud into a space and it creates a relationship between the audience and the teller of the story.
Multidimensional	Including several dimensions - the x, y, and z axes.
Participatory archiving	Allowing more than one person to archive information through participation.

Table 5.1 — Definition of terms



# +Methods

The methods used for this study helped guide the research and design process; adapting each one to help with my design investigation to empathize with the participants and create interfaces that meet their needs (Martin & Hanington, 2012).

**Literature Review** Creating a literature review helps collect and synthesize the findings to understand the problem space and identify the gap; used to help inform the design research project. Emerging themes in the literature are self-discovery & ontological belonging, digital archiving, family history narratives, storytelling, and immersive technologies.

**Personas and scenario maps** Using the information from surveys and research, I developed personas to create a design that better addresses the person's needs. Scenario maps speculate on what the pain points are by mapping out the person's path. The process of developing personas led me to build a series of scenario maps that look at how families interact with each other when the family is all living together and progresses to how transnational families interact with each other.

**User journey maps** Visualizes the experience people have and what the possible design interventions could be by mapping out their path and emotions.

Research through design	This method encompasses the design process, which includes prototyping, ideating, iterating, etc. It combines methods and theories from design practices (secondary design research) and bridges it with exploratory research through the process of design to arrive at the right solution.
Prototyping	Creating experiences and explorations that people can give feedback on, participants can test and improve the design. The explorations use different levels of fidelity, which allows for people's thoughts throughout the whole process
Storyboards	Uses a series of small drawing vignettes that provide a visual narrative on how the technology will be used and its impact on the participant. By organizing the drawings sequentially, each vignette shows how they are affecting and influencing each other.
Think-aloud protocol	This method requires participants to verbalize things that they're doing and thinking out loud while they interact with the interface and technology; it illuminates frustrations, satisfactions, and overall emotions.
Interviews	Interviews help gather data from individuals about experience, perceptions, and opinions. Conducting a series of interviews to further my understanding of transnational family members by interviewing international students and researchers who are looking at community-driven archives and diasporic multigenerational family members.



CHAPTER 7	045	7.1.1 Precedents
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	056	7.2.1. Experienc(ing) Family Narrative Characteristics
	074	7.2.2. Tell(ing) a Story
	098	7.2.3. Add(ing) to a Story
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	126	7.2.5. Synthesiz(ing) the Experience

+Results

7.1. Precedents & Interviews

**7.1.1. PRECEDENTS** To inform the making and research, I looked at existing design applications and visualizations that capture stories. The objective was to study each precedent by looking at its benefits, limitations, and opportunities for design intervention. These precedents look at multi-dimensional visualizations, storytelling, digital archives, and narrative construction. Each one of these precedents contributed to my own research by providing real examples of interactions and forms of representations that I used as stepping stones for my studies.

**Information Landscapes** Muriel Cooper and her students at Massachusetts Institute of Technology (MIT) designed a new interface during the Visible Language Workshop that looks at how people read and perceive information in a three-dimensional space (Figure 7.1). The complexity of the space and layering of information creates an interesting experience, where going in and out of these spaces feels endless and limitless. The information is displayed spatially and nested within each other.

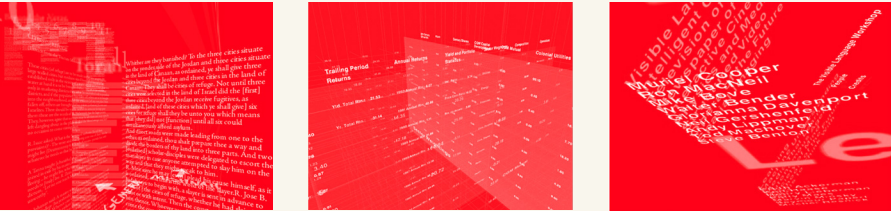


Figure 7.1 — Screenshots of the Information Landscapes digital interface

**The New Historia** Lisa Strausfeld and the New Historia collaborated to design and document women in history (Figure 7.2). The objective of the virtual reality (VR) experience was to call out invisible women in history using a 3D visual representation of time and meaningful connections across their work. The 3D space used the x,y, and z coordinates for time, individual, and each individual's contributions connected to each other using lines. By using VR as a way to experience the information, participants are immersed in history. The typography that was used in the VR experience reacts to the participant by flipping the text around, allowing for the information to be read at any given time in space.

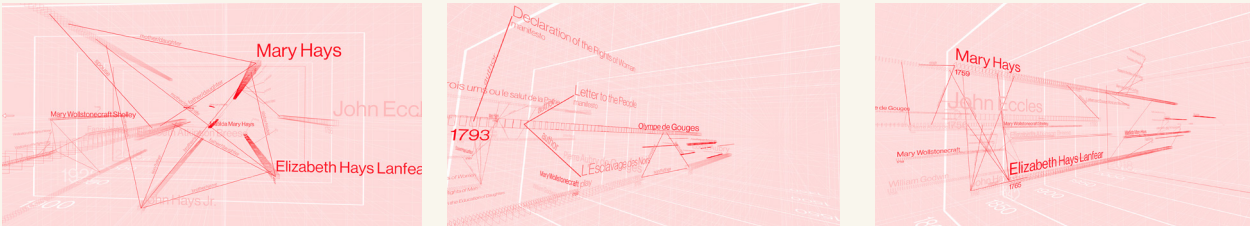


Figure 7.2 — Virtual reality experience showing type in three-dimensional space

**3D Reading Studies** In this study, Lisa Strausfeld asks the question of “can 3D presentations of text documents allow us to see something we can’t on the page?”. These studies serve as ways to explore 3D space in virtual reality or in an immersive space and how information can be viewed and experienced (Figure 7.3).

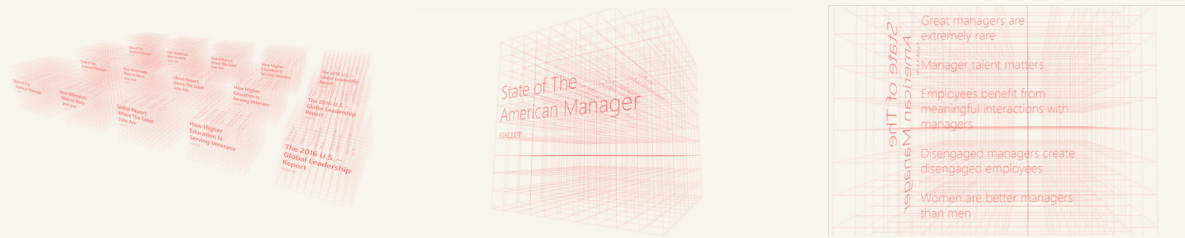


Figure 7.3 — Three-dimensional reading studies that explore three levels of document hierarchy

**Ricera** This project uses different media for visual storytelling (Figure 7.4); moving the way we experience the story from a projection to an immersive VR experience. Ricera tells the story of a man searching for his memories; a story of things lost and eventually found. The project explores different visual methods for narrating a story.

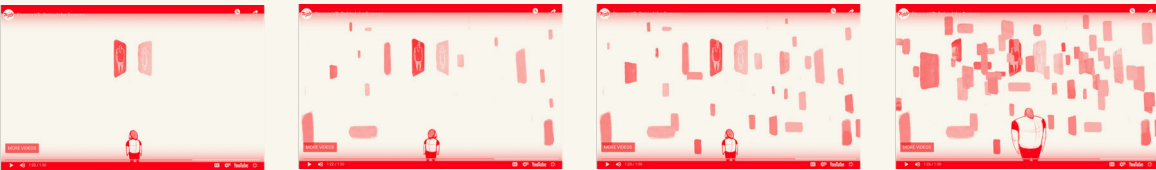
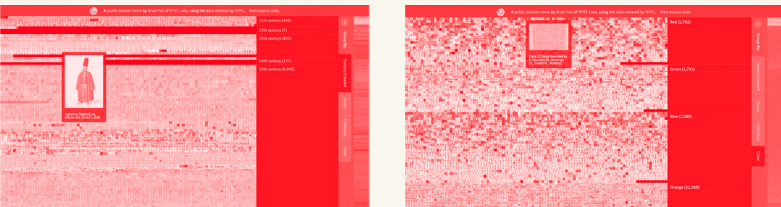


Figure 7.4 — Sequential screenshots of a visual story, showing the progression of the character from child to adult

**The New York Public Library Digital Collections** The New York Public Library archives photos and documents in a grid (Figure 7.5) that can be searched based on specific criteria like color, century, genre, and collection. The platform allows for serendipitous discoveries due to its zoomed-in call-outs when the user causes the cursor to hover on an image. The bar on the far right contextualizes the viewers' position.

Figure 7.5 — An overview of the archived photos in the New York Public Library Digital Collections





**Stereogranimator** The Stereogranimator is a website platform that allows an individual to create a GIF from still images as a way to bring the images to life (Figure 7.6). It empowers the participant to create a GIF with specific speeds and photographs, and it also allows users to specify the movement of the image.



Figure 7.6 — Reactivating archived images by transforming them into animated GIFs

**Photographers Identity Catalog** The Photographers Identity Catalog (PIC) is an interface that catalogs photographers and their biographical data. The interface (Figure 7.7) visualizes the world in different forms: flat, 3D, or columbus view. Such forms create organic and flexible interactions for viewers to conceptualize the information. The photographers can be found on the map shown below; attaching people's photos to a specific place. The tagging system is one way to search for photos and track their original location; the second way to search is through the use of filters to narrow down potential search results.

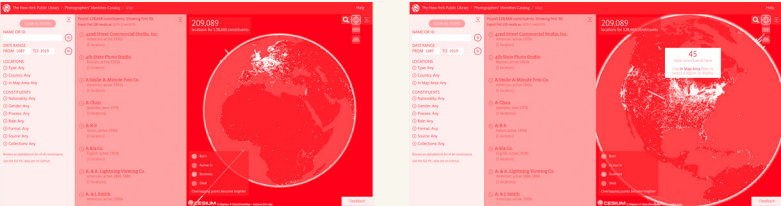


Figure 7.7 — Photographs tagged to a specific location on the map using metadata

**A-Frame** A-Frame is an open-source web platform that allows participants to experience and create their own virtual reality environments with basic knowledge of coding. The website (Figure 7.8)uses an entity component-based coding system, which allows for faster environment building. All projects that are created with A-Frame are hosted on the website, allowing for quicker access across multiple computers.

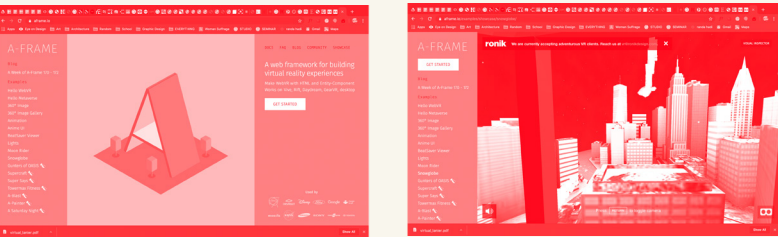


Figure 7.8 — Web based framework for building virtual reality experiences

**Storycorps** Storycorps is a non-profit organization that focuses on collecting, sharing, and preserving people's stories through interviews. Storycorps emerged out of the need to record and document everyone's voice, because all stories matter. It creates an invaluable archive for future generations to look back on oral histories. The app (Figure 7.9) helps users prepare and record interviews. The preparation aspect of the app allows its user to pick, customize, and search questions based on themes. People can also browse and listen to recorded interviews based on a theme or through searching.

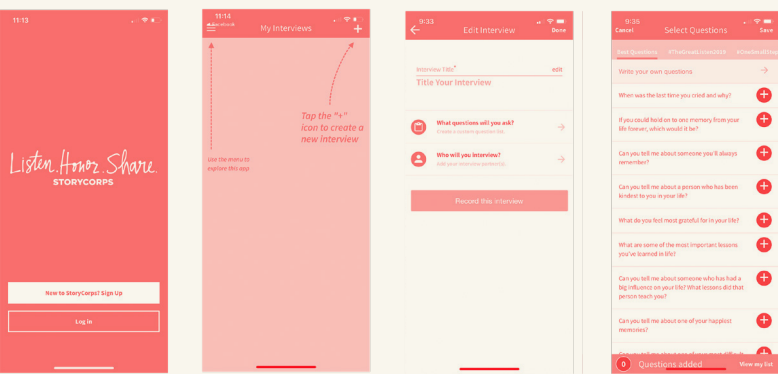


Figure 7.9 — Creating a list of interview questions on Storycorps by writing them or picking from an existing list

### New Dimensions in Testimony

Future of StoryTelling looks at how storytelling is evolving with digital technologies. The project New Dimensions in Testimony (Figure 7.10) is an interactive installation where participants can virtually ask Holocaust survivors questions. This project looks at how to preserve and archive the dialogue between Holocaust survivors and learners for future generations. The main focus is on cultural stories and their impact on participants. The exhibit features a video recording of the survivor, which creates a perception that she/he is in the room responding to individuals' questions.

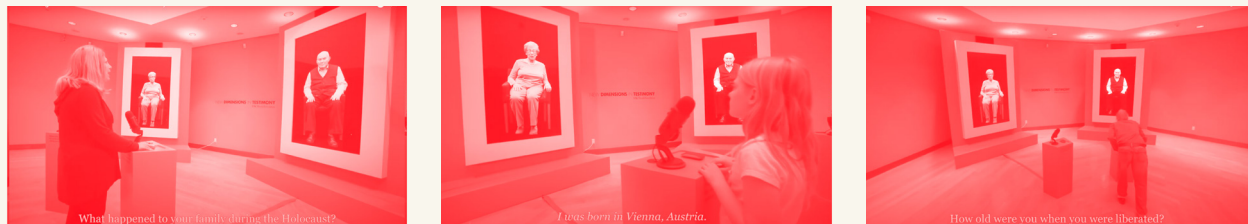


Figure 7.10 — Visitors interacting with a Holocaust survivor through a digital and physical experience

### Moving Archives

Brian Foo creates an immersive archival experience using patterns, rhymes, and textures of videos from the public image moving archives (Figure 7.11). This project gathers videos into a single space, making a commentary on how it would take years of continuous viewing to scratch the surface of an archive. The videos are placed on a grid and use algorithms to visualize the movements — proliferation, waves, falling, orbits, shuffle, stretch, flow, and splice.



Figure 7.11 — Immersive patterns, rhythms, and textures embedded with public footage; moving image archive

### Uncertain Archive

The website functions as an archive, uncertain in the ways with which individuals float in the dimensional space (Figure 7.12). It uses tags as a way to codify the projects that were created by Olafur Eliasson using certain words. Users can discover projects by drifting in between the projects or using the connections; different searching experiences. After the projects load, it gives the user a list of navigation keys to further enhance the experience. Drifting through the projects gives users a feeling of floating and being immersed into the landscape. Using connections gives users the ability to filter through what they are looking at. Once an individual clicks on a tag, it creates an orb of all the projects. A person also has the ability to add more tags, creating a complex web of orbs and connections with similarities in between. The two different experiences create a unique dimensional space and give the individual agency over what path they want to take.



Figure 7.12 — Uncertain interactions in the archive, which allow users to pick a tag that creates connections across projects

### Family Maker

This project, which was created by Ryan Kuo, looks at how a user might navigate family dynamics, whether they are familiar or unfamiliar with their family, through a Mac application (Figure 7.13). The experience is similar to a game, allowing the user to unlock information about their family and explore like a puzzle. The experience starts off with one box that expands based on what a user clicks on. This kind of interaction creates an opportunity to make the unfamiliar, familiar through poetic support. Family maker places an emphasis on the process of going from unfamiliar to familiar family dynamics.



Figure 7.13 — Progression of the interaction on Family Maker, where the interface populates with different puzzles



**Story Circle** Dan Harmon created the story circle (Figure 7.14), which suggests that the structure of every story is the same and can be applied to any piece of the story — character, tone, or theme. The circle is broken into 4 quadrants: top, bottom, left, and right. The top and bottom can be seen as a relationship between order and chaos, while the left and right can be seen as stasis and change. A person in the story crosses the quadrants that are the thresholds. The circle is composed of eight components:

- 1. A character is in a zone of comfort
- 2. They want or need something
- 3. They enter an unfamiliar situation
- 4. They adapt to it
- 5. They find what they wanted
- 6. They pay a price for it
- 7. They return to their familiar situation
- 8. They change

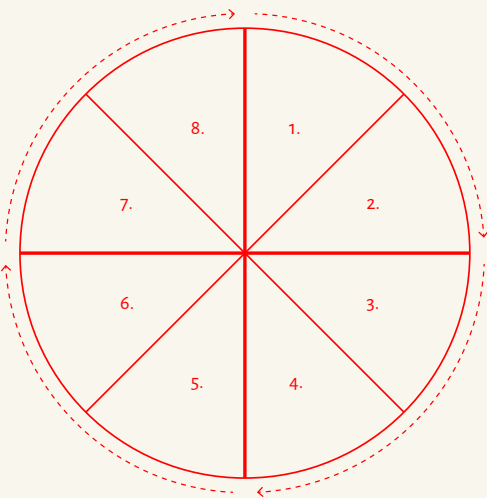


Figure 7.14 — The story circle showing four major quadrants with each pie as a critical transitioning moment in the story

**Perspective Reading** Ji Kim created this project titled perspective reading, where she explores the transition from a two-dimensional flat surface into the digital three-dimensional space (Figure 7.15). The z-dimension is used to reveal both the text and image together, creating a “book space” and “book surface”. Through this project, both the physical and digital space are seen as infinite.



Figure 7.15 — The reading shifts from a two-dimensional plane to a three-dimensional plane revealing photos in the z-axis

**Mirador** Mirador is an open source web-based digital image viewer that supports zoom analysis, image comparisons, and annotation of high quality cultural heritage images (Figure 7.16). With Mirador, individuals have the ability to annotate images from the archive using different forms like a square, circle, or a free-form shape. Image comparisons can include up to a 5 by 5 grid, which compares 25 images. The text and image annotations are made invisible and hidden at first glance, therefore, requiring interaction to view the added information. This web-based platform is dynamic, allowing individuals to select their preferred viewing mode and annotation preferences.

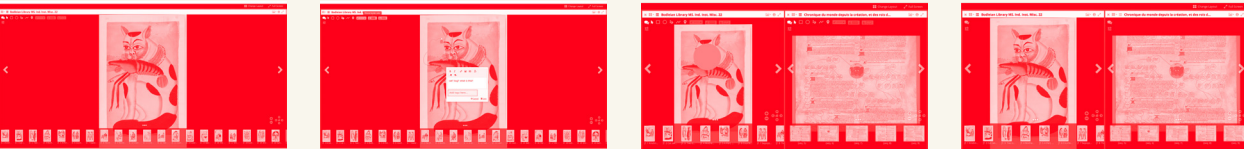


Figure 7.16 — Annotating on images through framing one image or a comparative interface

7.1.2. INTERVIEWS	<p>Throughout my research, I have reached out to multiple people to get their perspective and input on digital archiving for families to better understand how, when, and at what point they share family stories. I spoke to a community archivist, a journalist, an educator, a photographer, and domestic and international students. Each person provided valuable feedback and offered insight into how the project can be expanded and pushed further. The interviews I conducted were semi-structured, which allowed me to ask open-ended questions and have a more fluid conversation based on the interviewee’s responses. The structure of the interviews gives a brief description of who the person is, the key takeaways, and what the outcomes were from our conversation; for more detailed descriptions of the interviews see Appendix B.</p> <p>Conducting interviews and having these conversations helped me identify what types of stories families share, how they share them, and elements to take into consideration as I continue with the research. I found these insights most useful to moving forward with the investigation:</p>
Goal and Value Driven Community Archives	<p>Community driven archives provide a framework for this digital archive to function under. Community driven archives are driven by goals and values that the community agrees upon. Taking this into the archive for families recognizes that families need to set their own values and goals, placing the decision-making process in their hands.</p>
Reactivating Archives	<p>Providing means for people to reactivate their family archives entails annotating and expanding on artifacts and stories. These annotations should exist beyond commenting on a blog post or on a social media account. Building a digital archive allows family members to reactivate their family stories by engaging and preserving both the material and immaterial appurtenances.</p>
Multigenerational Participation	<p>Stories are shared amongst multigenerational family members, providing opportunity for everyone to participate and partake in the telling of stories. Through this, the family archive captures multiple point of views, perspectives, and varying degrees of storytelling. The degrees of storytelling refers to the degrees of separation between an individual and the story. For example, first hand storytelling is when the event directly happened to that individual vs. fourth hand storytelling is when someone shares a story that did not directly happen to them.</p>
Complexity in Time and Space	<p>Representing stories through complex forms allows for family members to interpret the stories in ways that reflect complex transnational issues. Due to the layered aspect of transnational family experiences through time and space, the representation should reflect that.</p>
What, When, and How Stories are Shared	<p>Sharing stories with families tend to be centered around family holidays, special occasions, and gatherings. This indicates that families are more inclined to share stories when it includes a large amount of people in the space, for example</p>

Alternative Ways of Telling Stories	<p>sharing a story at the dinner table. People who live far from home were reminded of their families during these special occasions that hold cultural heritage.</p> <p>There isn't one right way of telling a story, there are multiple ways to tell a story. Providing families with multimodal communication options opens up the possibility for individuals to share and express themselves freely. This allows family members to generate their stories through one or multiple modes that they feel most comfortable with.</p>
Importance of Oral Stories and Histories	<p>Recording oral stories and histories is important because it captures short-lived ephemeral moments. The most common way of sharing a story is through oral storytelling, which is emphasized and supplemented with photos, documents, and other visual objects. To most, oral storytelling is considered widely by many as an intimate activity.</p>

7.2. Studies

The details of family histories and stories are elusive at best. They are not singular; they are diverse with multiple perspectives that are collectively constructed. These studies bring forward those characteristics and shift the perspective and emphasis from the story to the experience by prioritizing family narratives. That is not to say that the story is not important, but that it comes secondary to experiencing, recalling, telling, adding, and finding the story by capturing the ephemerality and complexity of it.

These studies are situated in the future to speculate how future interactions and interfaces might exist. Because of that, most of these visual studies take a three-dimensional form due to the spatial nature of a storytelling experience that takes place in a physical space. These studies do not try to mimic a physical experience; rather, they take lessons and use the digital space to enhance and create new ways of experiencing the complexity of a story — the experiencing, telling, adding, and finding. People and stories occupy the physical space. The way information builds on each other in the space it occupies makes a storytelling experience in the physical space so unique. The sound bounces off the walls, people use hand gestures to communicate and point to things, and you can read people’s facial expressions. You have to be there to understand the multilayered, complex nature of the story. You simply cannot just translate that digitally. These investigations look at the activities (telling, adding, and finding) that happen within a storytelling experience.

Each one of these studies addresses a specific moment in the storytelling experience — moving from an intimate, direct relationship to a distant, passerby interaction with the story. A digital three-dimensional space provides an area to layer multiple modes of communication — creating forms that enhance the experience and make it more tangible and concrete than if it was as a two-dimensional space.

The approach to all of the studies started off with quick visual explorations to get a better understanding of the most efficient way to address the studies more deeply and generate insights through making. The visual exploration phase is meant to be quick, be iterative, and show breadth over depth. These studies raise important questions and implications that are addressed deeply in other phases of the study. The second phase of the process is intended to dive deeper into the designs that have potential.

How can the design of a visualized story reflect the behavior of its narrative construction using experiential space and time?

7.2.1. EXPERIENC(ING) FAMILY NARRATIVE CHARACTERISTICS

The investigations for this study emphasize how family narrative characteristics can be used to illustrate a storytelling experience. Family narrative characteristics are the ways families tell stories and the ways individuals experience them through the act of telling. Fivush et al. (2004) synthesizes five family characteristics in a framework. Out of the five characteristics, I focused on the three family narrative characteristics, which relate more closely to my research. Figure 5.3 lists the three family narrative characteristics on which I focused, and each characteristic's description, indicators, and instance criteria. Table 7.2 synthesizes the design terms, which were used to visualize the three family narrative characteristics, and which I extracted after the initial visual exploration phase.

Visual exploration phase

During the visual exploration phase, I explored the representation of the three family narrative characteristics by pulling out terms that were used to describe them through design (Table 7.2). The studies do not question the reasoning and logic of the forms; instead, they focus on interpreting the essence of the family narrative characteristic. Figure 7.17 shows a series of form study sketches that explore the different ways the narratives can be captured. One of the visual studies (see Figure 7.19) looks at cultural visual language as a means to represent family stories, specifically looking at the Arabic language and type as a thing to deconstruct and fragment. This exploration rethinks of the interface as a cultural translator. Another cultural visual language that was explored was the Middle Eastern pattern that was pulled apart and put together (Figure 7.20). The idea is that the fragments would look unrecognizable until they come together to create a cohesive whole. Figure 7.23 shows a series of visuals to get a better understanding of how these narratives could be experienced and looks at all three of these family characteristics together at once. These visual explorations helped me with the next step of the design process because it clarified which form was best to experience a family narrative.

EPHEMERAL EXPERIENCES

SCENARIO 01 COLLABORATIVE		SCENARIO 02 COOPERATIVE		SCENARIO 03 DISHARMONIOUS		
time based experience		personalized path experience		time based experience		personalized path experience
SCENARIO A AFTER SHARING						
SCENARIO B (MEMORY RECALL) REMEMBERING						
SCENARIO C HOLIDAYS/SPECIAL OCCASIONS						

TIME BASED EXPERIENCE

\* Everything placed in chronological order

→ AS IT IS

PERSONALIZED PATH EXPERIENCE

\* Customizable path by drawing out the order of the storytelling experience

→ CREATE YOUR OWN

Table 7.1 — Investigation Framework for study one summarizing the type of family narrative and moments where people share their family stories

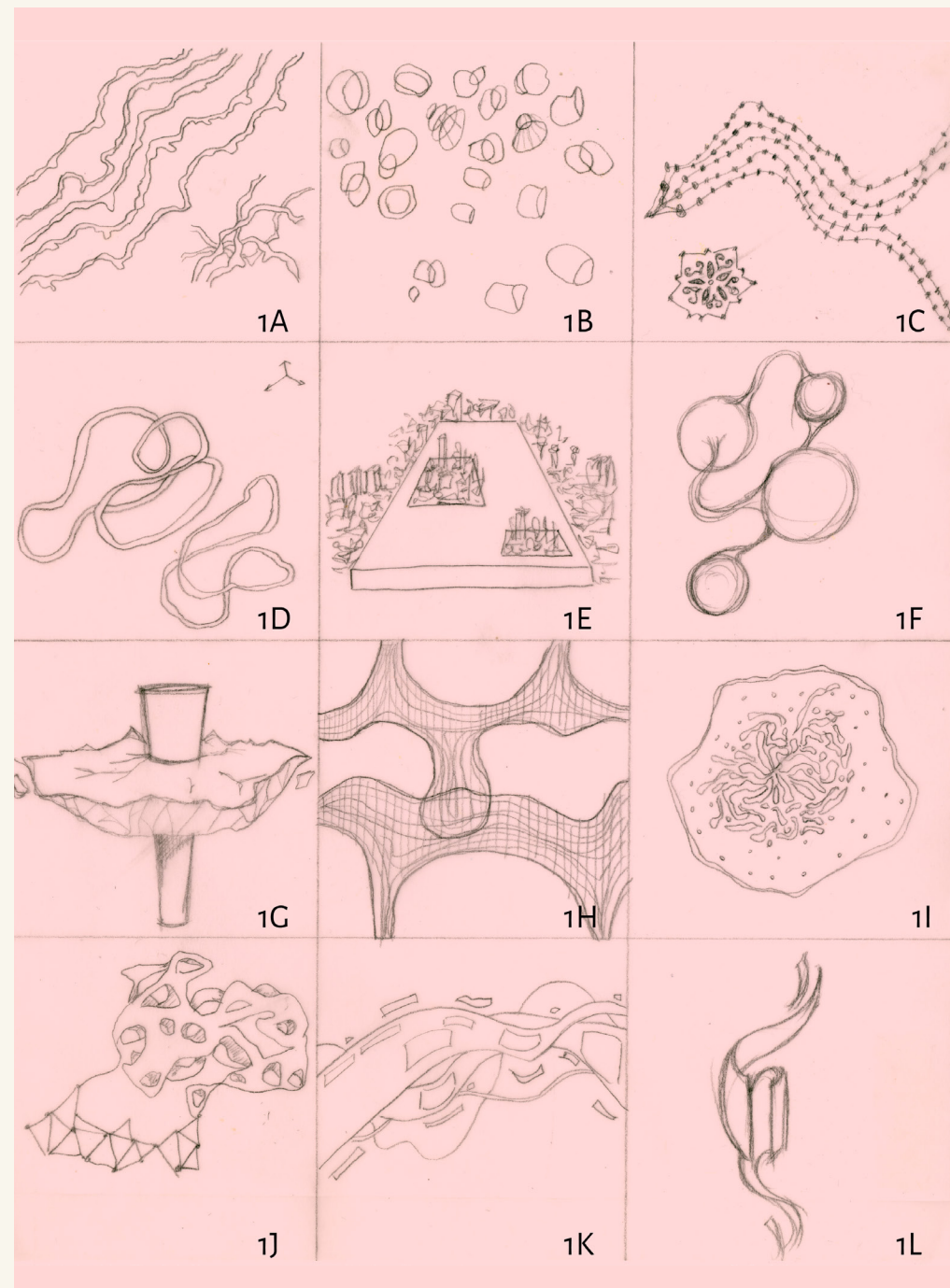
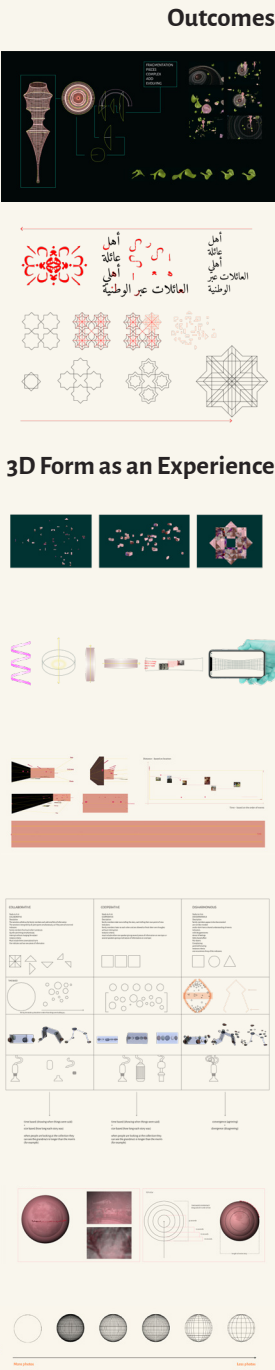


Figure 7.17 — Sketched form studies exploring the potential for various shapes in which the story could live

- 1A.** Visualizing organic forms as individual strands and as jumbled strands to show their relationship to each other,
- 1B.** Circular forms that can be layered on top of each other with connections made across horizontally or through layering.
- 1C.** Similar to a data visualization with points as different parts of a story and the line as the through line created by the family.
- 1D.** Three-dimensional organic ribbon strands that are continuous and loop into each other.
- 1E.** Using architecture as inspiration for a shared narrative (through-line) that is placed on top of a landscape of stories (an agreed story)
- 1F.** Spheres as the different parts of the story with connections made between the spheres, inspired by elasticity.
- 1G.** Taking from the physical environment a nail stuck on a concrete block, which is seen as one part of the narrative that's broken off into little chunks.
- 1H.** Thinking about gravity and mesh grids, how certain things with weight in them can affect the grid.
- 1I.** Inspired by bacteria — like a story spreading from the center expanding outwards.
- 1J.** The transformation from lines and nodes to an actual structure that has gaps, but is robust enough to tell the difference between “complete story” vs. “story in progress”.
- 1K.** Ribbon type structure that floats in space horizontally (animation).
- 1L.** Exploring the x and y axis of a story (exploding upwards) where you can see the start and end of a story.





Through my visual exploration phase, I determined that it was important to be more intentional when addressing the temporal aspects of storytelling. One of the advantages that digital technology has is the ability to not only capture ephemera that happens during the telling of a story but to rearrange those captured moments. The design of the digital archive should address such rearranged captured moments. The design of the space should reflect this dynamic space by introducing two types of temporal experiences: time-based (chronological) and personalized path. The time-based experience allows the user to go through the story in chronological order—the order in which the story was told. The personalized path experience allows the user to draw a path, which gives the user more agency by changing the order in which the story was told. By allowing the person to change the order of the story, new information and new ways of reading the story emerge.

Through the visual exploration phase, I determined that the form itself was not as important as the principles that could be extracted by what the form brings. For these set of explorations, I focused on experiencing a story through the form of a sphere. I wanted to use a form that felt organic and continuous. During the visual exploration phase, I used multiple spheres that nested within each other to tell a story (figure 7.24). Spheres are a common 3D form that are used for use interfaces in virtual reality. Its function was inspired by the narrative ecology of self (Figure 1.1). Figure 7.25 shows how a sphere can be articulated with contour lines showing full articulation when the story has more photos and less articulation with less photos. As determined in the visual exploration phase, digital technologies lend themselves to create adaptable and flexible interactions. Using the affordances of digital technologies, which allow for adaptability and flexibility, the experience should address both a story in chronological order and in a customized path. The two types of experiences (time-based and personalized path) are evident in all family narrative characteristics. The investigation framework as seen in Table 7.1 shows the explorations are situated within this matrix, and each other.

Ref. figures — See pages 62–67

Table 7.2 — The three family narrative characteristics and the extracted design terms

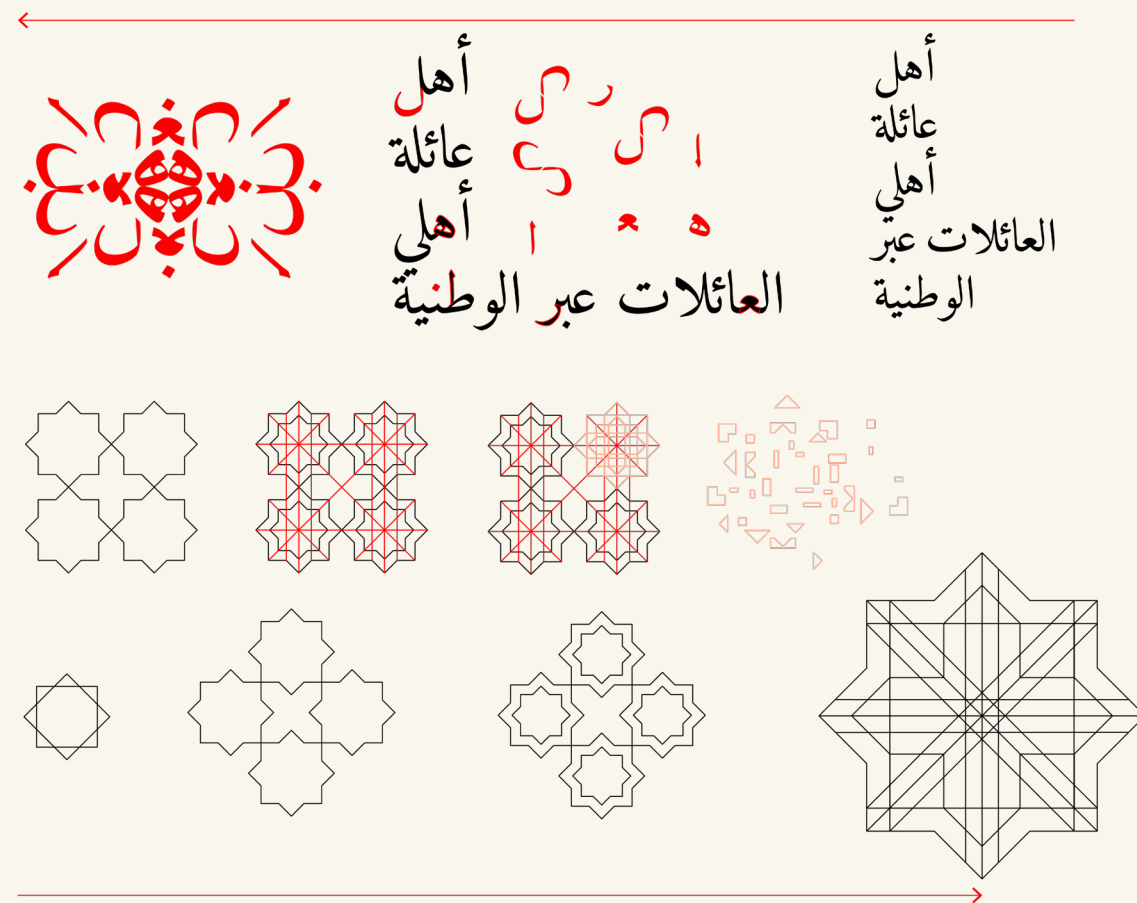
FAMILY NARRATIVE CHARACTERISTIC:	EXTRACTED DESIGN TERMS:
Collaborative	Fragmentation Pieces Fit together Integrated whole Complex Simultaneous
Cooperative	Own perspective Turn-taking Uninterrupted Full story Verified
Disharmonious	Disconnected Isolated moments Divergence Convergence



Figure 7.18 — Exploring a collaborative storytelling experience as fragmented pieces floating in an endless digital space

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/travel.mp4>

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/travelspace.mov>



*Figure 7.19 — Using the Arabic language as a cultural visual metaphor that holds the stories*

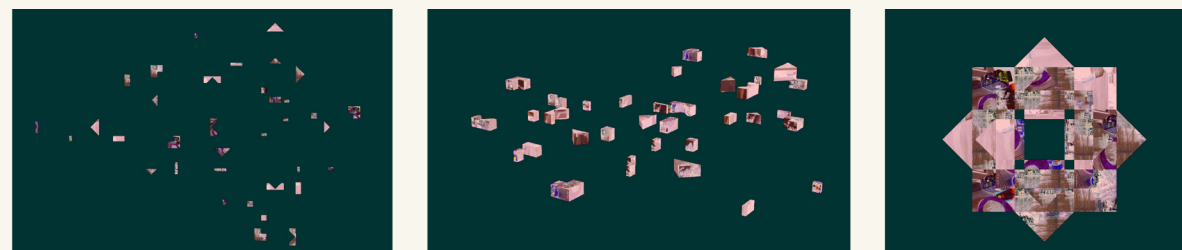
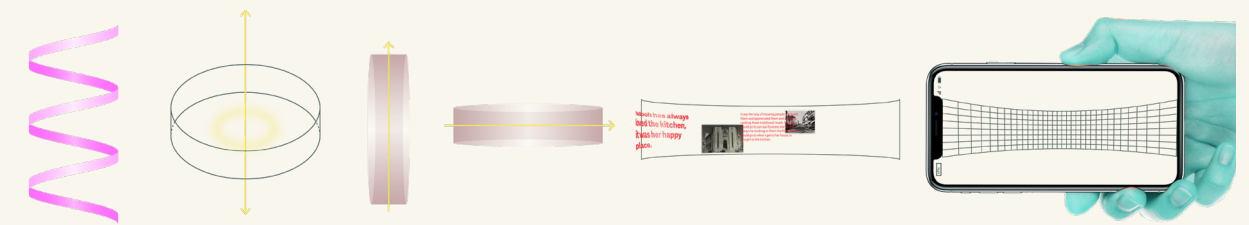


Figure 7.20 — Using a Middle Eastern pattern that is unrecognizable as fragments but comes together as a cohesive whole

See the animation at:  
[https://college.design.ncsu.edu/  
thenfinally/hadi/cultural.mov](https://college.design.ncsu.edu/thenfinally/hadi/cultural.mov)



*Figure 7.21 — Using a ribbon schema as a way to navigate between the stories*

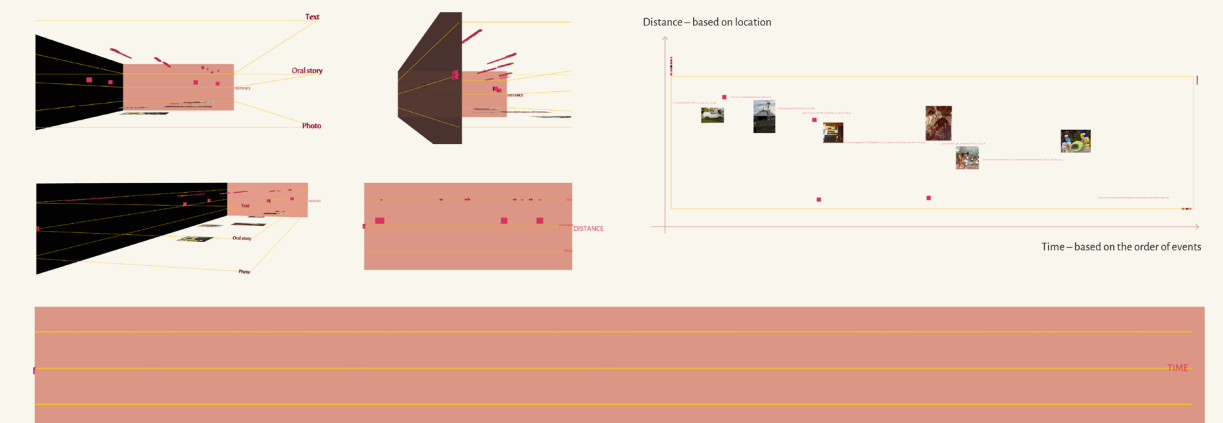


Figure 7.22 — Three-dimensional stories placed on a matrix, which is based on time, distance, and type of media

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/matrix.mp4>

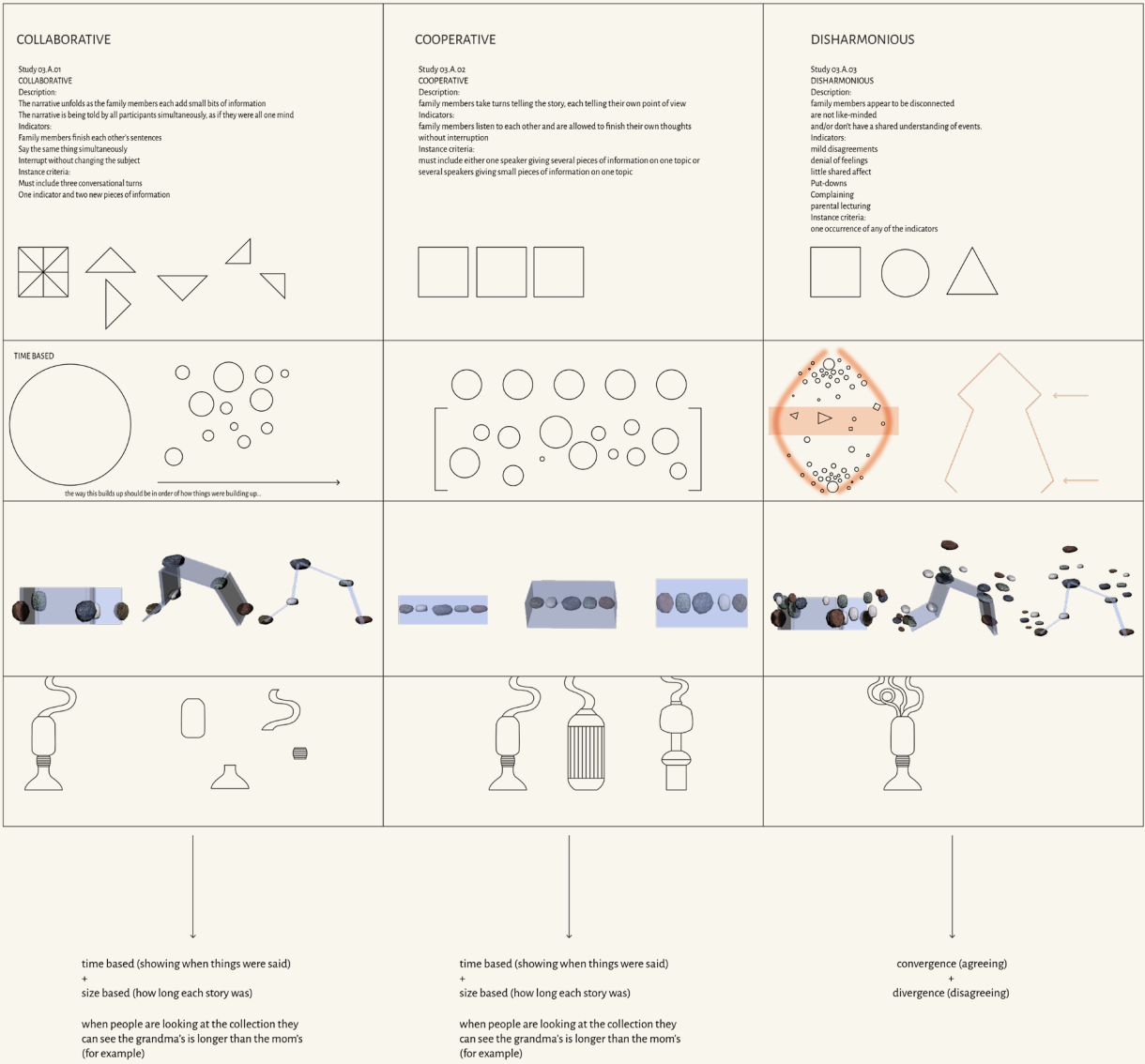


Figure 7.23 — Detailed terms and simple visuals to understand the family narrative characteristics

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/beads.mp4>

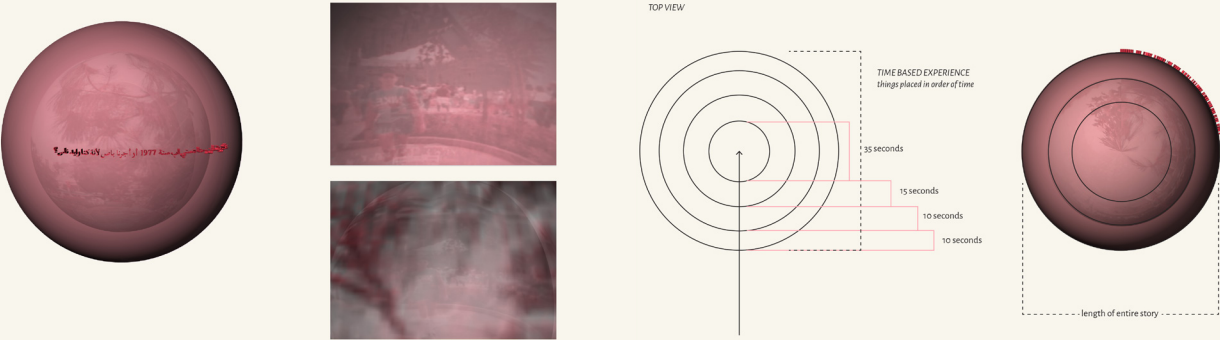


Figure 7.24 — Nested spheres as a way to experience family stories, which was inspired by the narrative ecology of self

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/nestedstories.mp4>

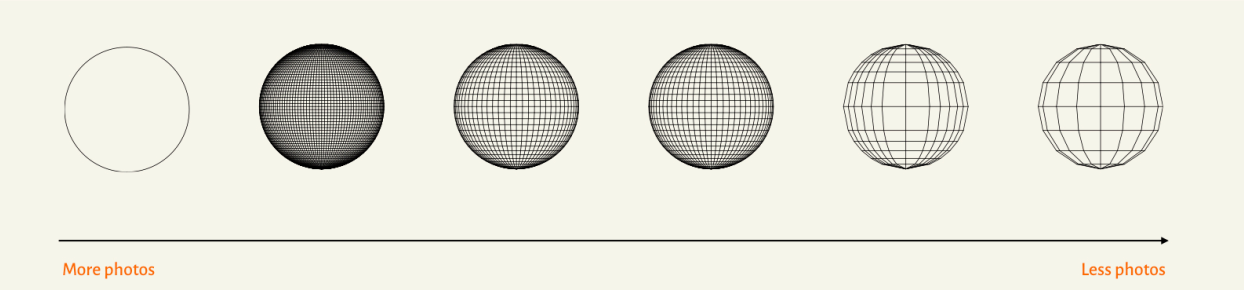


Figure 7.25 — Sphere articulation as it relates to the amount of photos in a story



- Collaborative Experience** A collaborative experience uses fragments and pieces to tell a whole cohesive story. The fragments indicate that there are multiple people telling one story, and that each person provides a different perspective and point of view of the same story.
- Time Based** In this time based collaborative experience (Figure 7.26), the sphere is shown with exploded protruding pieces. The fragmented pieces depict surfaces where family members have put in part of a story. These fragments are placed in order of time, giving the viewer a chronological experience of how the story was told.
- Personalized Path** In this personalized path collaborative experience (Figure 7.27), the person can draw a line indicating how they want to read and experience the story. By doing so, the interaction places agency in the hand of the viewer and reader, creating personalized experiences for everyone.

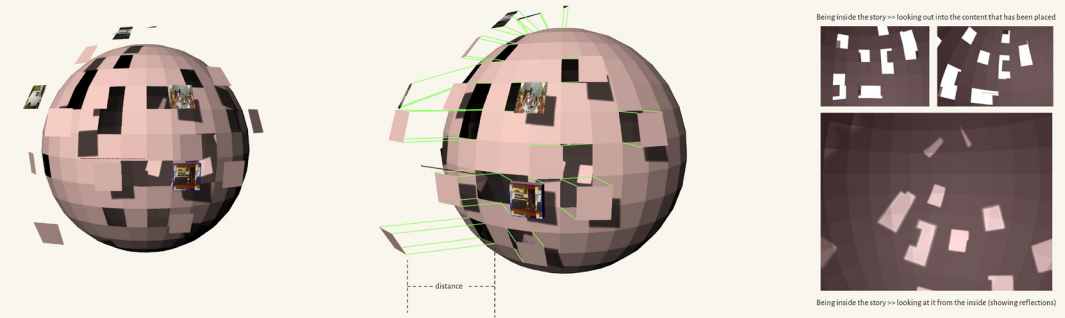


Figure 7.26 — Collaborative time based experience with interior view of the sphere

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/collaborativeinterior.mp4>

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/collaborativetime.mp4>

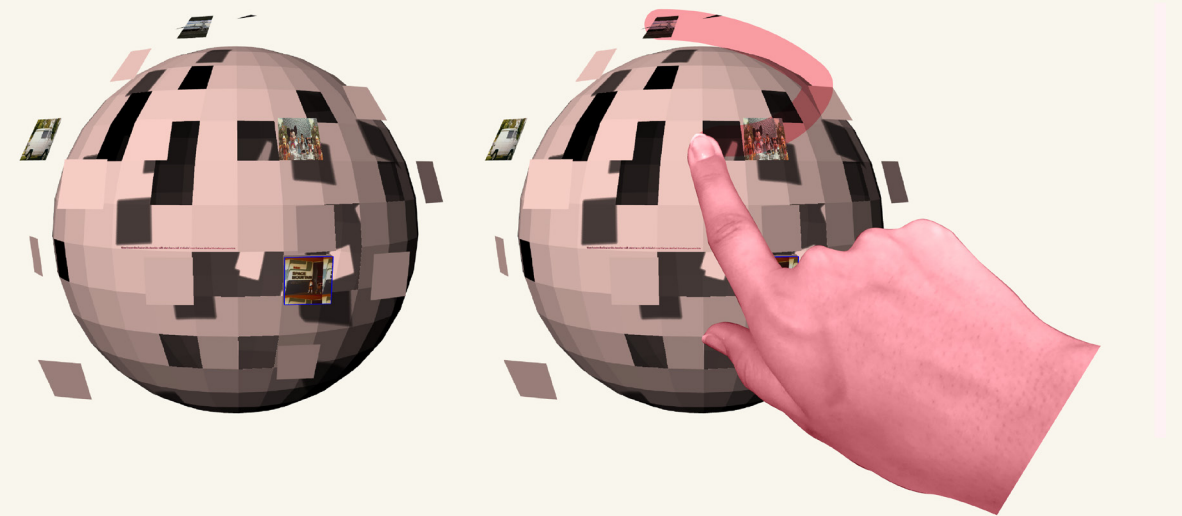


Figure 7.27 — Collaborative personalized experience where the individual draws a path

- Cooperative Experience

A cooperative experience uses one sphere per story, per person. When families cooperatively tell stories, they allow each person to share their point of view of the story, without any interruptions. Families take turns telling their part and understanding of the story. Therefore, the interface should provide clarity and clear indication on who told what story.
- Time Based

In this time based cooperative experience (Figure 7.29), each sphere represents an individual's point of view of the family story. The stories are placed in chronological order from left to right. The text wraps around the sphere with photos occupying the surface of the sphere. The size of the sphere indicates how descriptive an individual was in the telling of the story.
- Personalized Path

In this personalized path cooperative experience (Figure 7.30), their spheres can be moved around the x-axis so that the viewer and reader can place the stories in the way they want to experience them. The interface shows where the initial stories were placed, giving the person an idea of how it was originally told.

Figure 7.28 — Cooperative narrative exploration, which looks at different text placements around the sphere and a conceptual experiential scale, where the left side of the spectrum shows how story immerses and envelopes the person and their eyes travel through the digital space. The other end of the spectrum is on a smaller scale, where the hands interact with the story.

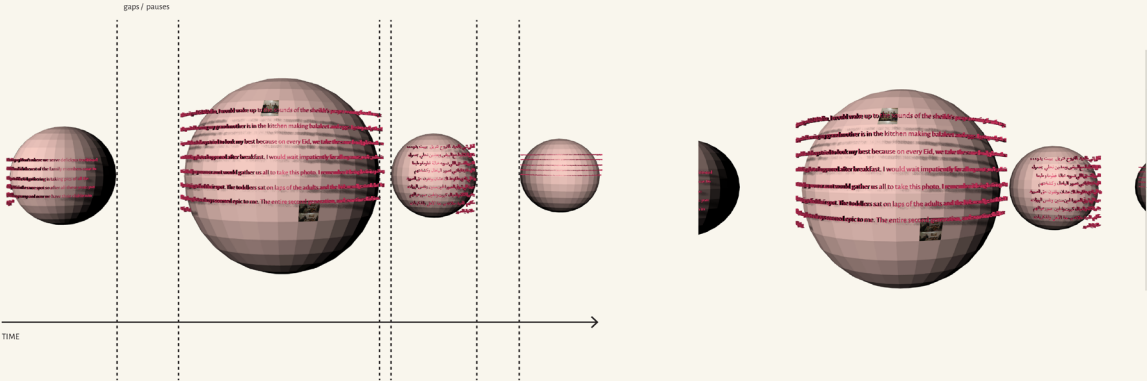
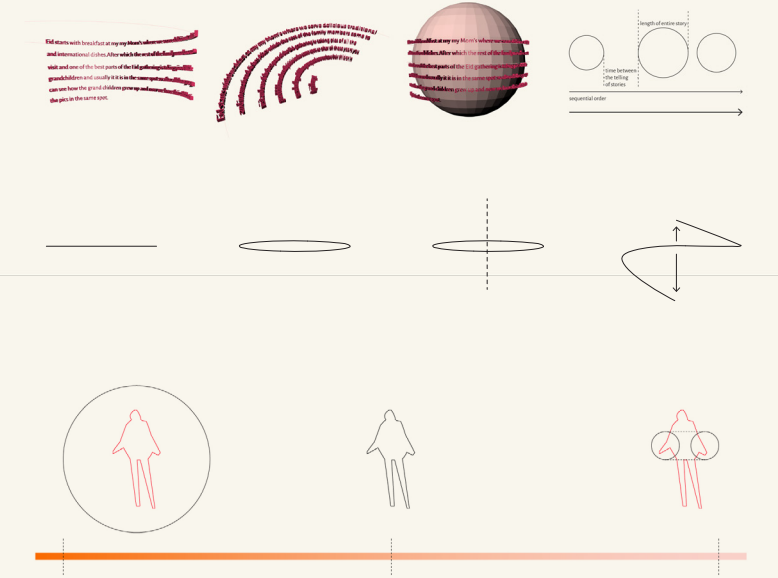


Figure 7.29 — Cooperative time based experience

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/cooperativetime.mp4>

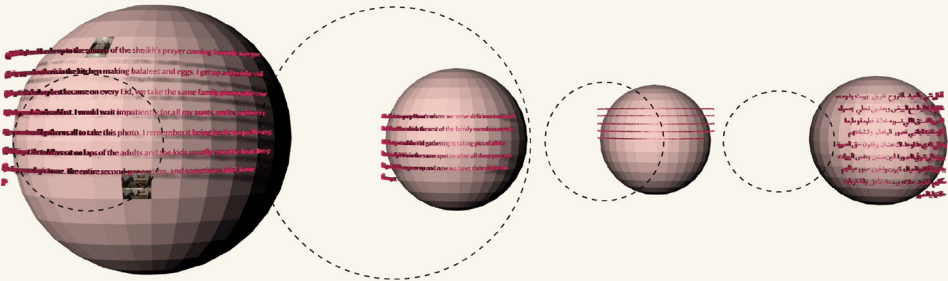


Figure 7.30 — Cooperative personalized experience where the individual moves around the stories

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/cooperativepersonalized.mov>

- Disharmonious Experience** A disharmonious experience uses convergence and divergence to show moments of disagreements. When families tell stories in a disharmonious manner, they are not disagreeing throughout the whole story. The disagreements happen at specific moments.
- Time Based** In this time based disharmonious experience (Figure 7.31), moments of disagreement teeter off to the side, indicating that there have been parts of the story with which people do not agree. Showing the stories expanding to the edge suggests that the story itself has shifted focus to another topic or detail.
- Personalized Path** In this personalized path disharmonious experience (Figure 7.32), the disagreements in the story can be moved around. Grouping the disagreements together allows the individual to easily move the different fragments of the story.
- Outcomes** This exploration suggests an important opportunity to differentiate between the interior and exterior shell of a story. The interior and exterior shell suggest that the different surfaces would show different information. Due to the three-dimensional space that these stories occupy, it would be more beneficial if the text was placed on the interior of the shell, making it easier to read inwards. On the other hand, the photos could occupy the exterior shell. Looking at these forms in a three-dimensional space creates interesting shadows and lighting that recreates what we see in the physical environment. Differentiating between the family narrative characteristics gives family members a contrasting experience each time, where the experience itself is an indication of what type of narrative it is.

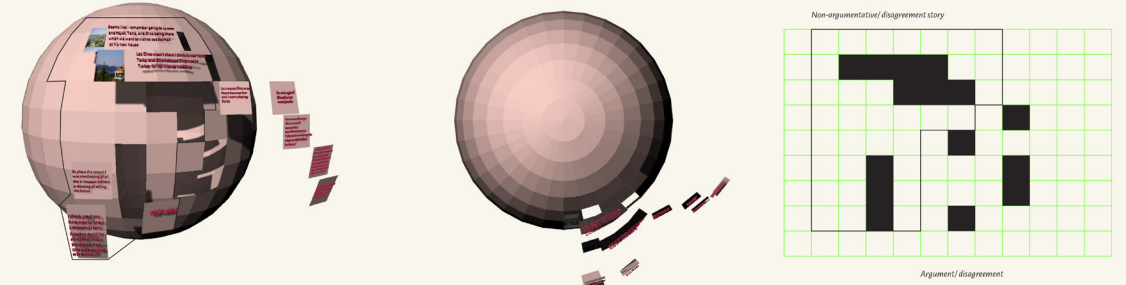


Figure 7.31 — Disharmonious time based experience, where a disagreement is shown as divergence

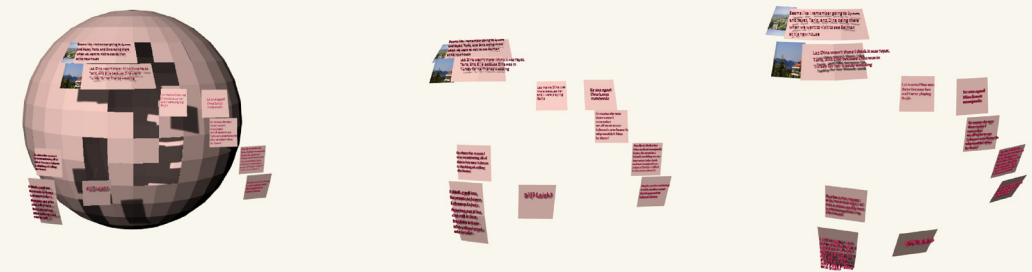


Figure 7.32 — Disharmonious personalized experience where individuals can move the disagreements around

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/collaborativepersonalized.mov>

How can the design of a multimodal input interface promote the telling and re-telling\* of family stories?

**7.2.2. TELL(ING) A STORY** \*re-telling of family stories: humans naturally share stories more than once. Whether it is telling it at different times, telling it to different people, or re-telling it to illustrate a point, it occurs more than we realize. The interface should promote and accommodate both instances (telling and re-telling).

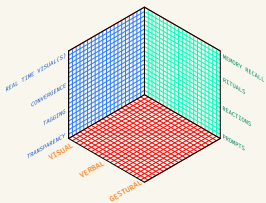


Figure 7.33 — A three-dimensional matrix mapping out potential design interventions

The telling of stories is an intimate activity that takes place with a small group of people, usually sitting around each other. The act of telling is meant for people to share stories; it is the first and most important activity that takes place in a storytelling experience. Telling a story can be sparked in various ways. Whether it is through memory recall or the senses, it happens throughout the day.

To illustrate how a multimodal input interface can promote sharing and re-sharing of family stories, I created a series of visual explorations and studies that point towards potential interactions and features. The critical aspects of this investigation that needed to be addressed considers how families share stories (Figure 7.33). I needed to analyze how family stories were told in the same space to really be able to understand how they would be told in the digital (away) space. The process of trying to understand this transnational space involved sending a series of interview questions to peers to give me a deeper and insightful understanding of how someone would be able to tell stories across nations (see Chapter 7.1.2 and Appendix C).

For this study, I was mostly interested in creating various avenues of telling a story, which allowed me to play around with form, color, and scale, and focus on three-dimensional aspects (Figure 7.36). I found that three-dimensionality is essential to address storytelling. Three-dimensionality is an important factor and characteristic when talking about narrating family stories because of its complex, multilayered, and multidimensional aspects of storytelling. This investigation seeks to capture the ephemera, the fleeting, the mundane, and the everyday life.

Visual Exploration Phase



Ref. figures — See pages 76 and 77

Through the visual exploration phase, I began to iterate and explore different forms and ways of visualizing sharing and promoting sharing. I see these studies as valuable to my process of making because they allowed me to explore (diverge) and eventually come to a better understanding of what the interface might show (converge). The process allowed me to get the most commonly used forms out of the way through quick explorative making (Figure 7.34). The studies explore visual form and pay close attention to spatial qualities of interfaces that can be highlighted during an individual's experience. How would a person tell his/her story? How would you visualize sharing? How do you prompt people to tell their stories? These were some of the questions that I asked myself during this process. These initial investigations were decontextualized and were not situated within the investigation and conceptual framework. However, they raised interesting questions and ideas to be explored further. Other parts of the study addressed the associated symbols and words attached to the term "sharing" (Figures 7.35).

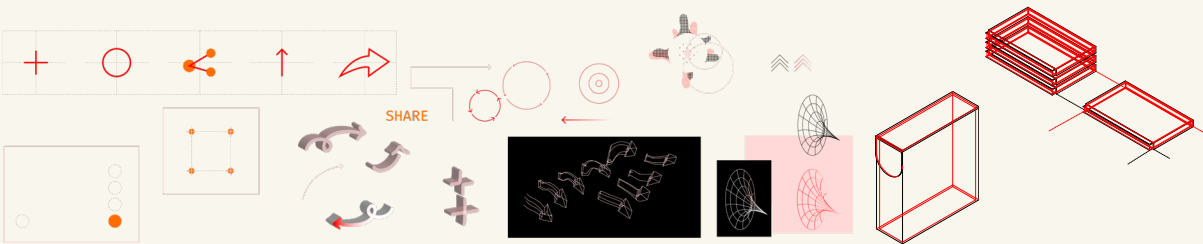


Figure 7.35 — Exploring associative symbols for the term "share" through visuals and using archival practices as a schema

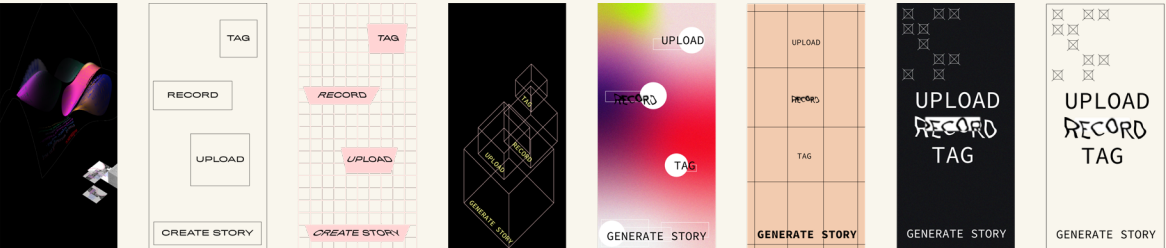


Figure 7.34 — Interface explorations

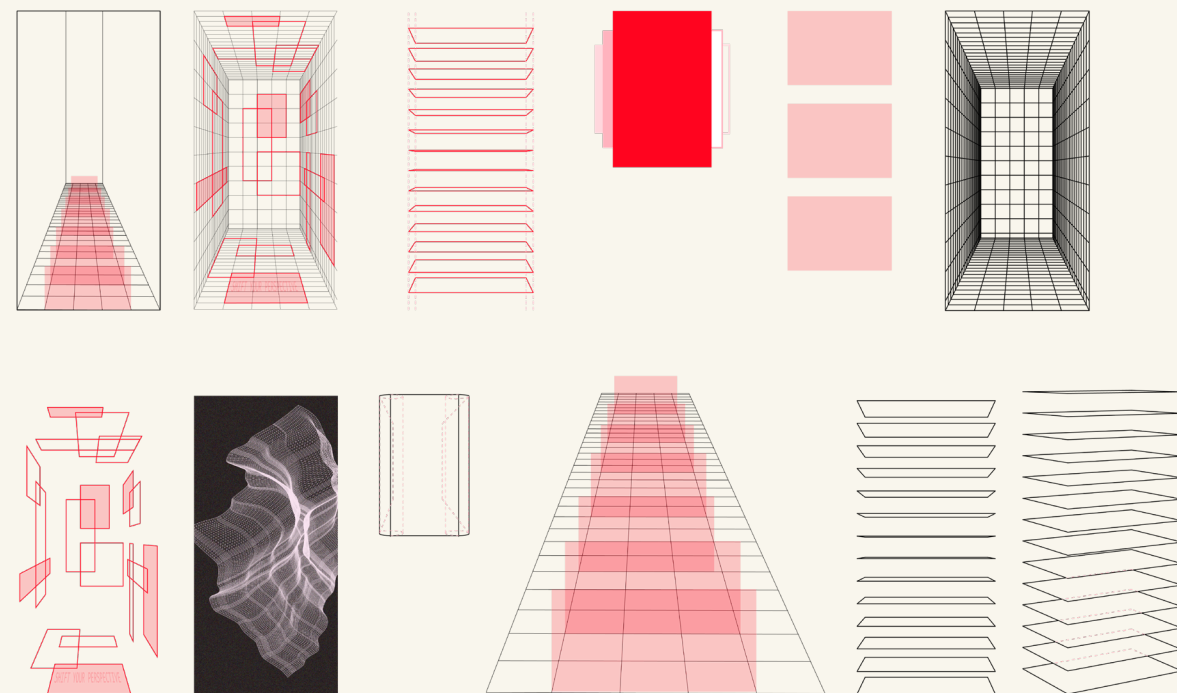
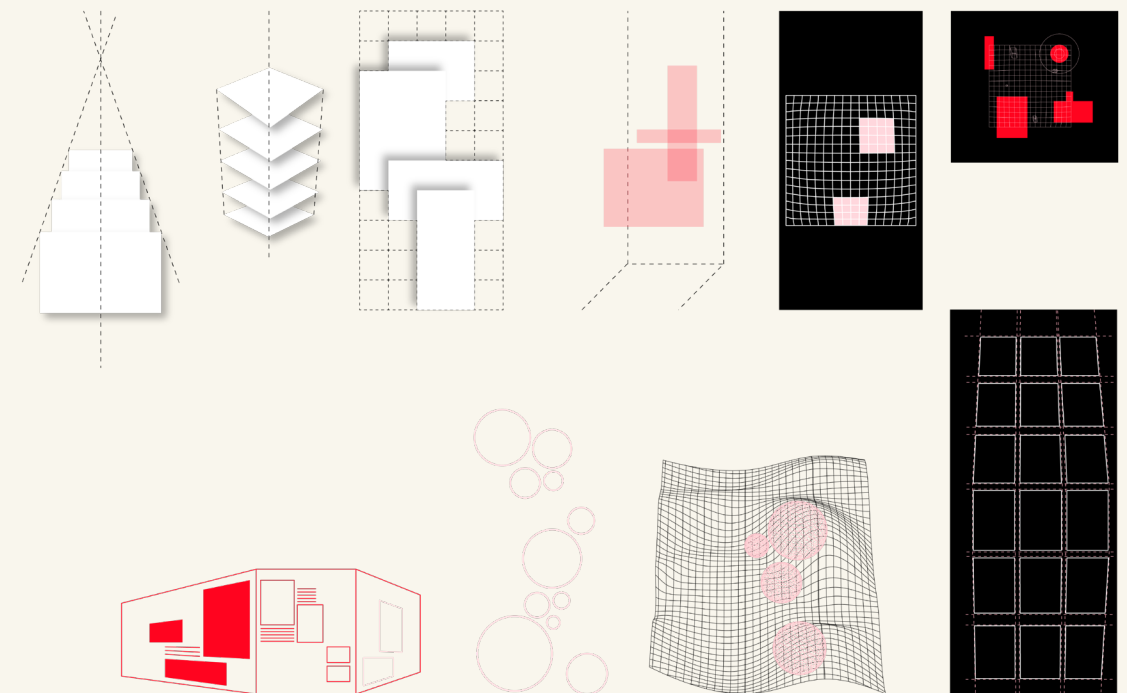


Figure 7.36 — Spatial form explorations for an interface design, which focuses on representing space





## Interface as a Room

This study emphasizes sharing in a three-dimensional space — one that resembles a room. The interface designed in Figure 7.37 uses a perspective grid to place the interactions in. The shapes highlighted in pink would turn into clickable spots where people can click and tell a story, turning the room into an interactive space. As for promoting sharing, the interface would show individuals their collection of artifacts and ephemera that they have previously uploaded and collected. This is meant to encourage participation by helping participants visualize the space if they were to share a story. After individuals tell their story, the interface would show them a representation of the things they have uploaded projected onto a cube; a variation of this interface could include a wireframe three-dimensional box (instead of a cube) with information on the x, y, and z axes. The representation of the information on a three-dimensional object questions how stories would be ordered in a logical manner. In thinking about temporal infrastructure, sequencing the information gathered in the order the story was told / was experienced would help someone reading and experiencing the story.

## Outcomes

Creating an interface that represents a room embraces the spatial qualities and three-dimensional perspectives. However, the representation of a room on an interface is literal and does not provide new insights into how that might promote the telling of a story. It might also seem intimidating to interact with a two-dimensional interface in perspective. Representing parts of a story on a cube, whether on the surfaces or in a wireframe grid, creates interesting opportunities for exploration that exist beyond the cube.

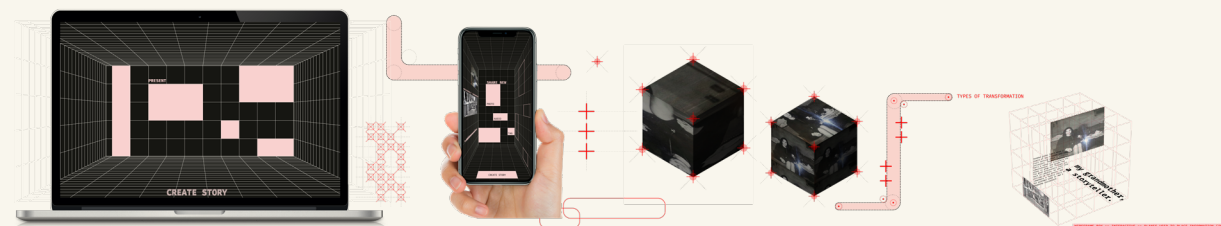


Figure 7.37 — Transforming a digital interface into a room and mapping images and text on a cube

## Interface as a Shape Builder

The second study proposes using three-dimensional shapes to represent different modes of communication that populate the archive. When individuals come into this space, they would recognize the shapes and their associated meanings — the cylinder as text, the cube as photo, the sphere as audio, and the pyramid as video. See Figure 7.38.

## Outcomes

Although representing a mode of communication through various shapes is interesting, these shapes take away from the actual story being told and, therefore, become a distraction. On the flip side though, the shapes are multifaceted, which represents the different views of a single story.

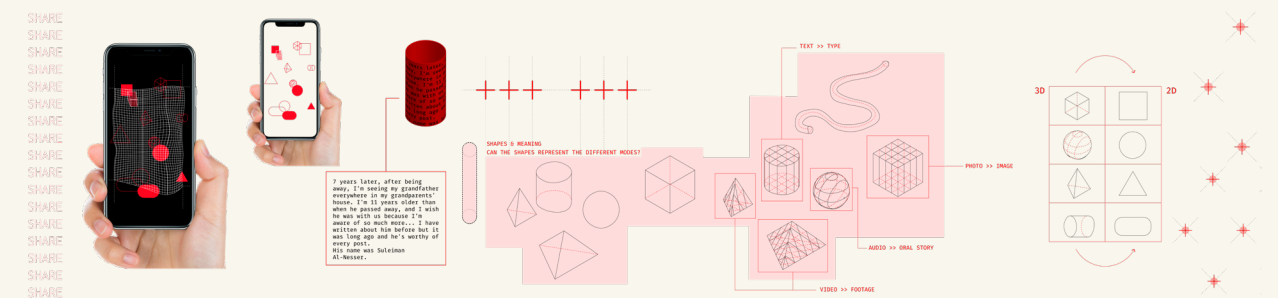


Figure 7.38 — Various three-dimensional forms to represent different modes of communication

**Interface as a Quilt** The third approach looks at creating an organic grid structure that builds over time, similar to a quilt—building and adding to the story piece by piece. The visual of the organic grid building over time gives individuals a representation of their contributions. The grid acts as a landscape of stories, and with each new addition, the grid forms a shifting landscape. The edge of the organic grid is a representation of an evolving landscape and story. See Figure 7.39 and Figure 7.40.

**Outcomes** Using an organic grid structure that builds over time promotes people to share their stories—giving them satisfaction of seeing the grid slowly grow over time. The grid takes inspiration from the landscape of stories, a term used to describe aggregated stories and the peaks and valleys in a story. By creating variation in the triangulations that make-up the landscape of stories, it hints at the variation that stories can take form, where the factual nodes remain the same and the segments change length and location.

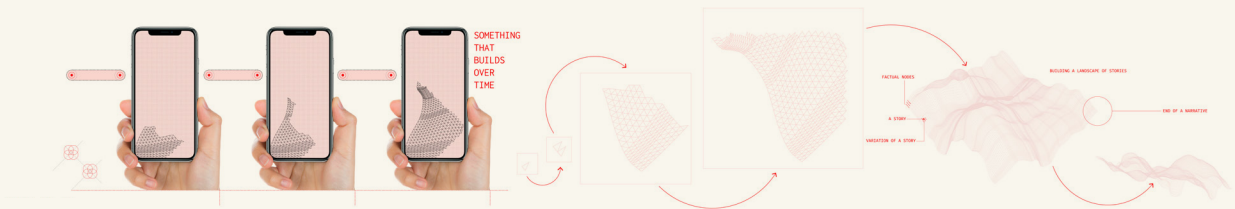


Figure 7.39 — Triangular forms that build over time to create a landscape of stories

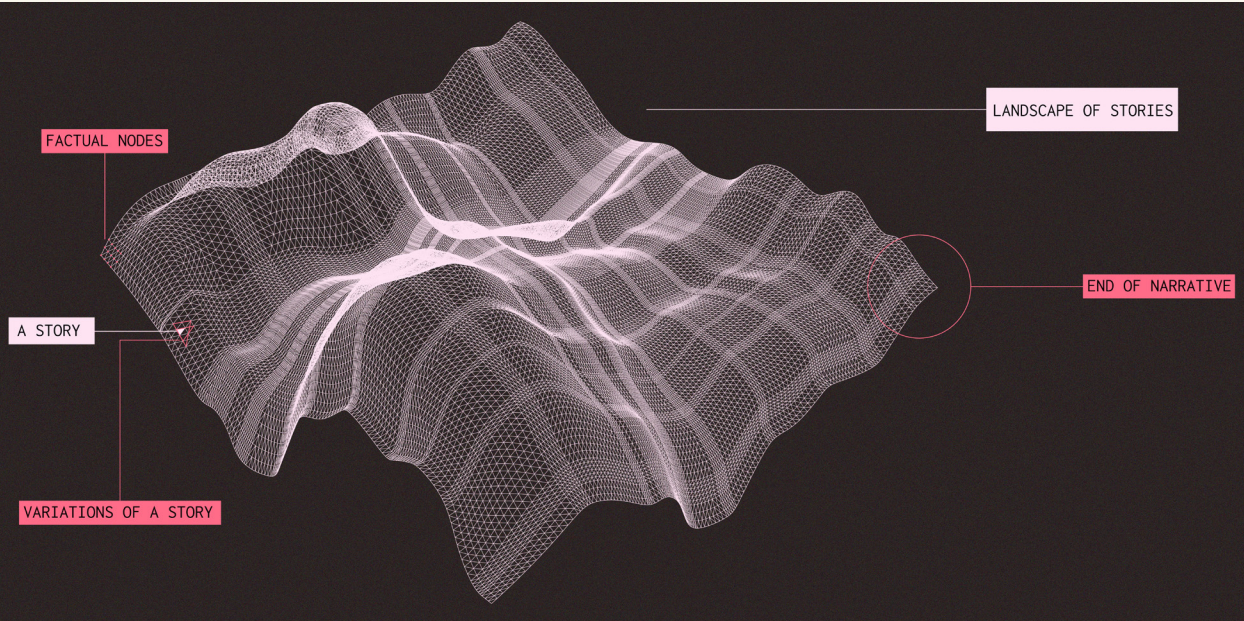


Figure 7.40 — Detailed view of the organic, quilt-like structure

**Outcomes** The visual explorations that I created (Figures 7.36 to 7.40) all point towards a systematic, rigid, angular, and structured way of sharing stories, which can have both positive and negative implications. Storytelling is a uniquely human ability that occurs naturally. Therefore, rigidity in the visuals might not be the best way to promote sharing stories. Because storytelling is organic, free-flowing, and constantly evolving, the interface should suggest such characteristics through the visuals, interactions, and experiences individuals are having. To encourage the most effective storytelling experience, one should also consider time and how much time people have to share their family stories. What would their experience look like if they had 10 minutes, as opposed to 30 minutes? We should also consider the level of engagement—how engaged are the storytellers? What is their relationship with their family and with the subject of the story? Do they have a positive or negative relationship? As I moved into the next phase of designing, I took into consideration all the above questions and thought about how each would be addressed. Figure 7.41 diagrams these considerations.

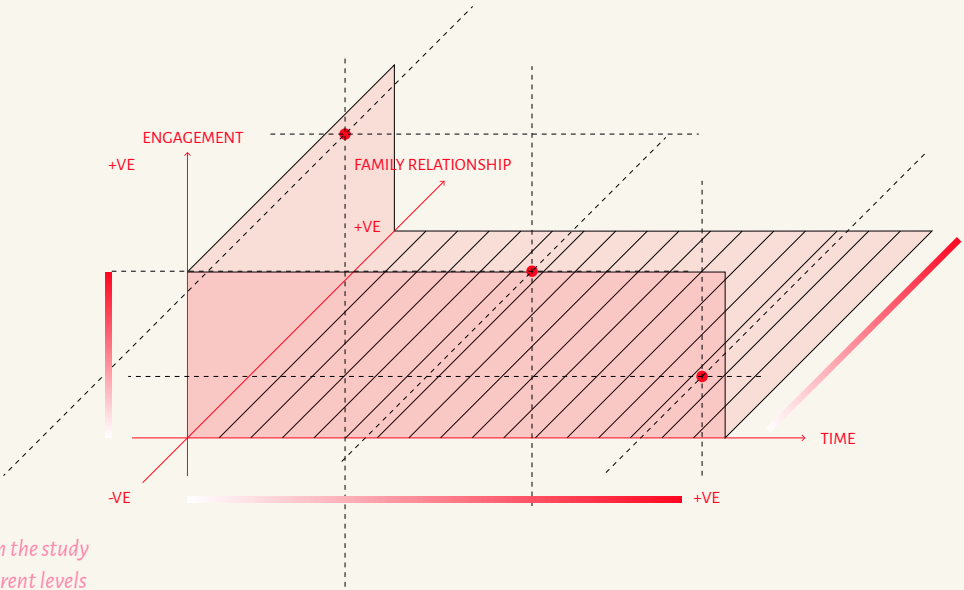
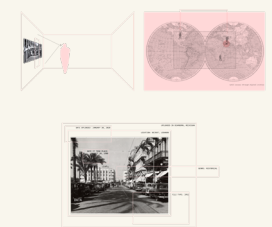


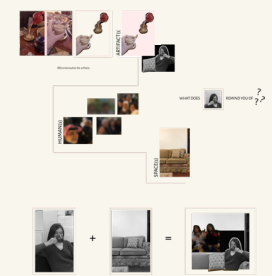
Figure 7.41 — Breaking down the study to address different levels of engagement, the time an individual has, and their relationship to their family



Types of Additions



What if's



Telling and sharing stories are very similar; they are both time-based. Telling references the present, told references the past, and to tell references the future, which relates back to this idea of temporal infrastructure. In thinking about the design elements that needed to be prominent in this investigation, I found that depth, physicality, elasticity, time representations, and animations were most important. Below are explanations of how each one of these design elements is relevant in a digital archive for families:

- + **Depth:** showing depth indicates the number of times a story was told; if it was told more than once, the depth would increase.
- + **Physicality:** because the archive exists digitally, texture and material objects were characteristics that could be brought into the digital space to make the stories feel more tangible.
- + **Elasticity:** the interface should be adaptable and modular so that people feel more inclined to participate and tell their stories.
- + **Time representations:** because time is heavily prominent in the telling of family stories, there needs to be a way to visualize the past, present, and future as it relates to scale. Using objects that are smaller, bigger, and farther away if they are unknown.
- + **Animations:** because family stories develop and change over time, animations are good ways to show the growth of family stories.
- + **Schemas:** looking at schemas for archiving facilitates the design process by looking at what physical archives can provide.

After the visual exploration phase, I took some of the findings, emerging issues, and questions to further develop and speculate on interface designs. Writing down a series of 'what if' questions helped me think outside of the box and guided my explorations. All the 'what if' questions were created to address a form of sharing, whether rituals, organizational methods, prompts, or tagging using metadata. After creating a rich list of 'what if' questions, I picked a few questions that I thought were worth exploring through visuals (Figures 7.42 – 7.50).

Ref. figures — See pages 84–89

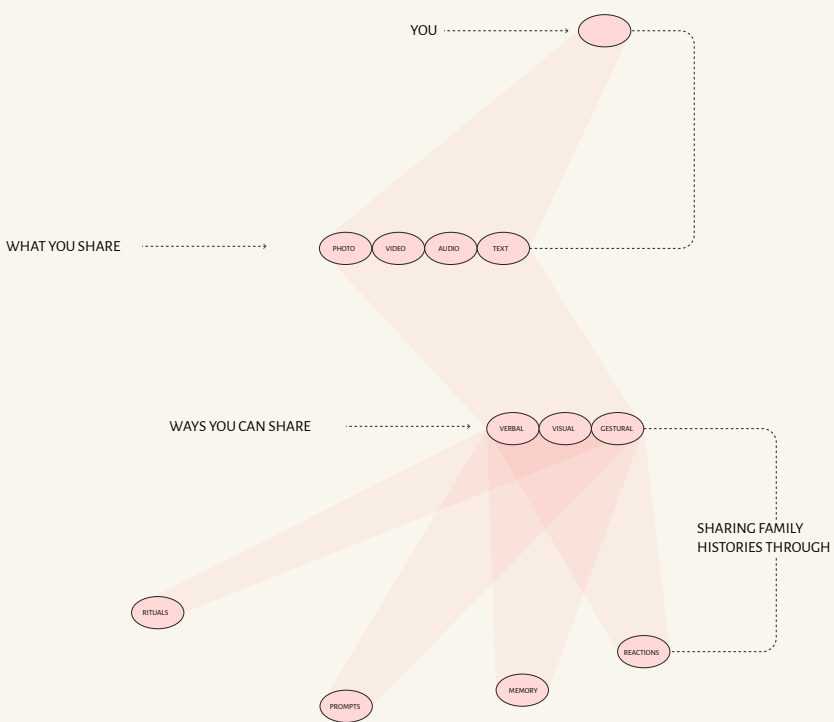


Figure 7.42 — What if individuals had a moment of memory recall that promoted them to share into the digital archive by showing them transparent visuals?

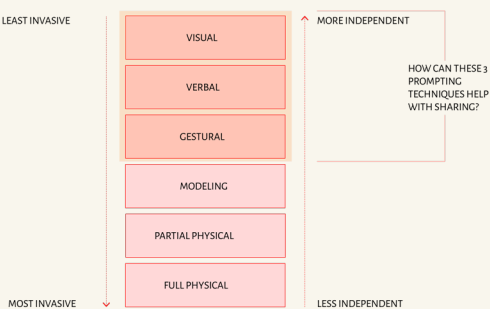


Figure 7.43 — What if the prompting hierarchy could be used as a framework to situate the studies in?



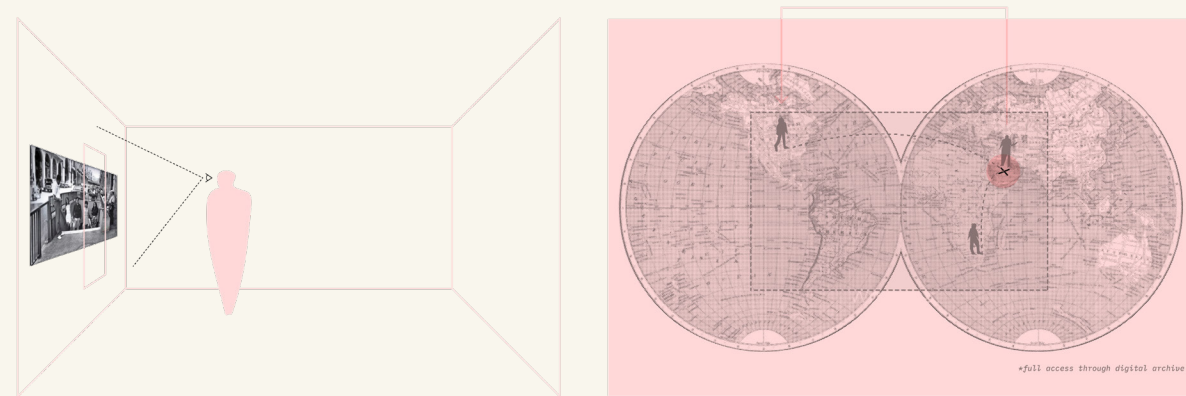


Figure 7.44 — What if rituals could alleviate the absence of physical space and place using the digital family archive as a projection?

Figure 7.45 — What if individuals could tag photos with information and the way they would perceive the photo?

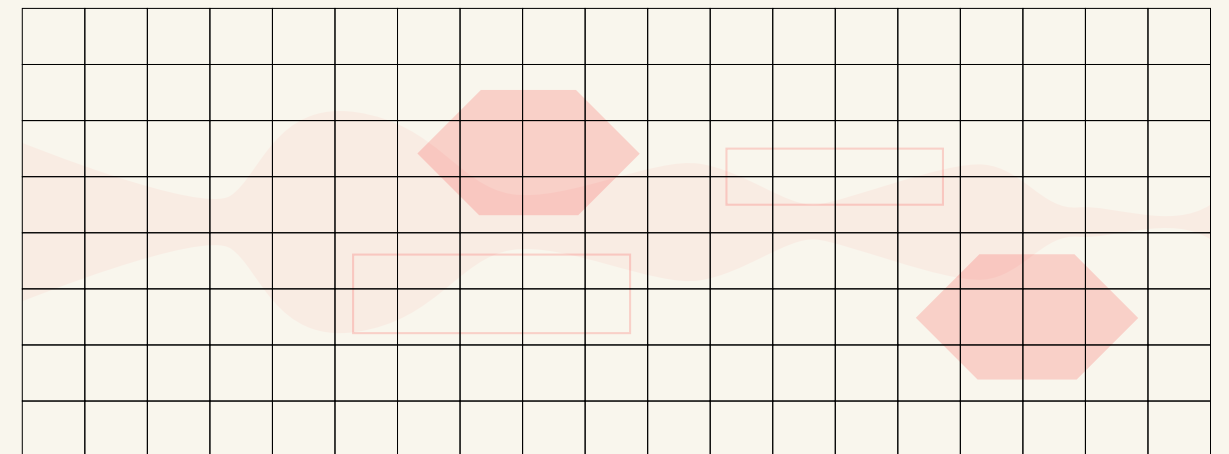
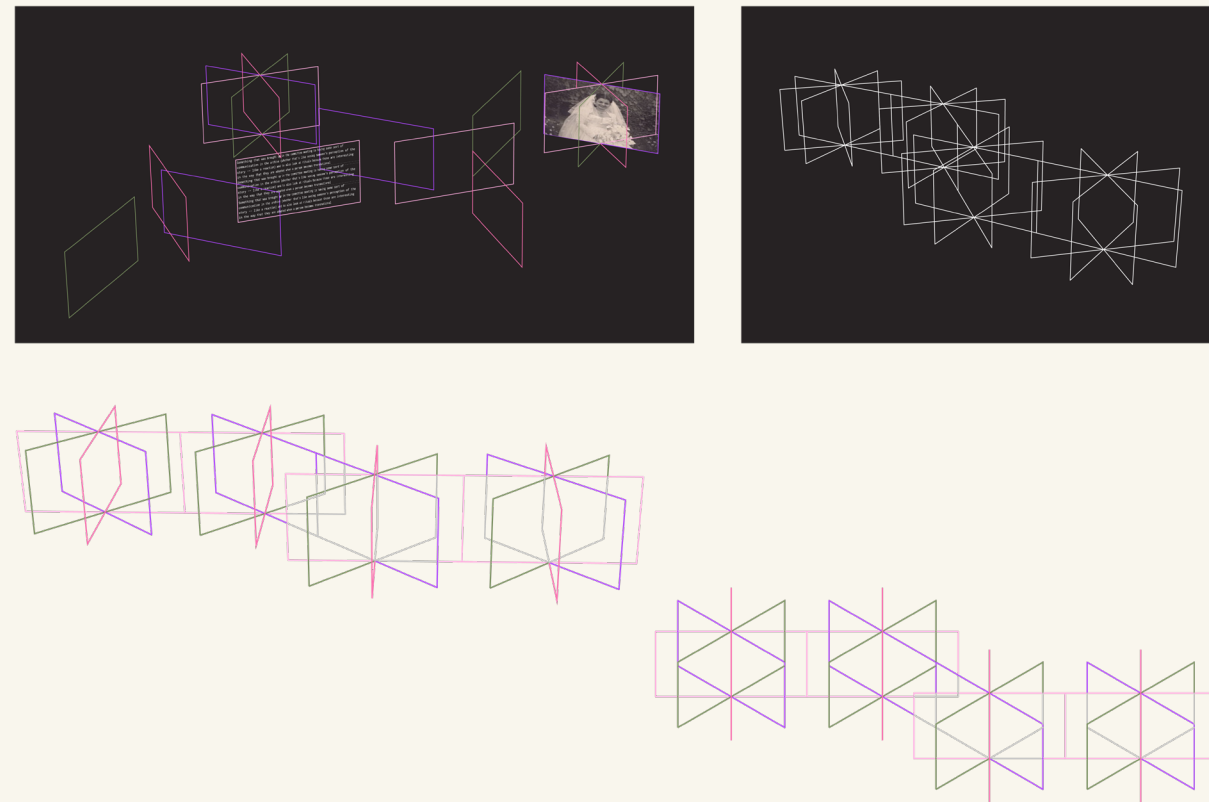


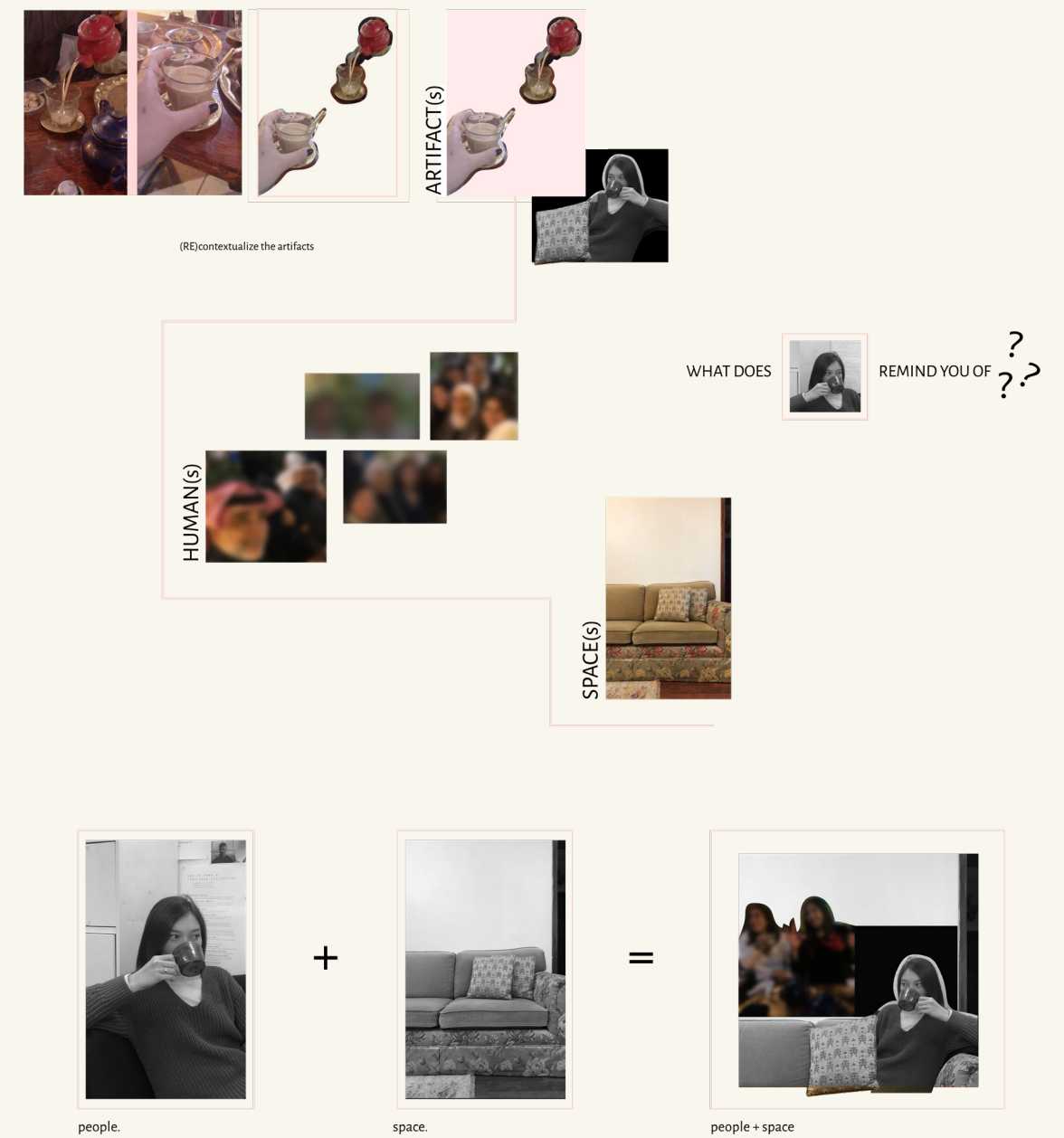
Figure 7.46 — What if the system would notice if there are overlays in the narratives by placing them on top of each other to illuminate the similarities?



Figure 7.47 — What if the digital archive could visualize being through abstract forms?



**Figure 7.48** — What if tags were used in a spatial way to indicate their relationship to one another? The planes and axes would suggest their relationship based on the location and whether the edges would be touching.



*Figure 7.49 — What if the artifacts used for the ritual became ambient artifacts? What if the family archive became a place to share rituals?*

ARCHETYPES OF GESTURES >> INTERACTIONS

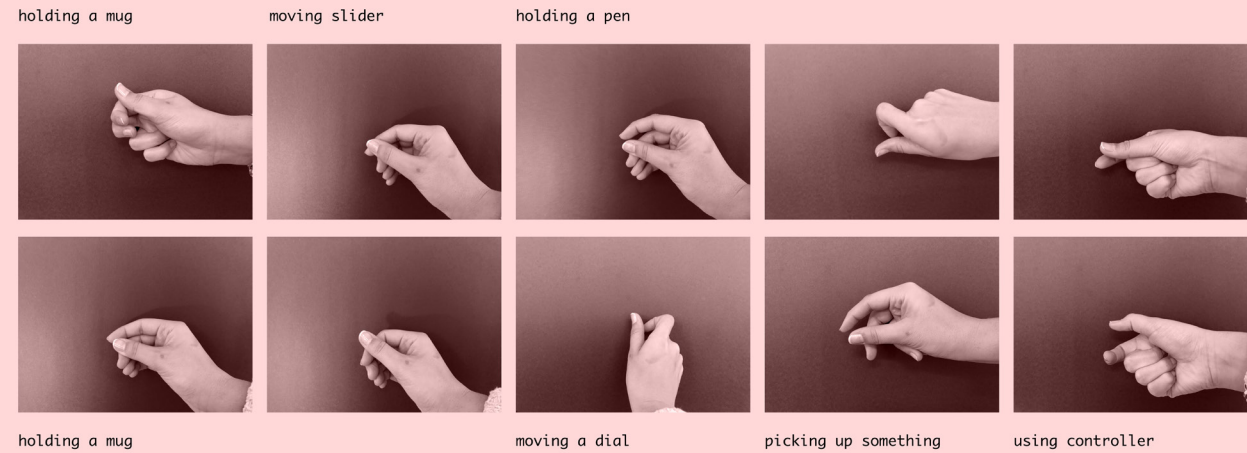
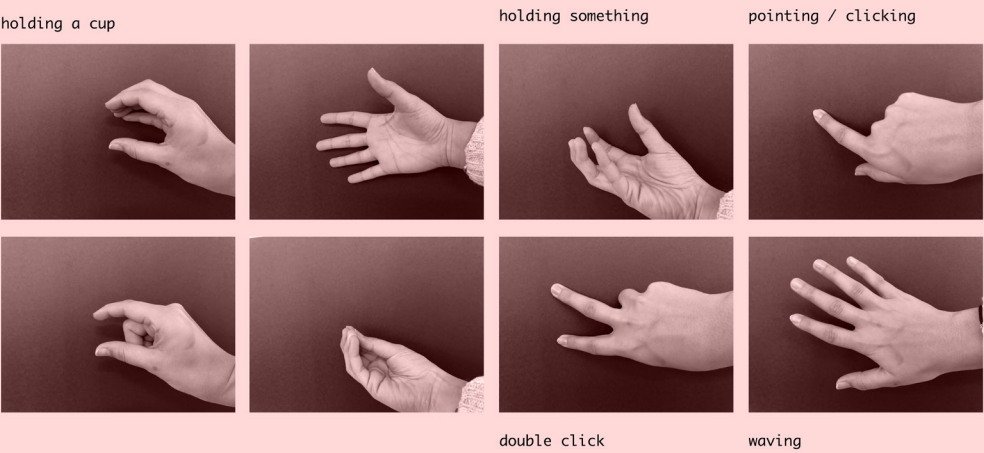


Figure 7.50 — What if there was an archetype of gestures that could track the exact ritual that was being performed?



Outcomes

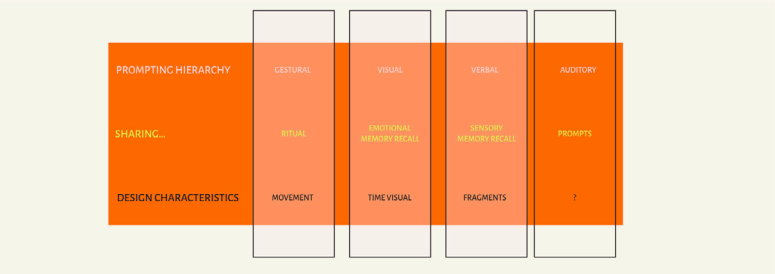
Creating a list of ‘what if’ questions helped me understand the different elements needed in the activity of telling a story. After analyzing the ‘what if’ questions, I pulled emerging ideas that were relevant and important for this investigation. These emerging ideas helped me develop the matrix within which I situated my studies (see figure). The matrix includes the prompting hierarchy, what they are sharing through, and design characteristics. The prompting hierarchy is used to engage with people using gestural, visual, verbal, and auditory actions. The design characteristics were specific to the scenario and include showing movement, time visualizations, and fragmentation. When individuals come to this digital archive, they will be telling their stories at different moments and for different reasons. The system can accommodate all these moments by extracting the most common moments in which telling a story occurs. These moments include emotional memory recall, sensory memory recall, prompts, and rituals. The investigation framework (Figure 7.51) for this study diagrams the key moments in which memories arise and the types of stories the family is sharing.

Mapping Rituals Through Gestures Using Movement

HOW CAN THE DESIGN OF A MULTIMODAL INPUT INTERFACE PROMOTE THE TELLING AND RE-TELLING OF FAMILY STORIES USING RITUALS?

This exploration looks at how individuals can share rituals using gestures. By expanding what a digital family archive can capture, including the cultural heritage and family rituals, the possibilities of interfaces tend to lean into future scenarios. It asks the question, “What if gestures were used to communicate rituals in the archives by creating an archetype of gestures and interactions?” (See Figures 7.52 – 7.54). Archetypes of gestures and interactions were created (Figure 7.50) to think about and speculate on how an interaction in the archive could take form. By using Google Soli, a chip that tracks hand gestures, the interface turns into touch-free interactions. The ecosystem for this exploration is composed of a phone, which visualizes real time hand gestures, and a physical artifact (a cube), which embeds the Google Soli chip to track the hand gestures (Figure 7.55).

Figure 7.51 — Investigation framework for subquestion two to help situate the study, which addresses the telling & re-telling of family stories.



**Story** Sasha is at home, and she already had lunch at school. She initiates the system to let it know she is going to perform her ritual by waving her hand to wake it up. The cube responds by lighting up. Sasha’s phone shows her a quick guide on how to interact with the cube. Sasha starts boiling some water to make her tea—the same tea she often had back in Lebanon. She fills up her kettle with the boiling water, closes the lid, and carries over her kettle with a tea glass and her *shabakiya* (a pastry made of dough rolled to resemble a rose that is fried and coated with syrup) that she bought from the Al-Houda market. The cube is used to project her family’s recorded ritual so that Sasha does not feel alone while she performs hers; it acts as an ambient performance, giving her a sense of belonging. The cube is a representation of family and belonging, and creates an exclusively dedicated object that reminds her of family rituals.

**Outcomes** In designing a complete family archive, one should also explore rituals that are captured through gestures. These explorations raise awareness about certain elements that should exist in a digital family archive. Allowing and encouraging people to archive their family rituals captures the ephemerality and the everyday life that does not usually live in the archive.



Figure 7.52 — Exploring gesture tracking

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/gesture.mov>

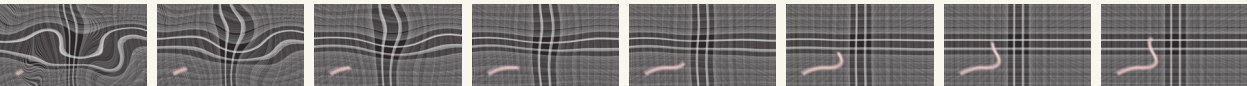


Figure 7.53 — Exploring gesture tracking through an organic grid and gesture mapping

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/trackingtwo.mp4>

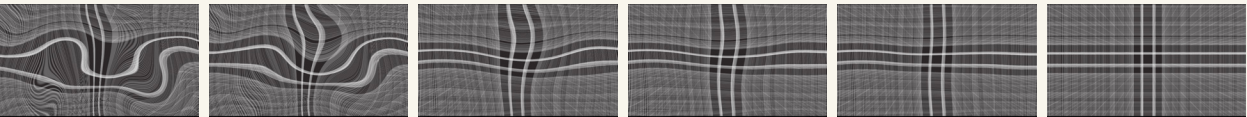


Figure 7.54 — Exploring gesture tracking through an organic grid structure

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/tracking.mp4>



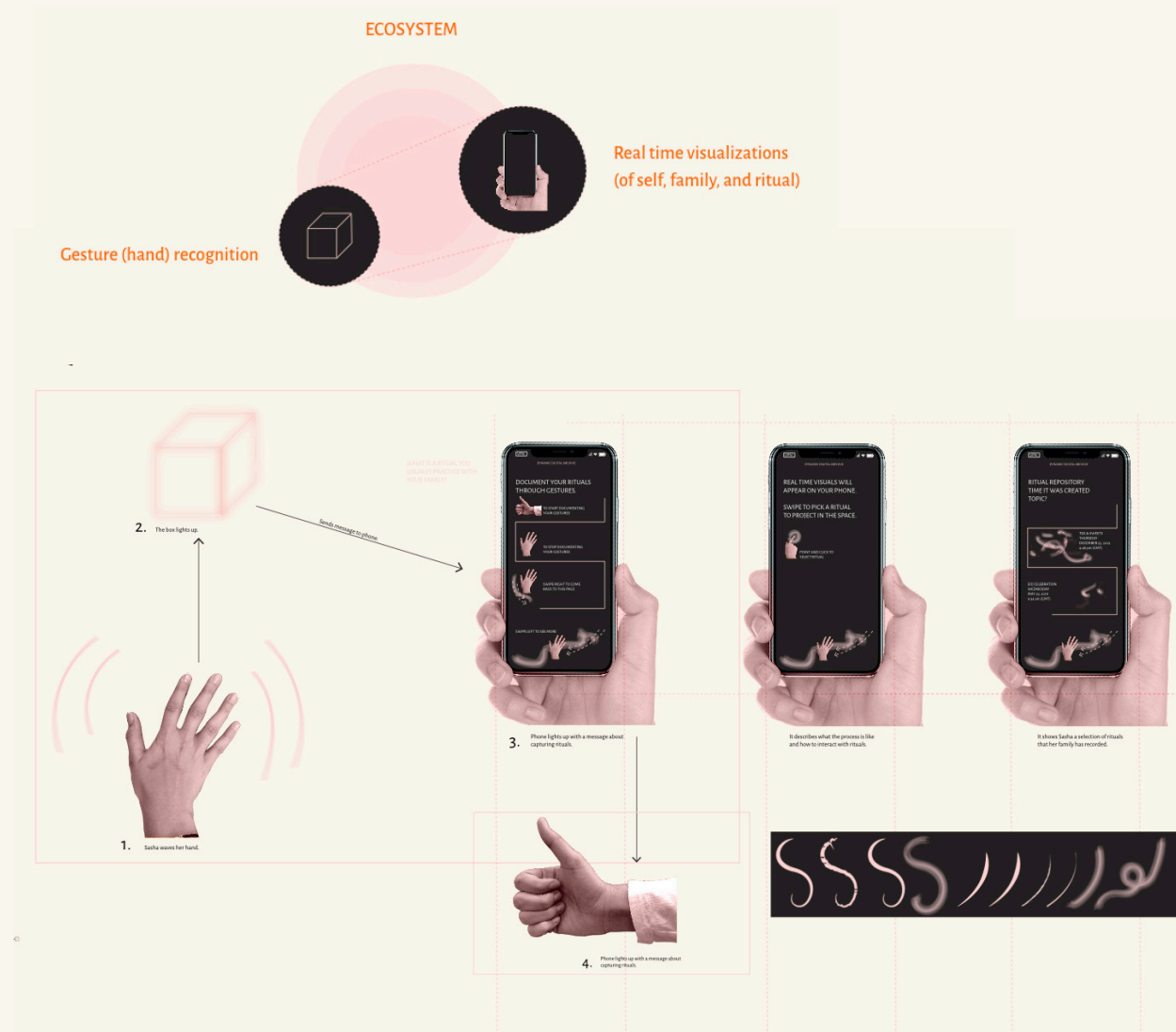
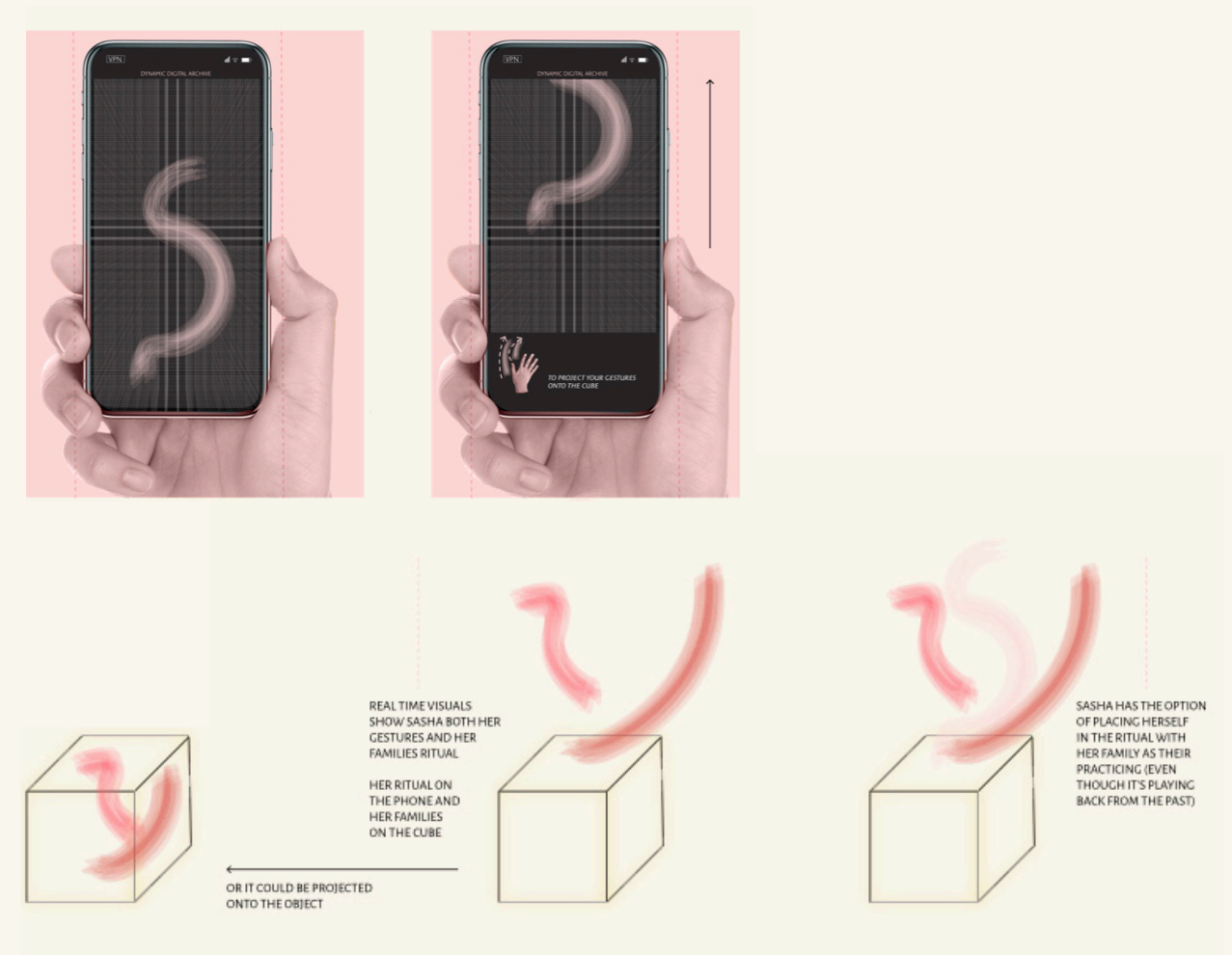


Figure 7.55 — Capturing family rituals through gesture tracking that is projected onto the cube as ambient lighting

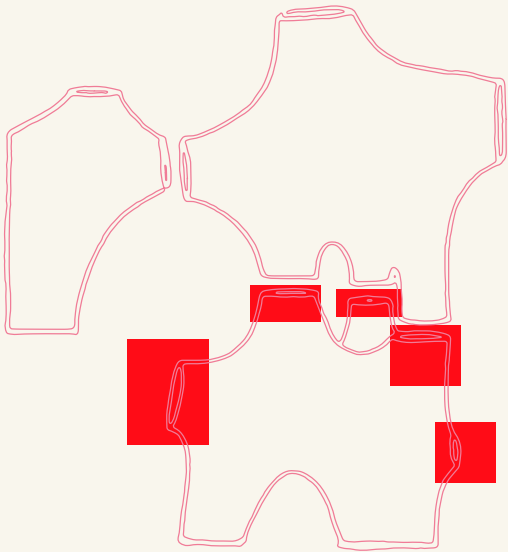


HOW CAN THE DESIGN OF A MULTIMODAL INPUT INTERFACE PROMOTE THE TELLING AND RE-TELLING OF FAMILY STORIES USING EMOTIONAL MEMORY RECALL?

Visualizing Time During Emotional Memory Recall

For this exploration, I emphasized on the visuals and creating continuation through time. By narrowing the scenario to focus on addressing emotional memory recall, the story that Sasha is telling becomes more specific too. This exploration examines how to represent emotional memories and what an initial screen looks like when a person comes into the digital space to tell his/her story. Emotional memory recall is a really powerful moment. Designing an initial screen (Figure 7.57) should be taken into consideration to make sure that the visuals are not overwhelming or taking away from the memory the person is about to share. The initial screen that a person would encounter is spatially aggregated with photos so that they have quick access to their memories. This gives a overview of photos or videos that they can easily click on, thereby, moving onto telling other parts of the story. The visuals for this exploration was inspired by organic forms that would continuously build on top of each other every time someone shared a story (Figures 7.56–7.57).

Figure 7.56 — Blocks of time to construct the archive; puzzle pieces that fit within each other



**Story** During the summer Sasha usually goes for a walk in the park at Cherry Hills Park where she eventually sits down to read a book. She sees people walking around eating ice cream and she's immediately reminded of being a kid. She started feeling nostalgic for the past. An emotional memory was sparked and Sasha is immediately reminded of her time back home. She is reminded of her grandpa and how he would buy bags of ice cream from the ice cream cart right near their house. He would walk in and all the grandkids would run to the door to pick their favorite ice cream. After everyone picks their ice cream they would sit down on the floor in the living room, eat ice cream, and watch TV together. Sasha pulls out her phone to tell the story of her grandpa bringing home ice cream when she was a kid.

**Outcomes** This exploration suggests that constructing with blocks of time to reconstruct the past should be prominent when designing a digital archive for transnational families; creating a nostalgic digital world. By switching tracks from making digitally to making by hand, the forms took an organic form, which for the purposes of this study reflect the complexity of family archives. Memories are organic, stories are organic, they are fluid and have gaps, pauses, interruptions in them but they are still free flowing.

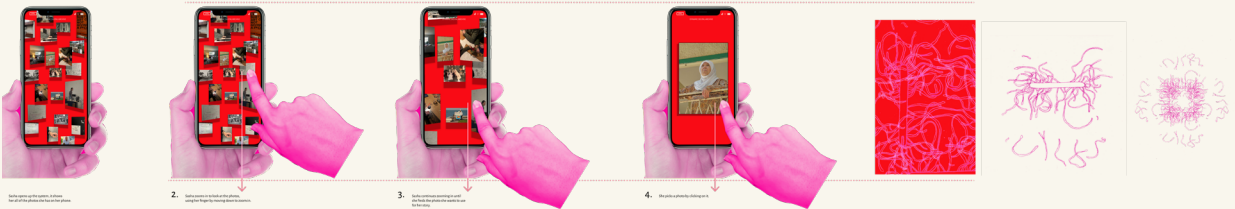


Figure 7.57 — Interface design that aggregates photos to help with memory recall



Capturing Memory Recall Through Fragmentation Using Verbal Recordings

HOW CAN THE DESIGN OF A MULTIMODAL INPUT INTERFACE PROMOTE THE TELLING AND RE-TELLING OF FAMILY STORIES USING SENSORY MEMORY RECALL?

This exploration looks at how someone experiencing sensory memory recall can use verbal recordings to share a family story. Sensory memory recall can be sparked when someone eats food, or touches or smells something that reminds them of home. The interface shows different ways of archiving family stories, whether an oral story, a photo, a video, or text. This exploration looks at verbal recordings as a way to tell a story and, therefore, archiving oral stories. As the person records the story, the interface shows lines building up, indicating that it is still recording the story. By choosing to show lines instead of text, it removes the distraction to allow the person to freely record without any disruptions. (Figures 7.58 and 7.59).

**Story** Sasha usually packs her lunch when she goes to school; the lunch consists of traditional Lebanese food – rice, chicken shawarma, and fattoush salad. As Sasha sits down to have lunch after class, she is immediately reminded and transported to her grandmother’s kitchen in Lebanon. She picks up her phone to record the memory of her grandmother in the kitchen. The food she was eating sparked the sensory memory Sasha experienced. She starts telling the story of her grandmother by recording her voice:

*Yadooh has always loved the kitchen; it was her happy place. She used to tell me about stories when her mom taught her how to cook, how her mom loved being in the kitchen, and how my grandmother and her mother bonded over their love for the kitchen. She would tell me:*

أمي كانت تحب المطبخ ، كنت احس بالتقارب مع جدتي في المطبخ.

*It was her way of expressing her love and appreciation for her loved ones; she would express herself by cooking traditional meals. Because I knew I would find her, with an apron, cooking in the kitchen, I knew to go straight to kitchen when I would visit her every weekend.”*

After Sasha records the story of her grandmother, the system indicates to her that she can zoom in using her fingers to reveal the text that has been transcribed.



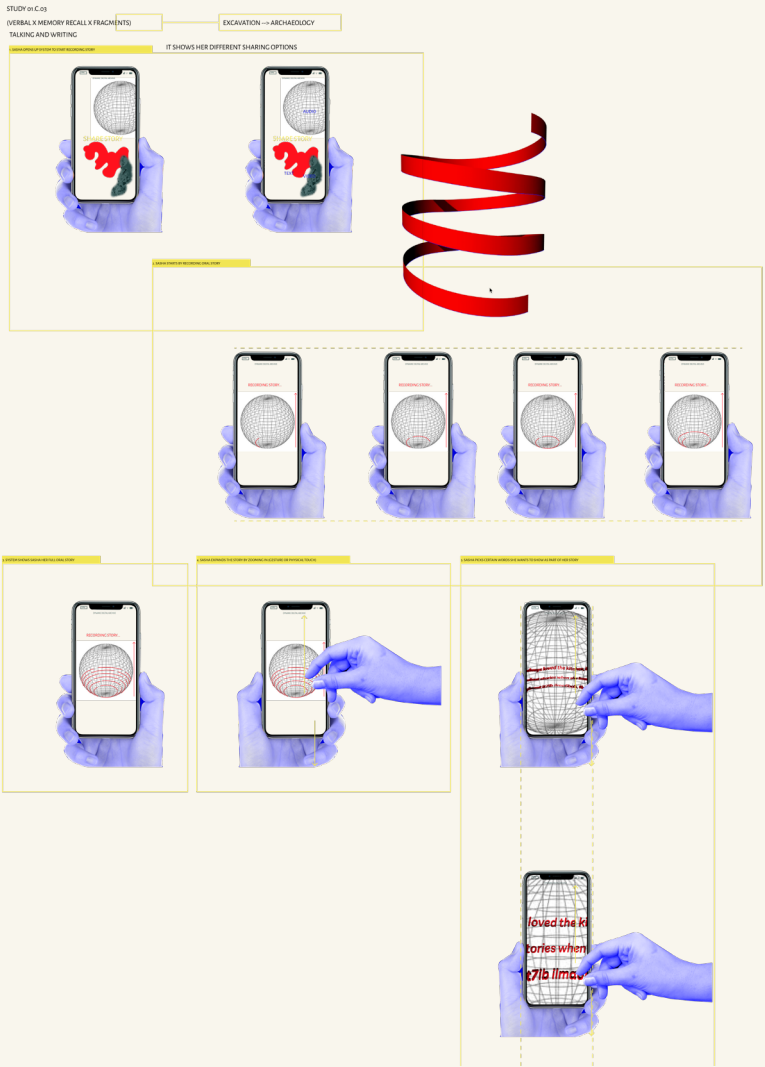
Figure 7.58 — Exploring fragmented pieces of a story; drawing out the path they want to experience

**Outcomes** Providing people with varying levels of information at different scales proves to be useful when thinking about ways to prevent disruptions during memory recall. In this way, only information that is relevant is shown. The person can also get more detailed information by using their fingers to zoom in to reveal the text; this gives the person the agency and choice to view those varying levels of information. The explorations and studies point towards design interventions that provide and indicate movement. The idea of falling stories can be a beneficial way of showing the time between when each story was told and the speed at which it falls into place.

Figure 7.59 — Interface design showing how a recording of a story builds up over time and the transformation from lines to text

See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/ribbon.mp4>

See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/typography.mp4>



## How can the design of an additive space encourage individuals to build on existing stories in the digital archive using graphical and textual features?

**7.2.3. ADD(ING) TO A STORY** When we think about telling a story, there are moments when people go back and reference part of the story. We go back to stories to add to, reiterate, or build out the story, each of which can happen in real time or much later. The idea for this investigation is not to edit the existing story to show perfection but to show the imperfection of storytelling through the experience and behavior of the information. This study looks at adding to a story as a way to build out the richness and complexity of storytelling. In this investigation, it is important to articulate the difference between adding to a story versus commenting on a story. Adding to a story adds to the richness by providing extra details or descriptions, whereas commenting on a story elicits a response, thereby asking a question to clarify a detail.

**Visual Exploration Phase** During the visual exploration phase, I looked at different methods that currently exist and which allow individuals to add information, call attention, or add marginalia to existing stories (Figure 7.60–Figure 7.62). Mapping out existing methods allowed me to expand textual and graphical features that can be added to the system which I am designing. The textual and graphical features come from the conceptual framework for interactive cartographic storytelling that breaks down annotation—in this case, renamed as add(ing). Adding to an existing story is a visual aid that is important because it can provide additional information and different forms of representation, and also layer in a storytelling experience. Additions to stories provide moments of context, which help nest information in a hierarchical manner or emphasize an element.

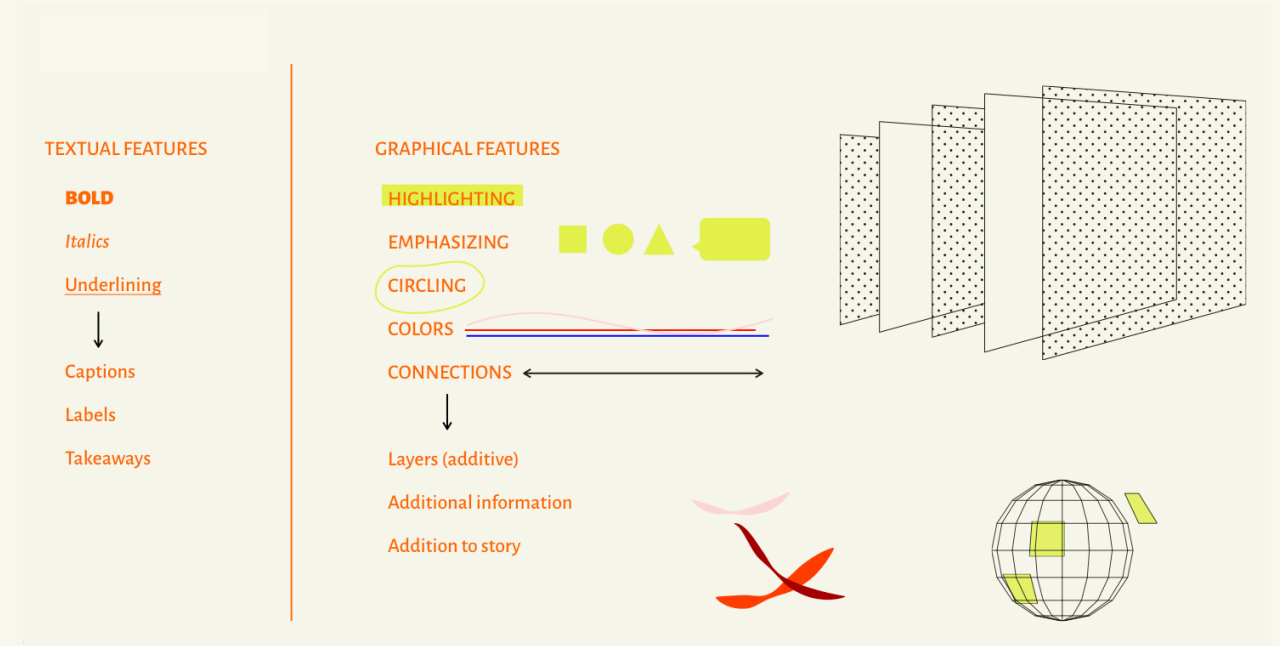


Figure 7.60 — Early exploration of what additions to a story entails

**Types of Additions**

Through research and exploration, I came up with six types of additions (listed and described below) that can take form in the digital archive (Figure 7.61 and Figure 7.62). The types of additions focus on the organizational strategies, which look at where the added narrative will be placed in relation to the story. By looking at these different possibilities, the additions to a story can be diverse and take various forms.

- + **Overlay:** this places the added narrative on top of the story.
- + **Side:** this places the added narrative on the side, which can be placed to the left or to the right of the story.
- + **Bottom/top:** this places the added narrative above or on the beneath the story.
- + **Expanded:** this places a small icon right next to the story that expands when you click on it.
- + **Highlight:** this places a highlight on top of the story.
- + **Network:** this creates a network from information that is highlighted on top of the story.

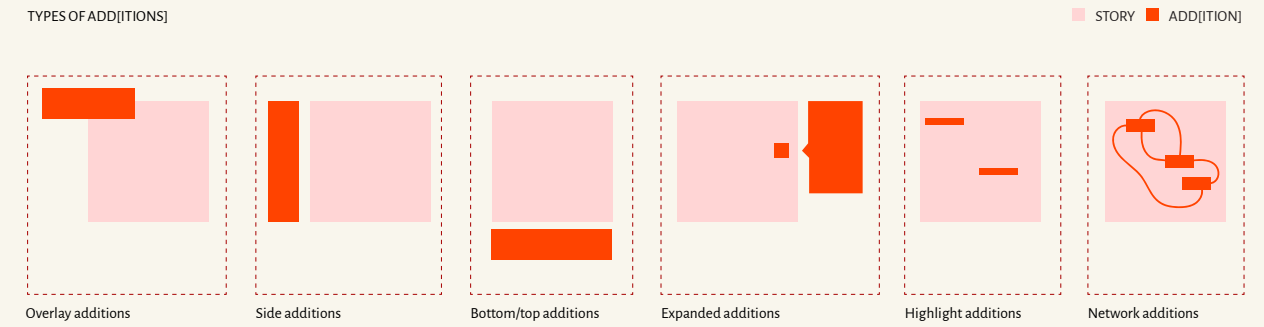


Figure 7.61 — Types of add(itions) taxonomy, which looks at existing methods

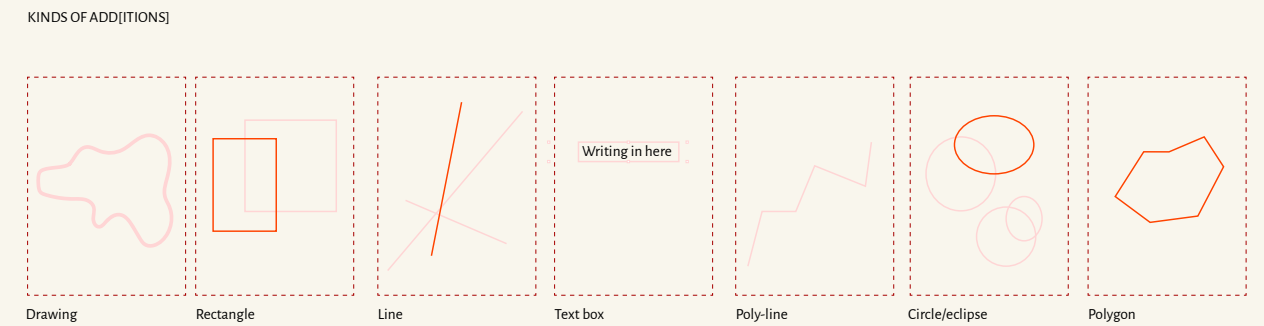


Figure 7.62 — Kinds of add(itions) taxonomy, which looks at how they can be drawn on a story

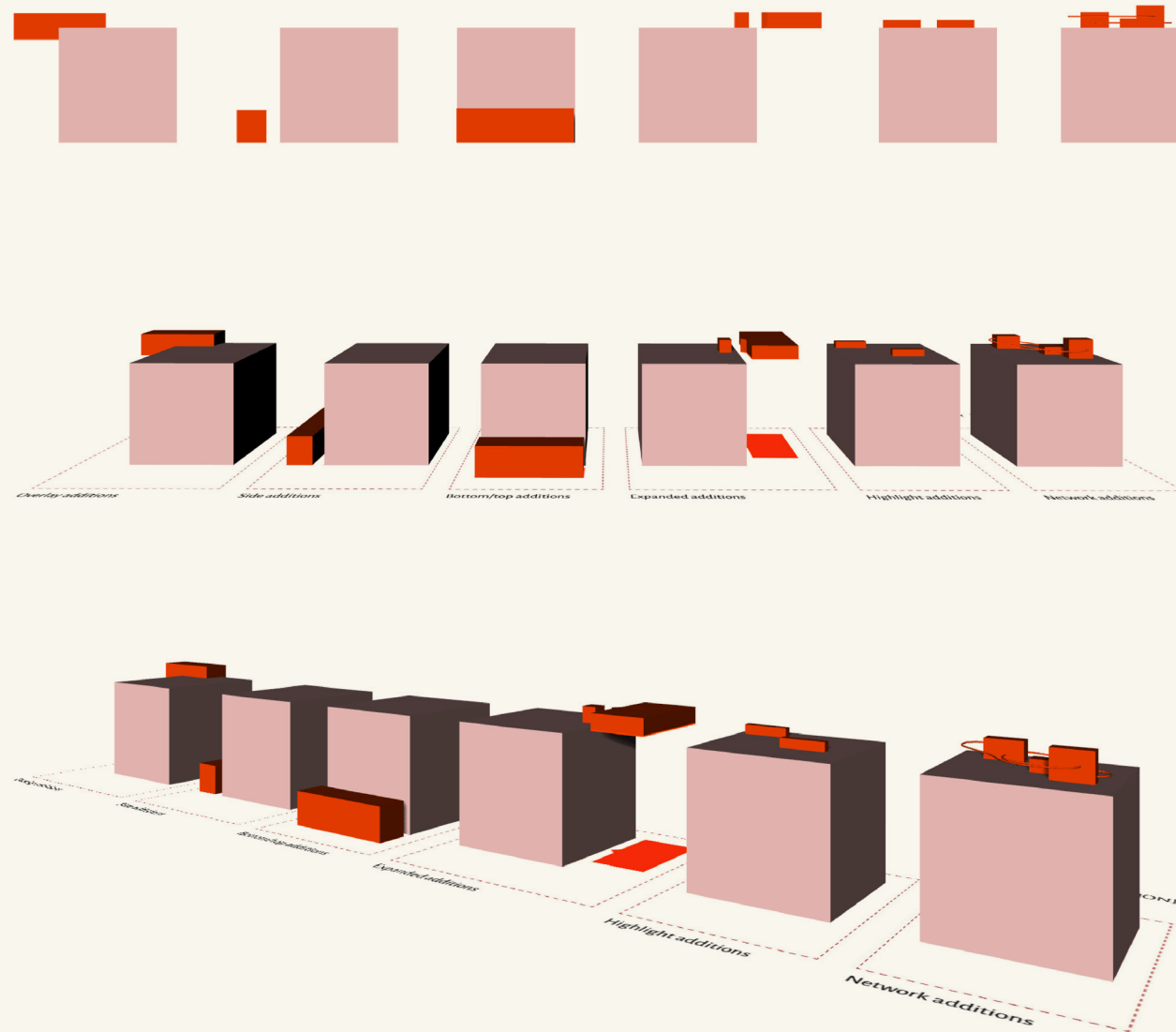


Figure 7.63 — Transforming existing add(itions) into a three-dimensional space

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/additions.mov>

**Outcomes** Creating a taxonomy of “additions” for a storytelling experience in two-dimensional form helped me get a better sense of how information and richness may be added to a story. After creating the taxonomy in two-dimensional form, I created it in three-dimensional form to address the spatial qualities and experience of the digital archive (Figure 7.63). During the visual exploration phase, I noticed that the behavior between the primary and secondary information can shift to create dynamic micro interactions. By shifting the hierarchy between primary and secondary information, the movement becomes a metaphor for traveling and listening to a story in a physical space. All of the organizational strategies, with the exception of the network, proved to be useful and impactful when adding to an existing story. The network of organizational strategy suggests a higher level of intelligence for that feature to function, which is not within my scope of research. Adding to a story highlights the idea of version history, where the information that is shown to people is seen as perfect without any edits or changes. However, with this investigation, the building of the story is evident through multiple editions, which proves to be more useful when thinking about showing the imperfection of storytelling

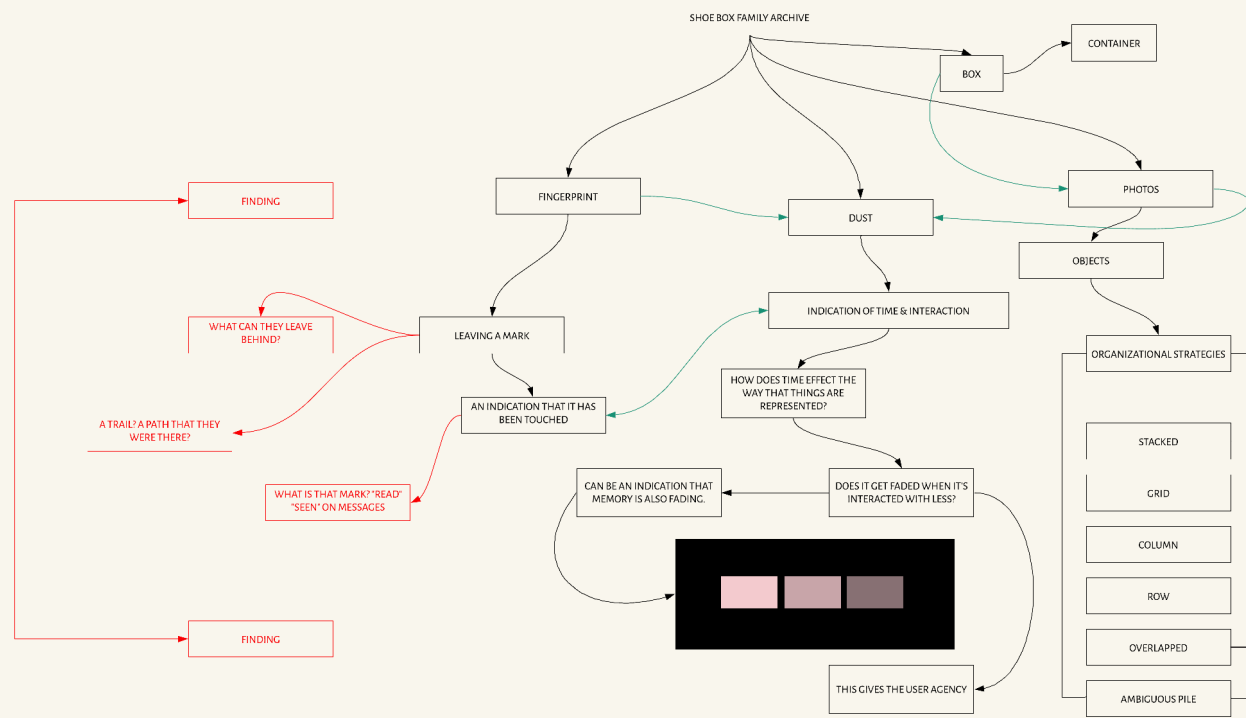
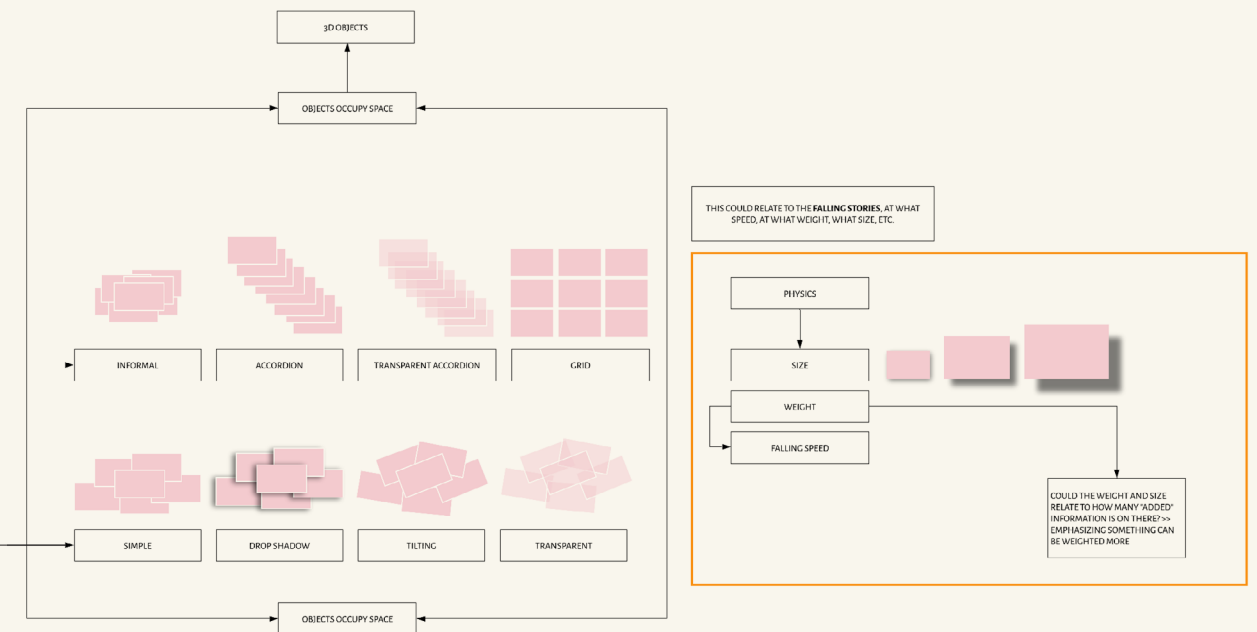


Figure 7.64 — Mapping the components of a family archive shoe box and looking at organizational strategies that are used



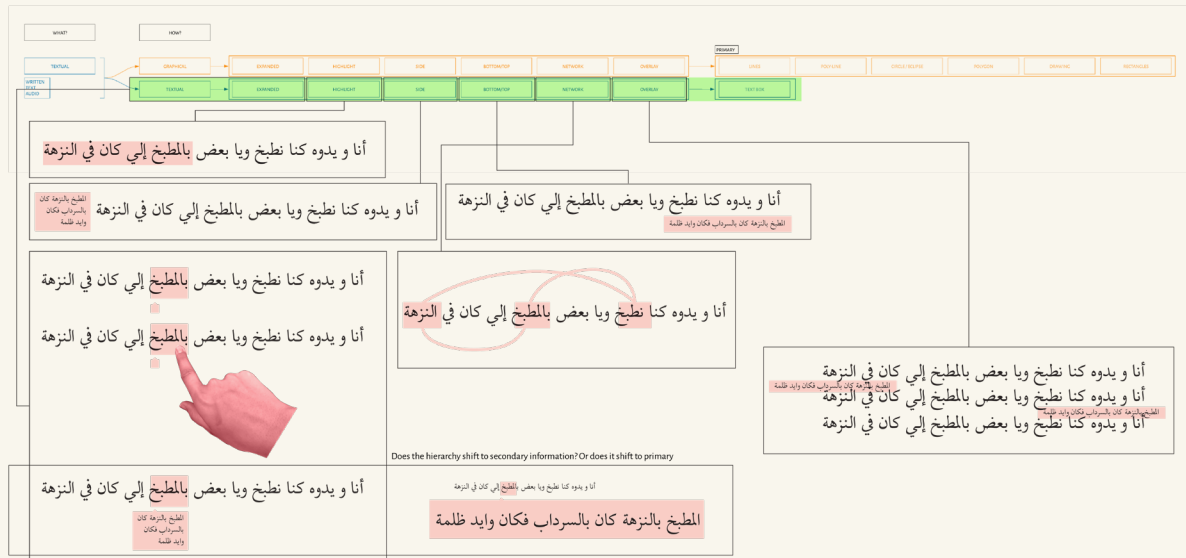


Figure 7.65 — Adding to a textual story using text elements

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/shiftingtext.mp4>

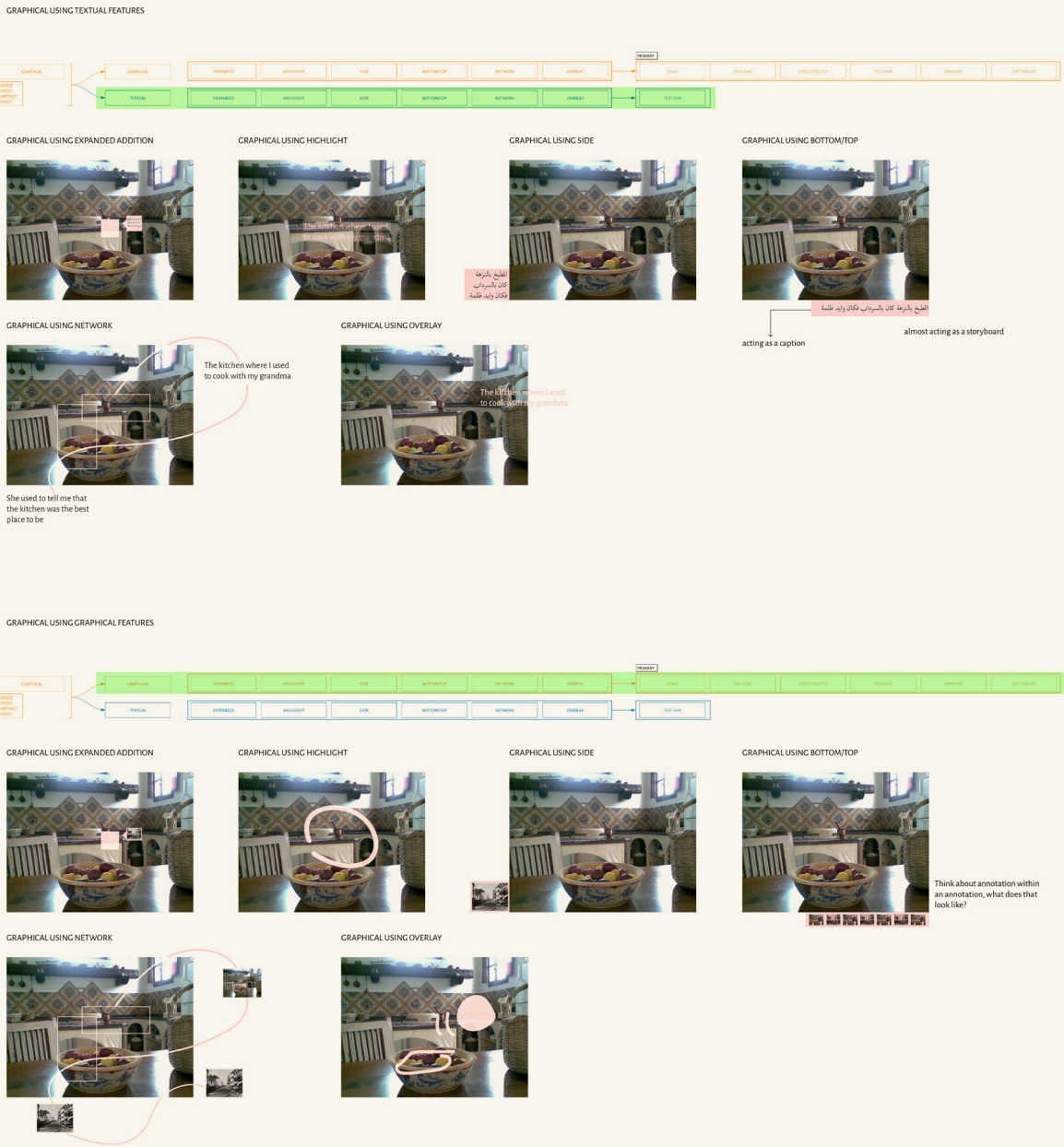


Figure 7.66 — Adding to a graphical story using graphical elements



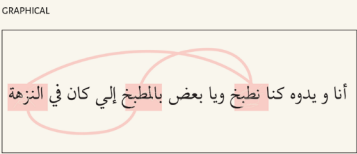
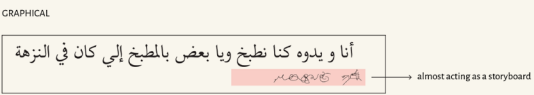
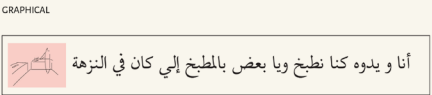
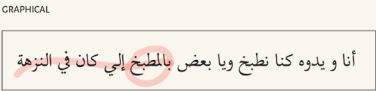
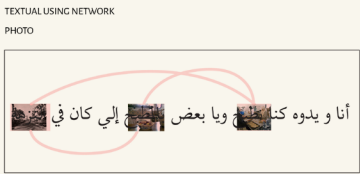
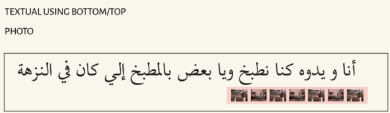
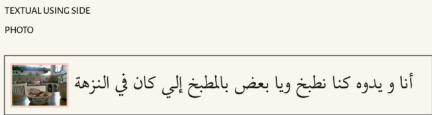
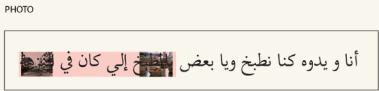


Figure 7.67 — Adding to a textual story using graphical elements like drawings or photos

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/shiftinggraphics.mp4>

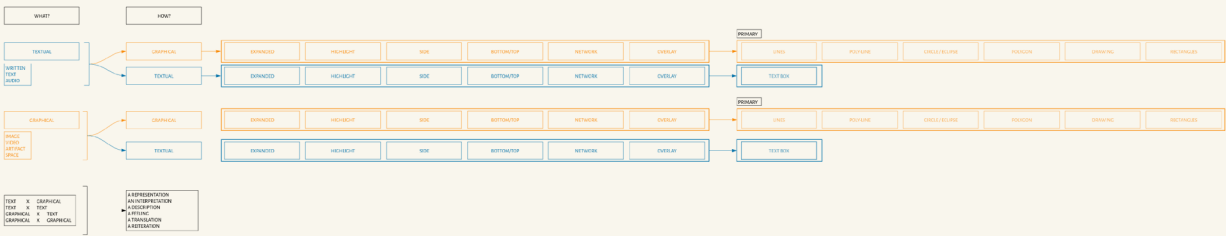


Figure 7.68 — Diagramming what a story and addition are made up of — graphical and textual features that are broken down into different types

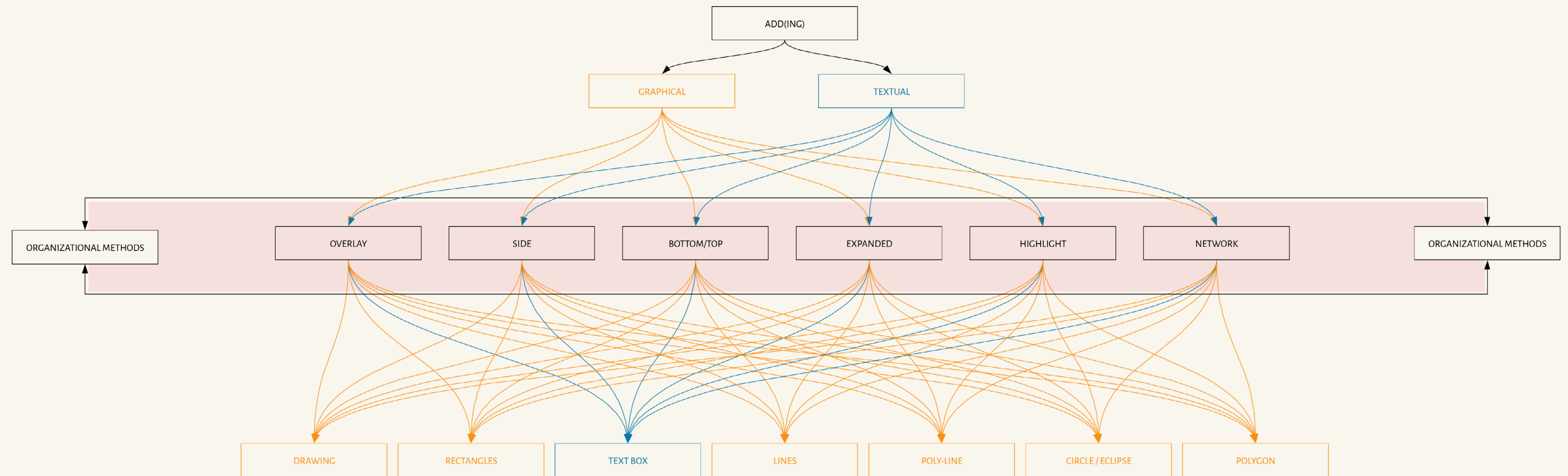


Figure 7.69 — Mapping the components of graphical and textual features that can take form in the digital archive; mapping organizational methods

Organic Forms as the Story

The following collection of visual studies explores the form of a story (Figure 7.70 –7.72) and what adding to a story in a three-dimensional space could look like. In response to how a story should be visualized, I went back to re-visualize stories as organic forms to reference the ways in which people tell stories. These forms capture the fleeting qualities of oral stories through their three-dimensional structure. The placement of these forms is temporal-based, each one falling into place based on when the story was told (Figure 7.73 and 7.74). In particular, I was interested in how adding in a three-dimensional space could use metaphors and schemas that would communicate in a digital space such as gestalt principles.

Outcomes

This approach to visualizing a story as organic forms (Figures 7.75 – 7.79) captured the essence of oral storytelling in a digital archive. These forms could also be handled differently by creating rules for how the shapes take form. By altering and writing rules for the shapes, I found that photos should be flatter, providing more surface area and softer edges so that people can clearly see the photo. I also found that the form of the text should be more shallow than deep by using linear, organic forms and having the text follow the form. By creating stories that are organic, the additions to the story can become rigid and fixed, thereby representing the way we read a book and annotate in the marginalia.

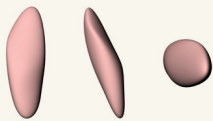


Figure 7.70 — Early explorations of organic forms as blobs

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/blob.mov>

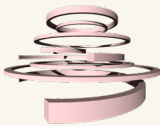


Figure 7.71 — Early explorations of organic forms with rotating spirals

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/rings.mp4>

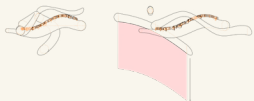


Figure 7.72 — Final exploration of organic forms with three-dimensional type

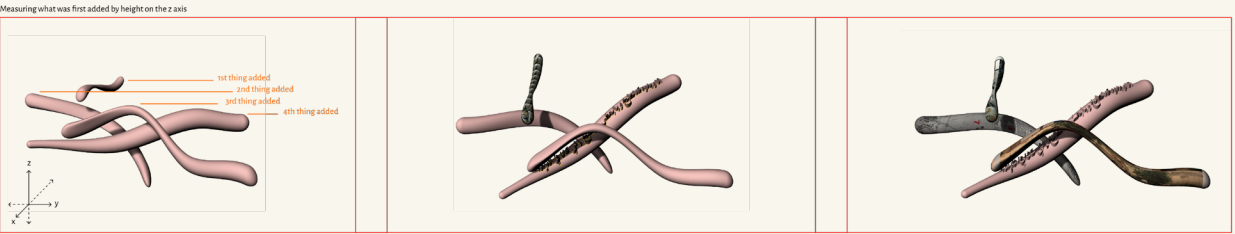


Figure 7.73 — Exploring organic forms to represent a story and contextualizing the forms

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/organic.mov>

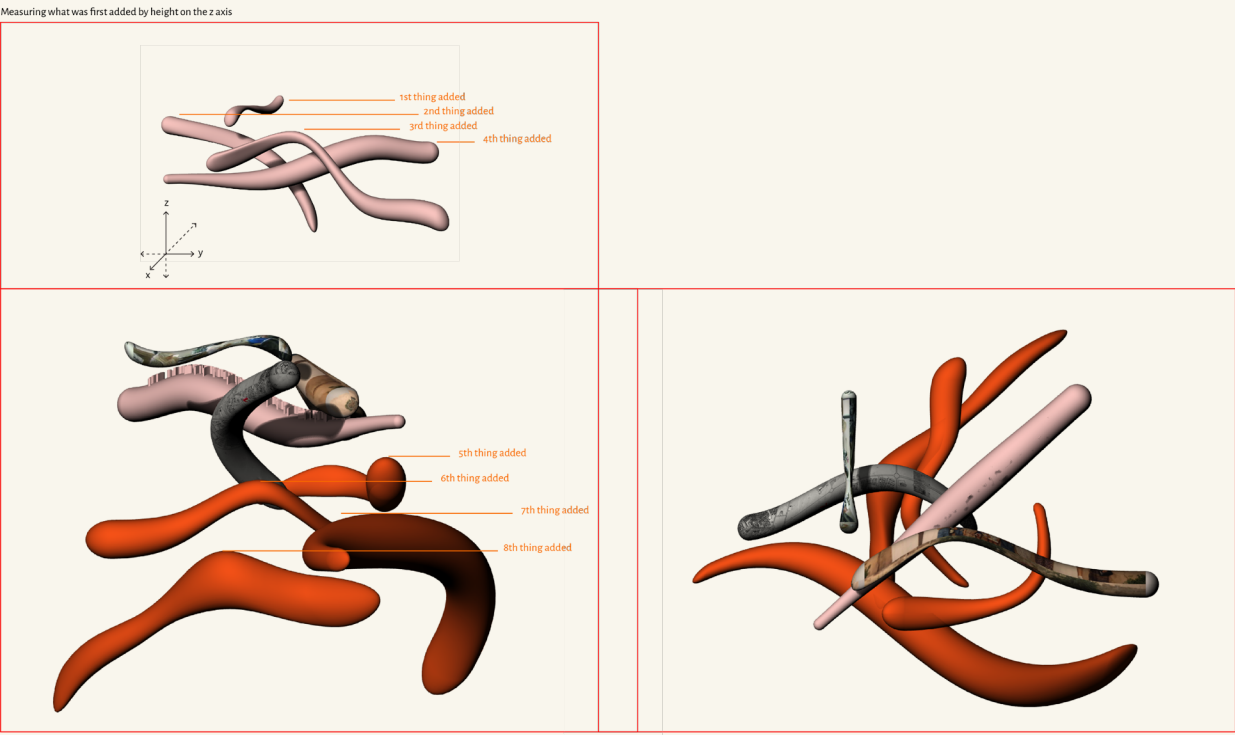


Figure 7.74 — Diagramming out the parts of the story and the order things were told

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/organictwo.mp4>

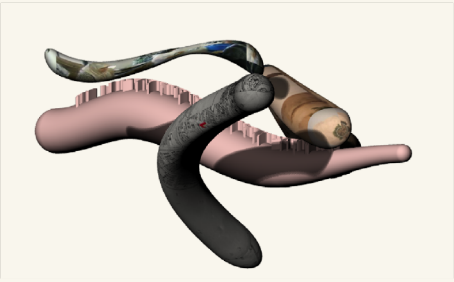
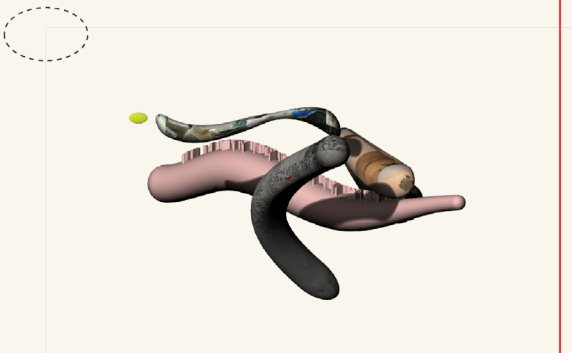
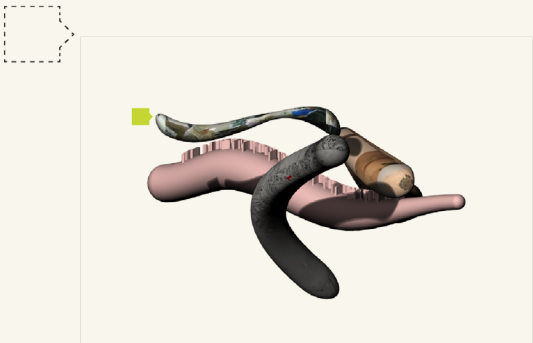
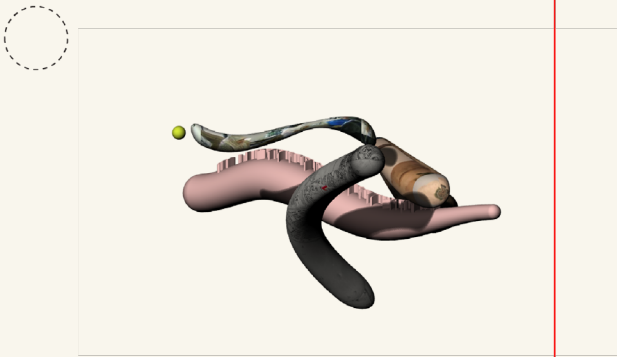


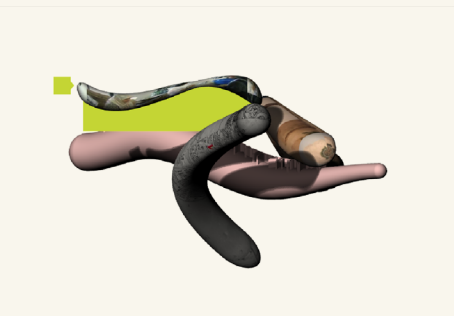
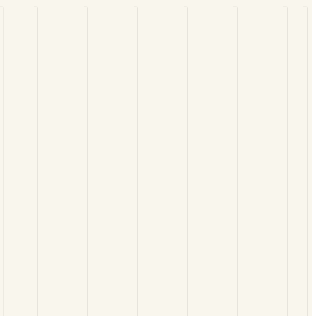
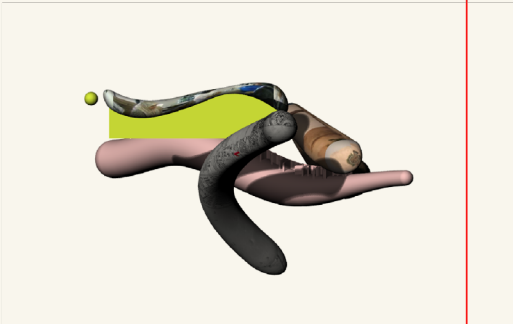
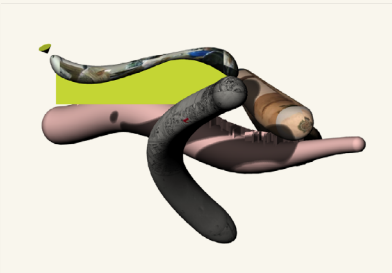
					
					
ELLIPSOID		EXPANDED		SPHERE	
					

Figure 7.75 — Visualizing different types of three-dimsnional expanded add(itions) to a story

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/stories.mp4>



Figure 7.76 — Visualizing different types of three-dimensional textual add(itions) to a story



Figure 7.77 — Visualizing different types of three-dimensional textual add(itions) to a story and organizational methods

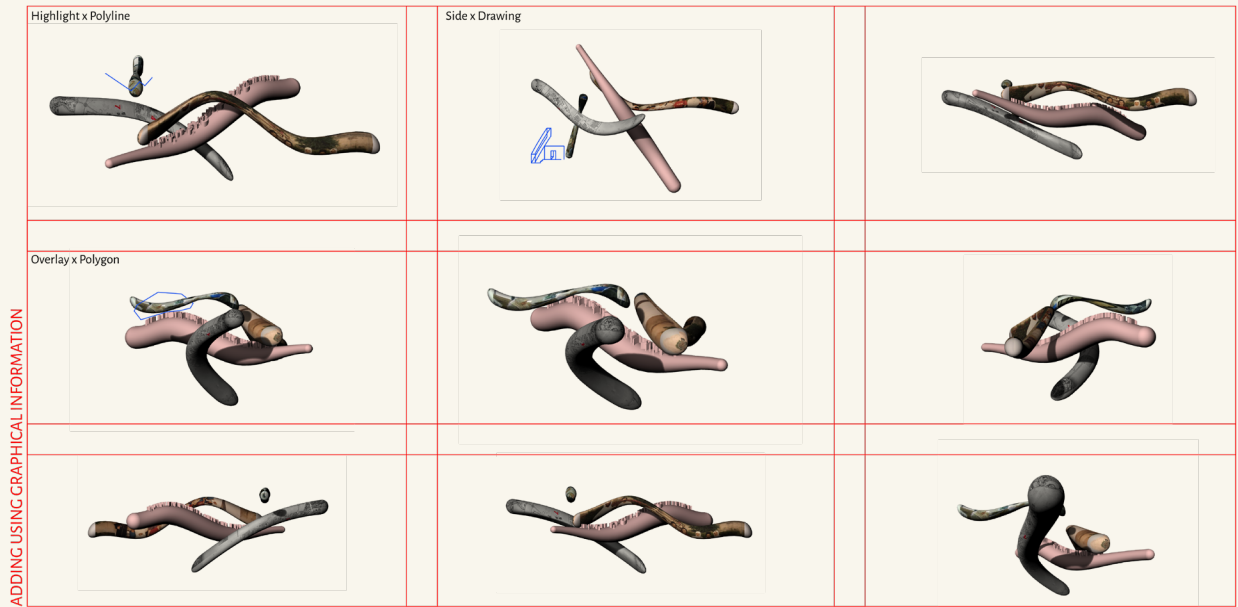


Figure 7.78 — Visualizing different types of three-dimensional graphical add(itions) to a story

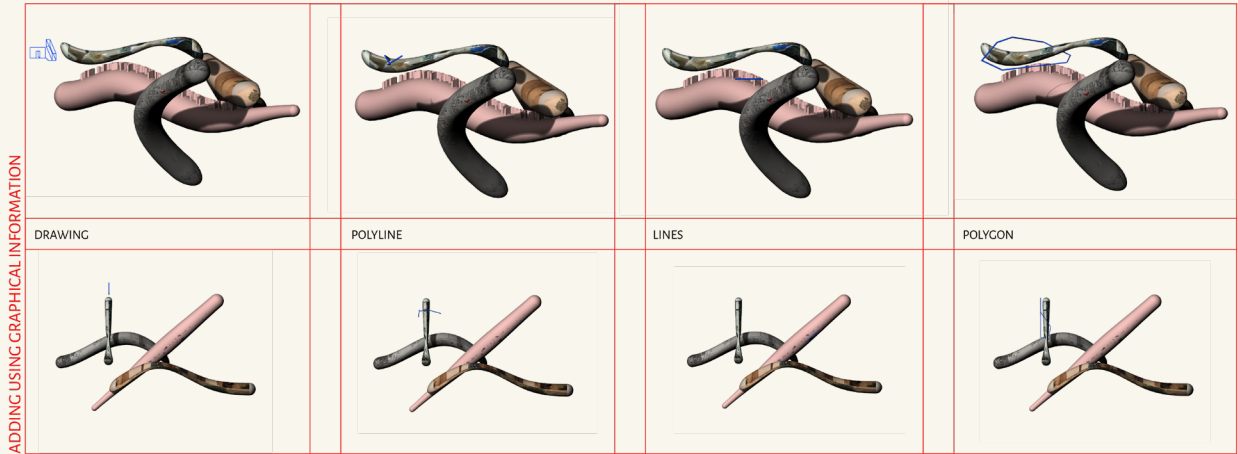


Figure 7.79 — Visualizing different types of three-dimensional graphical add(itions) to a story and organizational methods

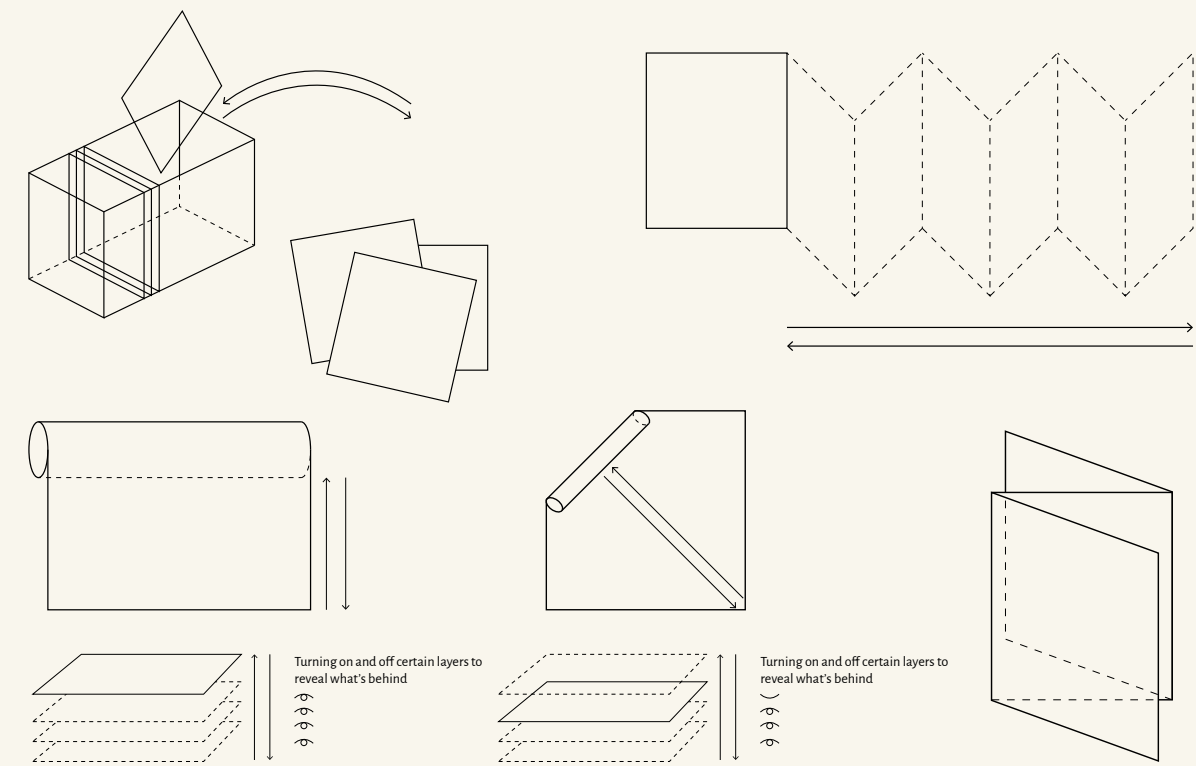


Figure 7.80 — Diagrams showing schemas for archival practices and methods

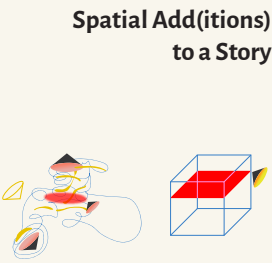
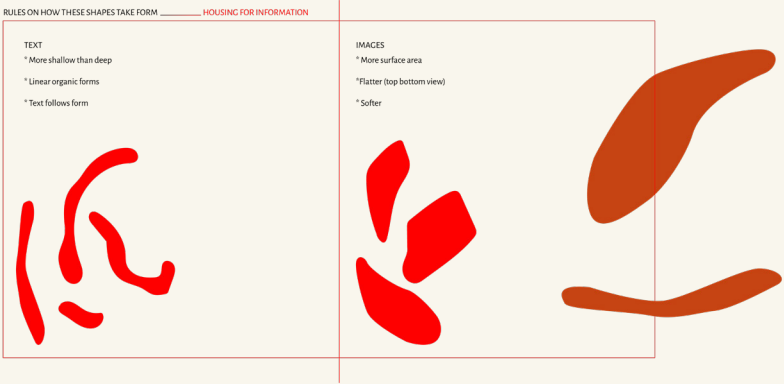


Figure 7.81 — Exploring different organic forms that represent a story

Figure 7.82 — Creating rules for how the shapes take form in the archive

**Spatial Add(itions) to a Story**

Through continued design investigation, I looked into how the form of the stories and additions to a story can cohesively live in the digital archive. By creating rules for how the shape takes form (Figure 7.87), the digital archive becomes more intuitive in the way it differentiates between text and images. The images now take shape as a flatter, softer form, while the text remains as a longer, organic form. The following images show the different perspectives of this three-dimensional space as well as the additions to the story. By creating them at the same time, the form of the story and the added fragments of the story visually respond to each other. Figure 7.93 shows how a story can be built, from the top to the bottom or from the bottom to the top.



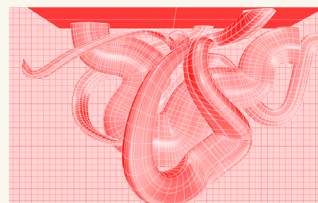
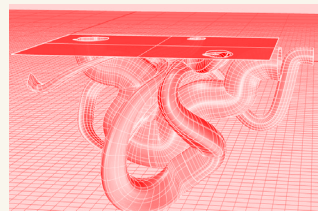
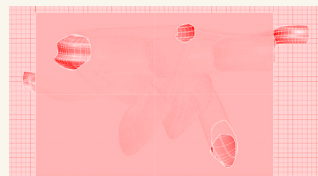
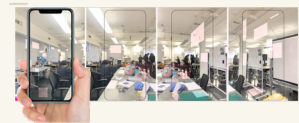
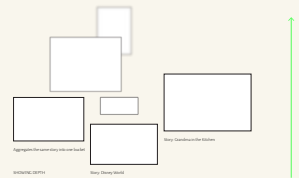
**Outcomes**

By creating rules for the way the shapes take form, differentiation between an image and text is highly evident, where people can infer that the two forms represent different types of information. The forms are placed using a temporal infrastructure, showing the top as the beginning of the story and the bottom as the last piece of the story. Through this exploration, it is clear that additions to a story can take lessons from annotations that currently exist. By analyzing existing methods for annotations and transforming them by translating them into a three-dimensional space, designers can focus on what adding to a story looks like. Adding to a story proves to be a valuable feature to show the imperfect nature of storytelling and how building a rich story over time can become endless.



## How might temporal and implied spatial distance in an interface help individuals navigate and find stories in an archival landscape?

### 7.2.4. FIND(ING): THE ARCHITECTURAL INFRASTRUCTURE OF A STORY



Ref. figures — See pages 122–124

The act of finding a story is an important activity when navigating an archival landscape. The act of finding stories takes form in the physical space as well, where people seek information by asking the right person or by looking for fragments of physical artifacts in their family shoe boxes. The activity of finding a story looks at ways we navigate through the physical space by analyzing and pulling from it to create a digital experience. In the physical space, we walk around hearing all the conversations happening around us, but we listen to the stories that most interest us. Designing an experience that allows people to hear and listen to stories brings awareness to the forgotten memories, which, similar to the collection of dust on printed photos, indicates time and interaction. Forgotten and lost memories should be treasured because they are human and occur naturally; they are active and essential to thinking and remembering. The following explorations demonstrate how people can leverage the use of time in space to explore and find stories in new ways. In thinking about transnational families and the travel that they have to endure, the design of the interface reconstructs that experience with the idea of time traveling (Figures 7.83–7.89).

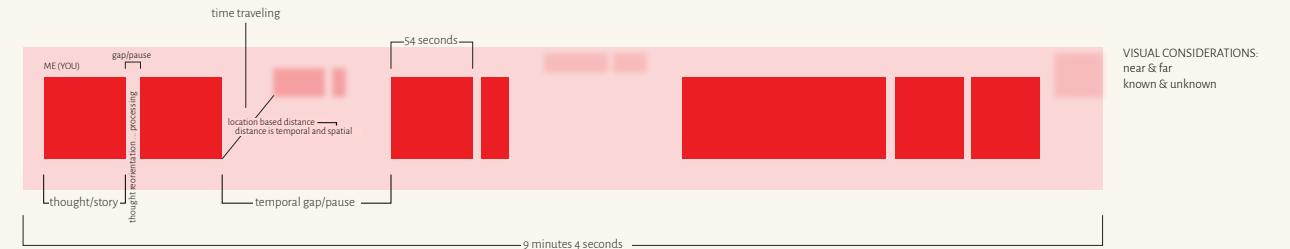


Figure 7.83 — Diagram showing the temporal and spatial aspects of finding a story in an archive

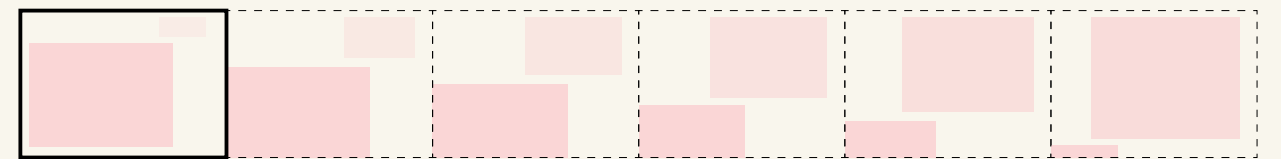


Figure 7.84 — Sequence of hierarchy shifting between foreground and background



Figure 7.85 — Shifting the hierarchy between two elements, controlling the blur and opacity of the story

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/time.mov>

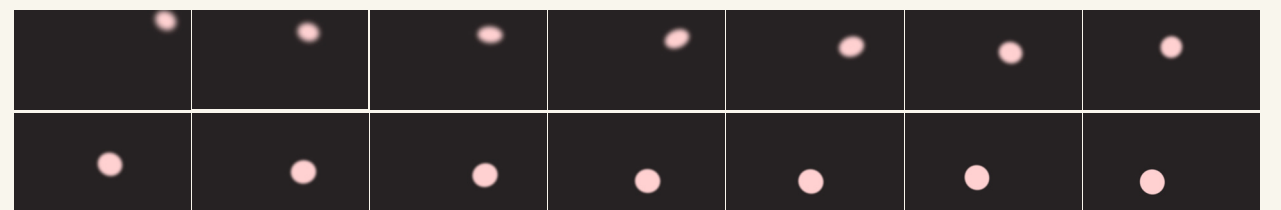


Figure 7.86 — Exploring what falling stories look like through animations; how a story would fall into place

See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/falling.mov>

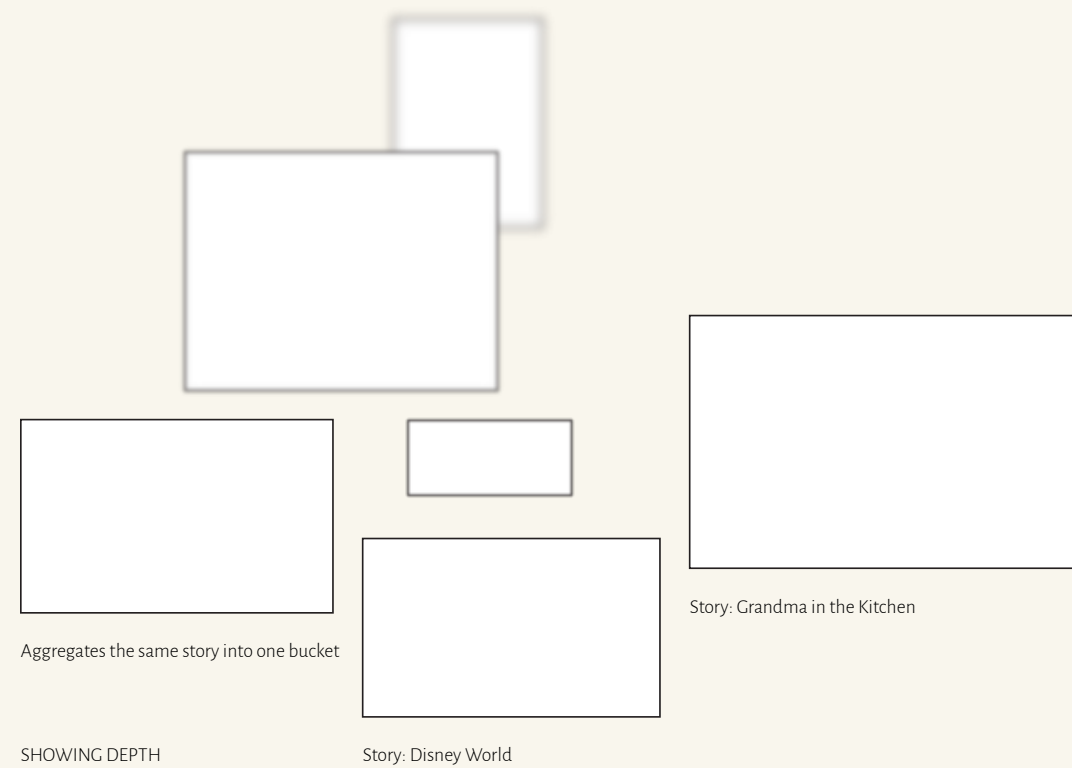


Figure 7.87 — Spatially placing stories by using depth cues and other visual languages to indicate that space

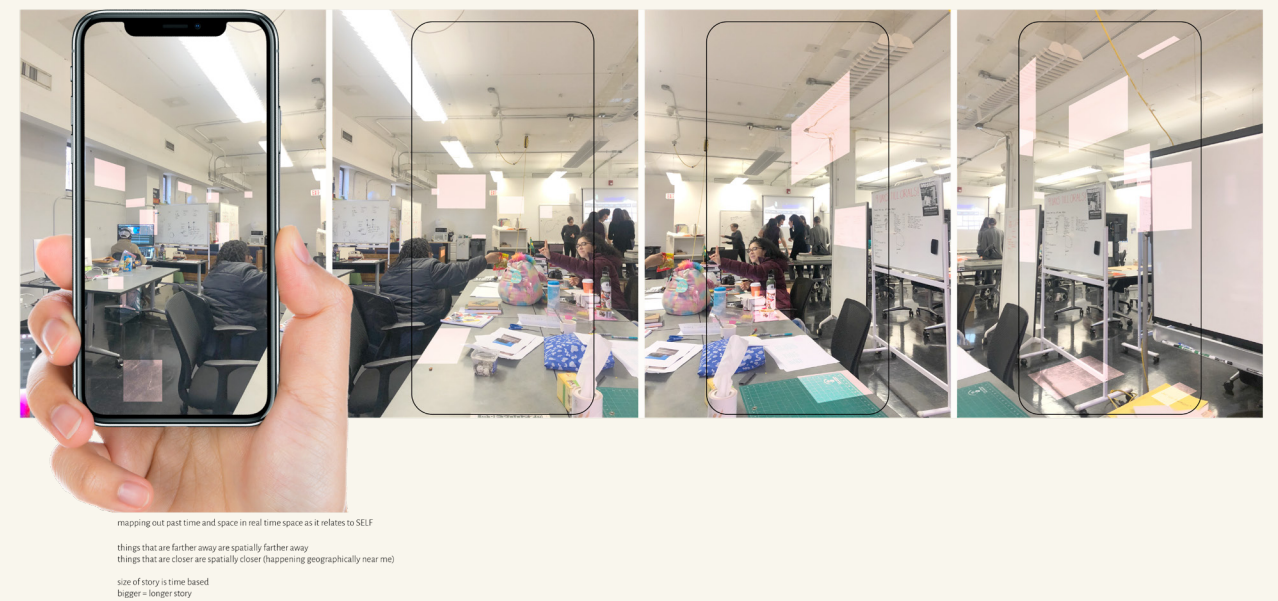
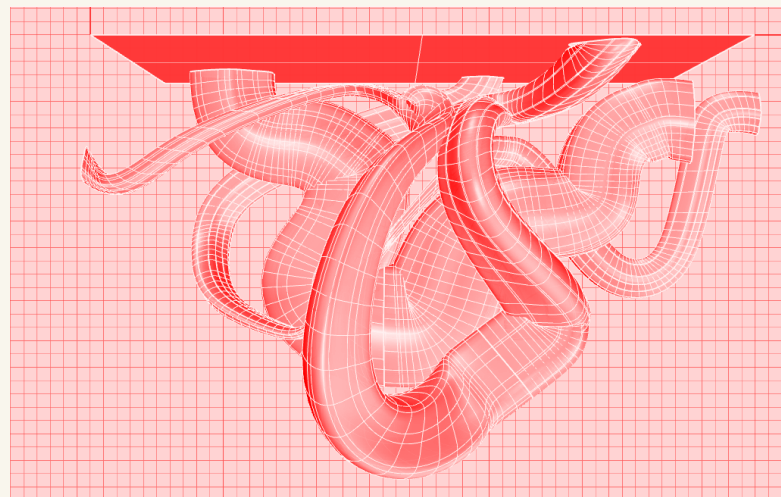
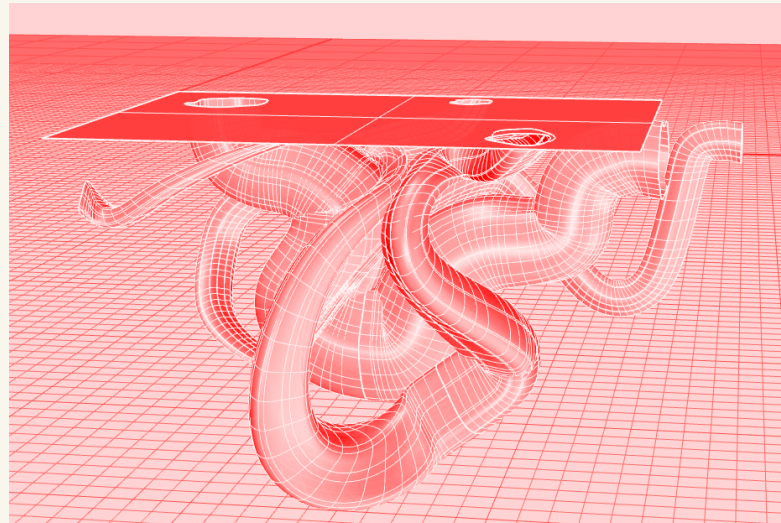
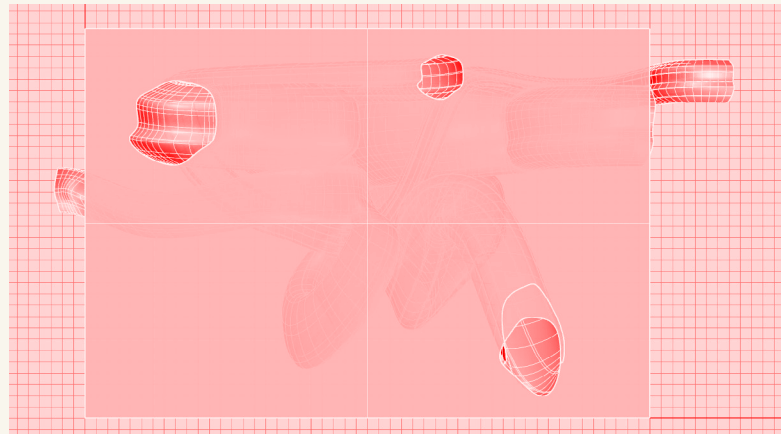


Figure 7.88 — Finding a story through an augmented reality interface, where the stories would be mapped onto the physical environment; mapping out past time and space in real time and space

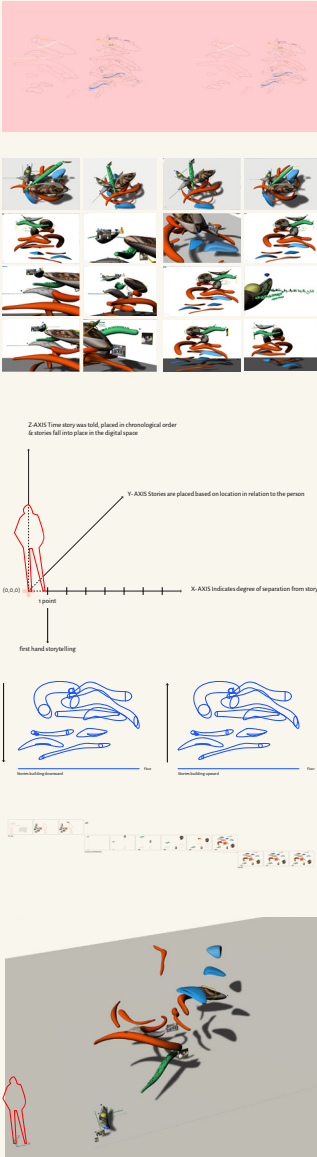
Figure 7.89 — A series of explorations that create time tunnels and time traveling, where people can go in and out of different time periods the story took place



**Outcomes** Design interventions that include traveling between time and space to find a story are valuable because it allows for multiple experiences that pull from the physical environment. The experience of finding a story that is placed spatially away from the person creates a relationship between the viewer and what is being viewed. One of the explorations looks at how augmented reality can create the layering of past time with present time, bridging the gap between the digital and physical experiences. Due to the spatial nature of finding a story and storytelling in general, the characteristics of depth were taken into consideration to enhance the perspective and perception in the digital world. An important distinction that the investigation realizes is the idea that listening, hearing, seeing, and looking are two different things. Where hearing happens intuitively and listening to a story requires focus. The same can be said about looking and seeing. Looking is something we do intuitively and naturally, seeing requires more attention.

7.2.5 SYNTHESIZ(ING) THE EXPERIENCE

A digital archive that utilizes time and space to communicate family stories as it relates to the self allows for adaptable and flexible experiences. This experience places the self at the (0,0,0) mark (Figure 7.94). The z-axis represents the time the story was told, placed in chronological order from the bottom to the top (Figure 7.95). Placing a floor as the first part of the story allows individuals to clearly see the layering of the stories through the shadows it creates. The y-axis places stories based on geographical location; the farther away the story is the farther away the person telling the story is geographically (Figure 7.96). The x-axis indicates the degree of separation from the story, referencing first-hand, second-hand, and third-hand storytelling (Figure 7.95). First-hand storytelling is when the person telling the story has experienced it firsthand.



Ref. figures — See pages 128–137

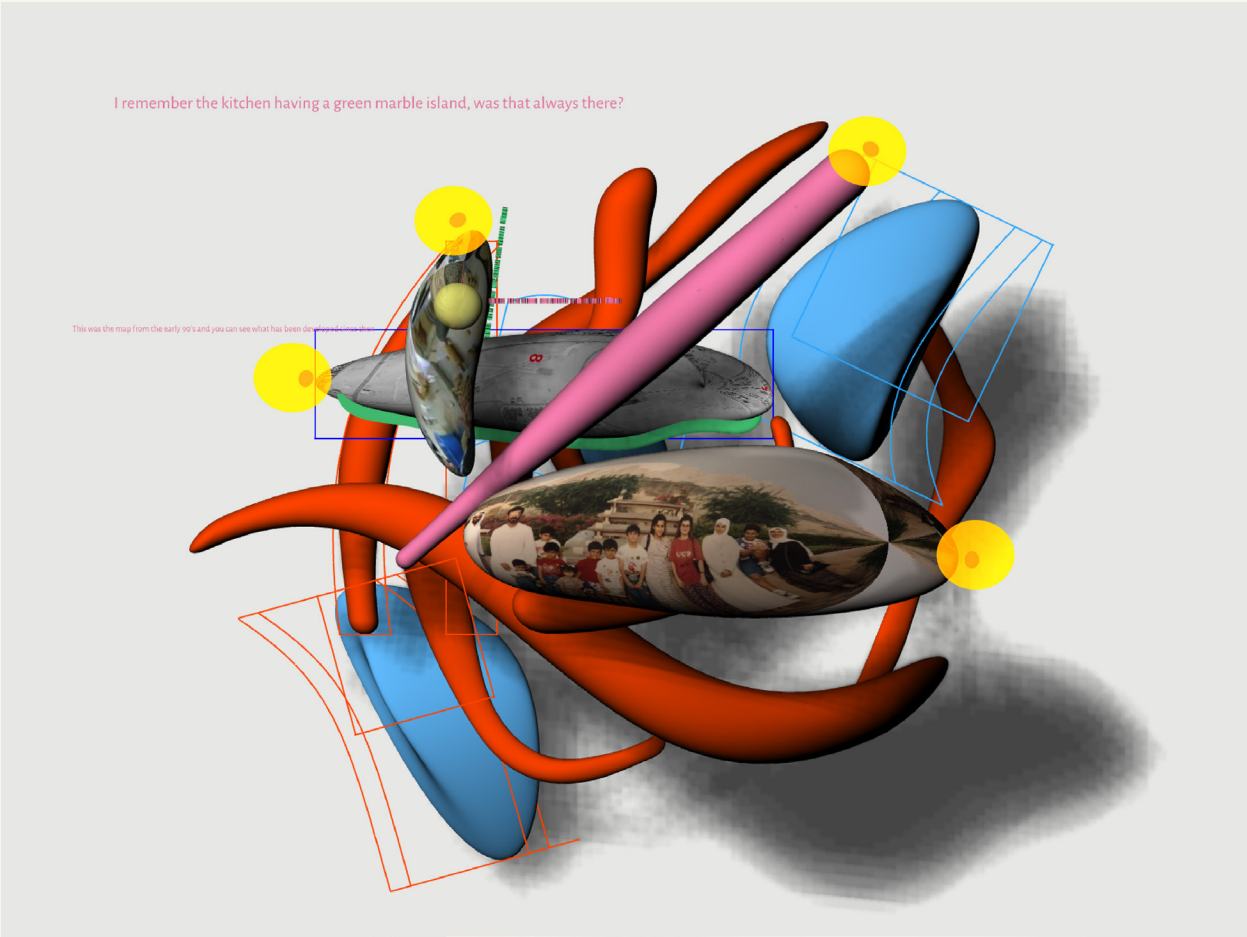


Figure 7.90 — Top view of a story, layered with fragments of stories and additions

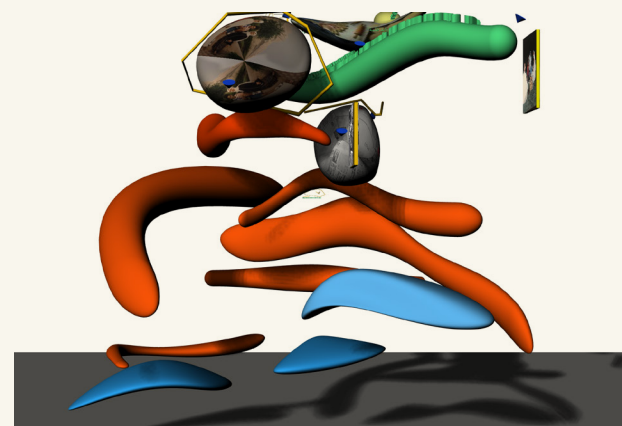
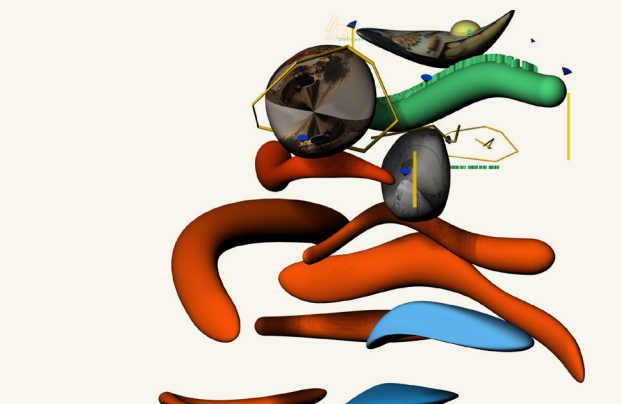
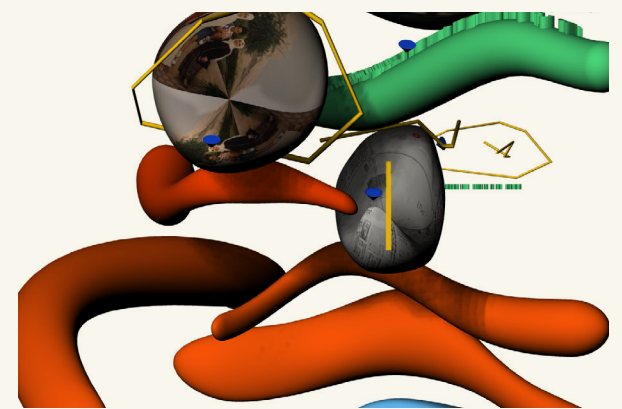
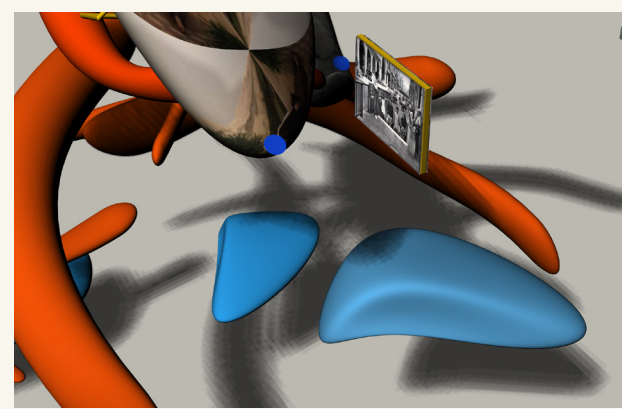
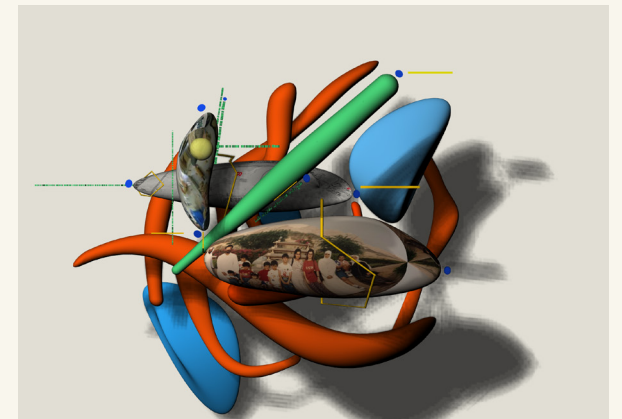
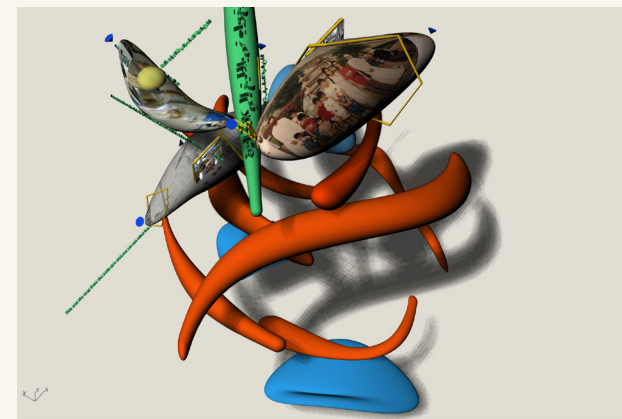
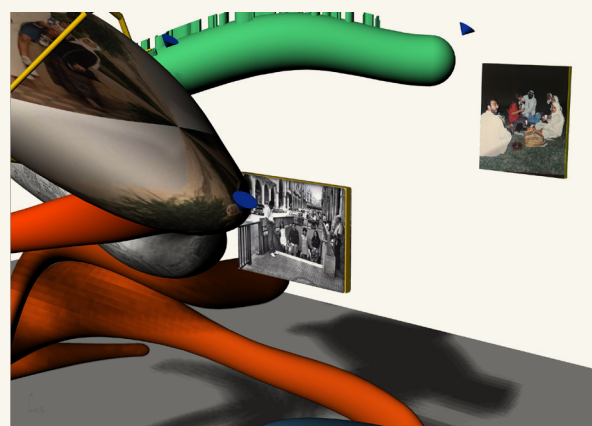
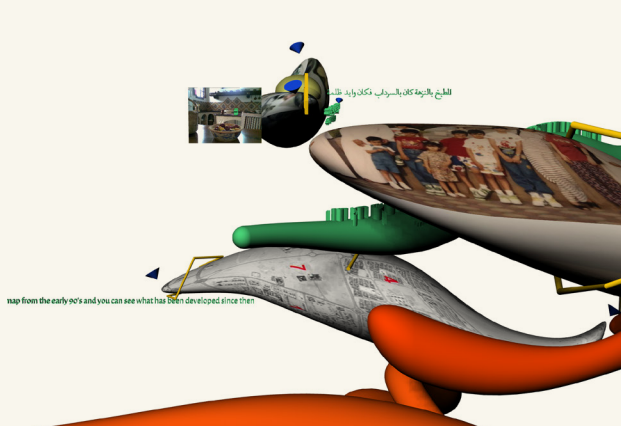
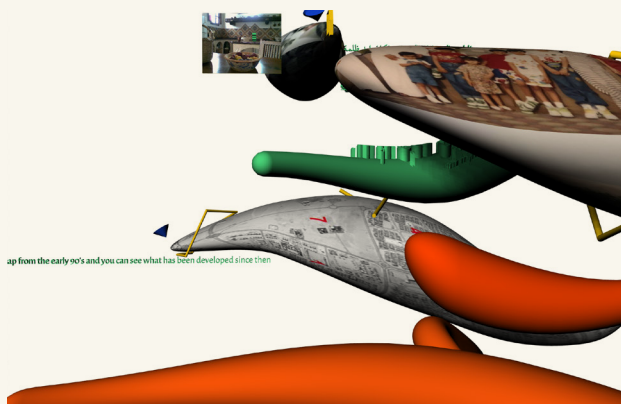
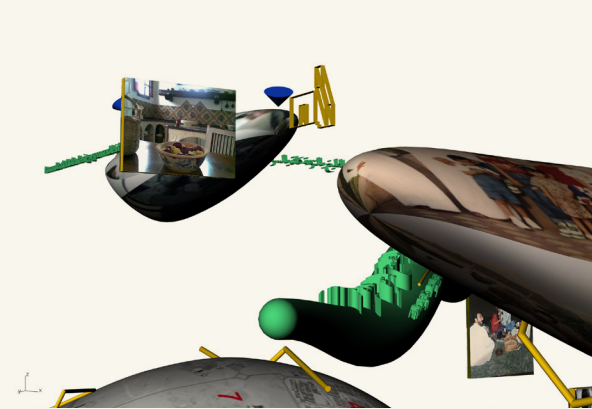
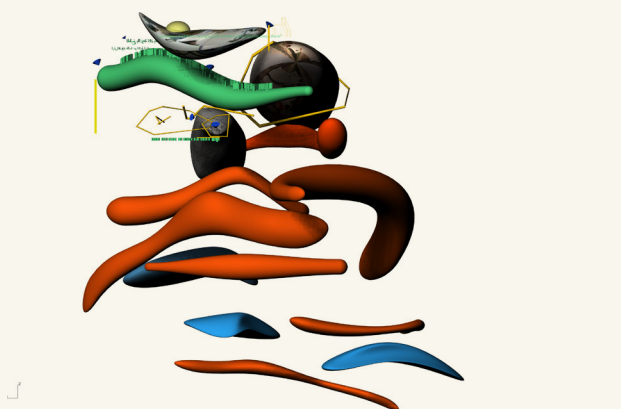
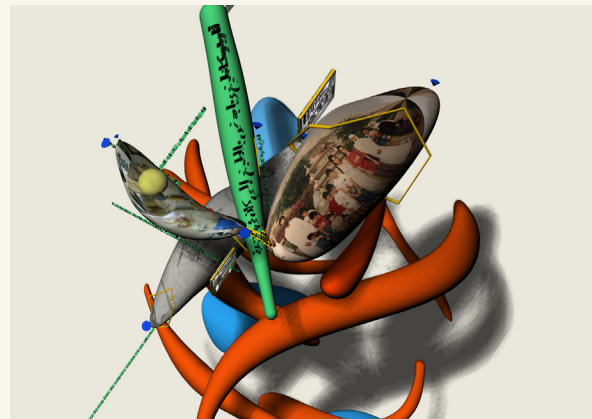
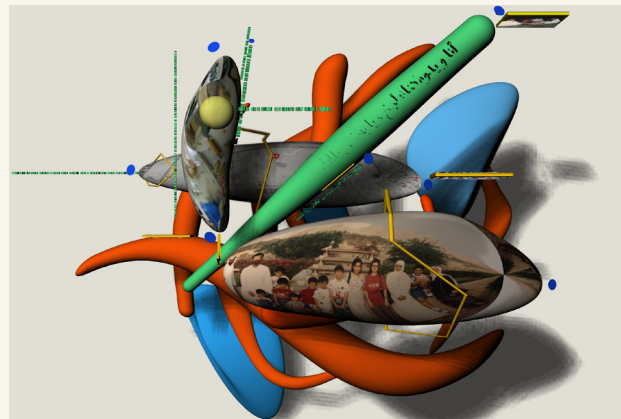
See the animation at:  
<https://college.design.ncsu.edu/thenfinally/hadi/space.mp4>





Figure 7.91 — Layering the fragments and additions of a story

Figure 7.92 — Multiple views of the story showing additions and detailed views (see pages 128 and 129)





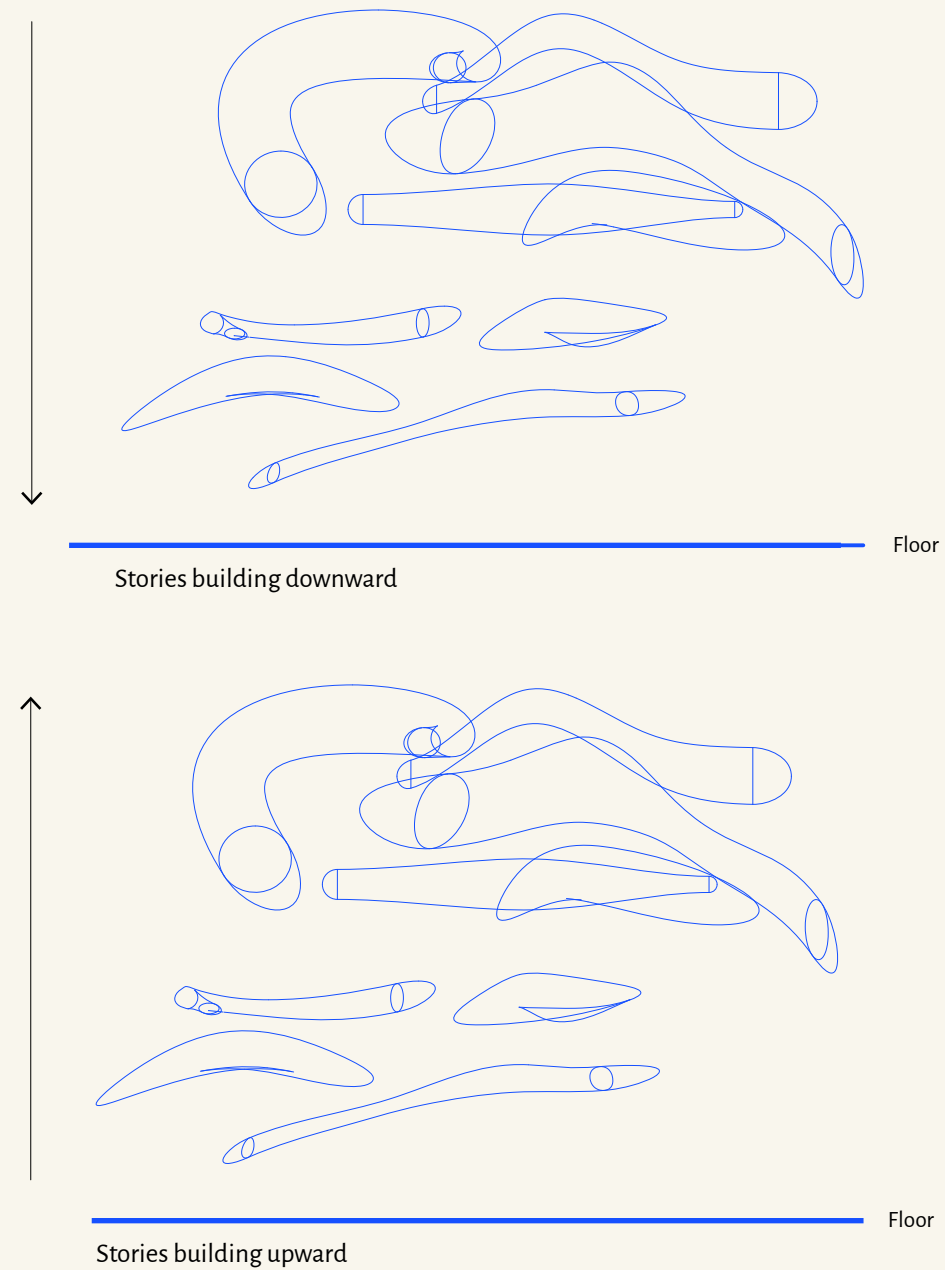


Figure 7.93 — Showing the different ways a story can be built up: from the bottom to the top or from the top to the bottom

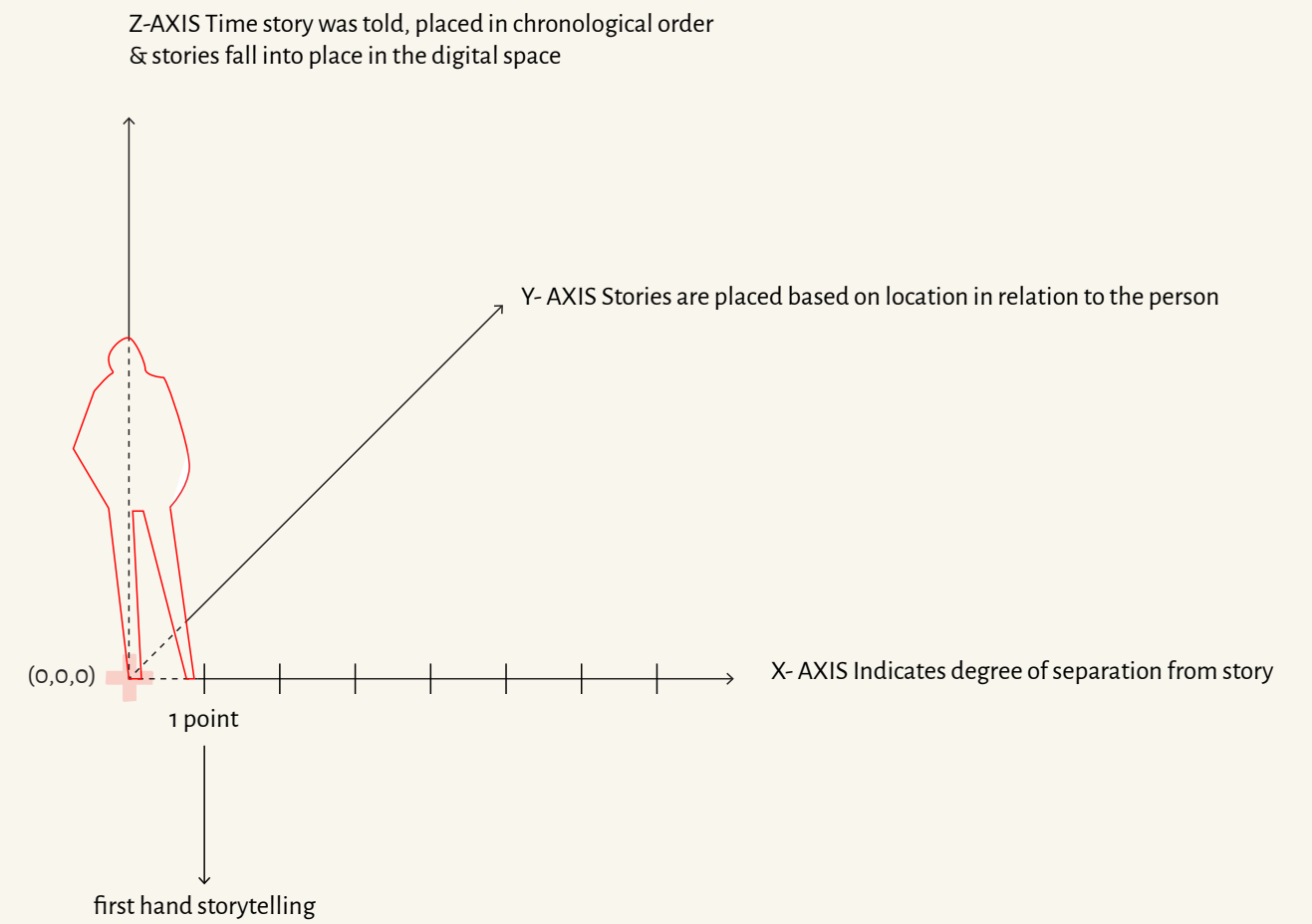
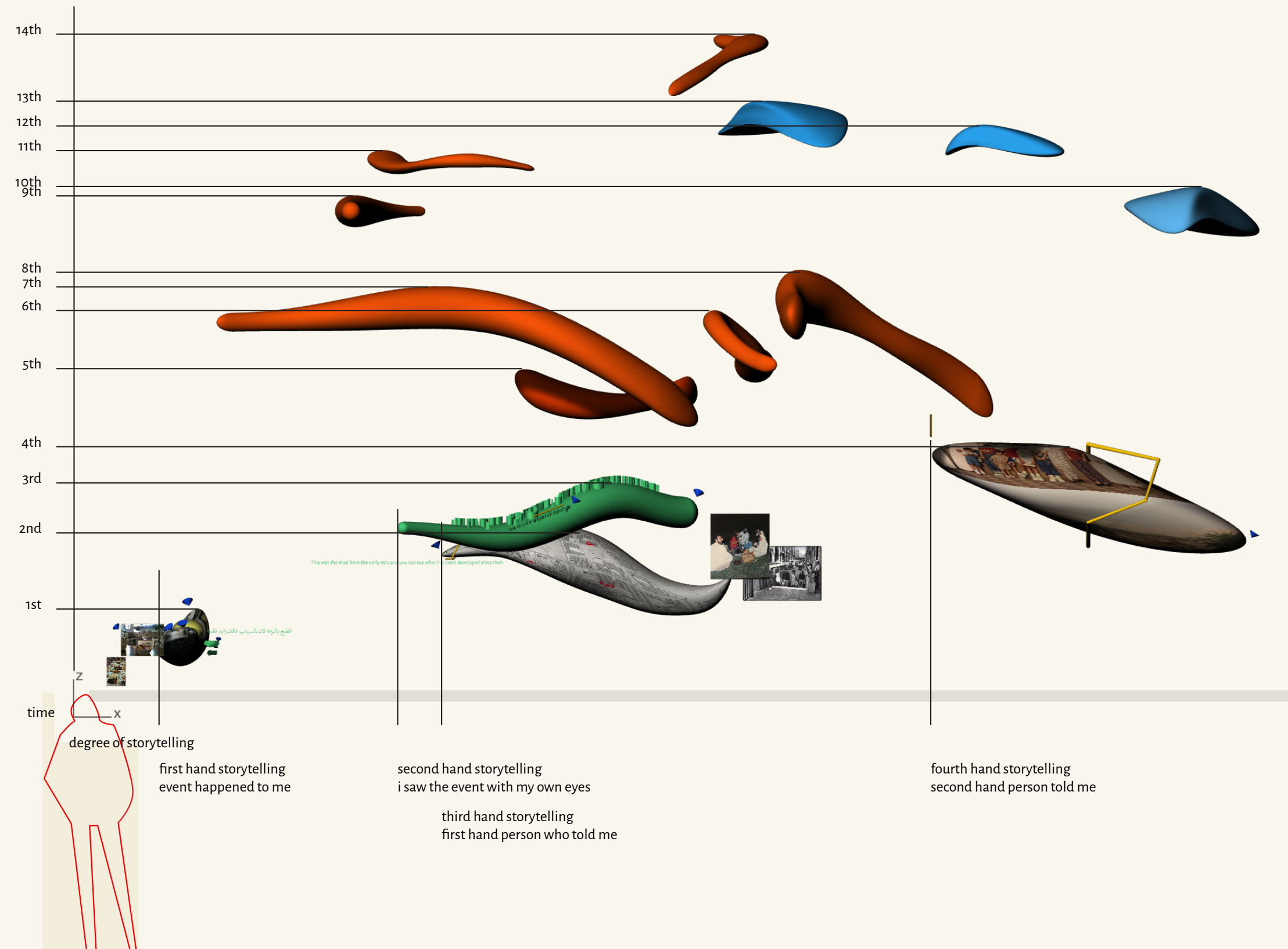


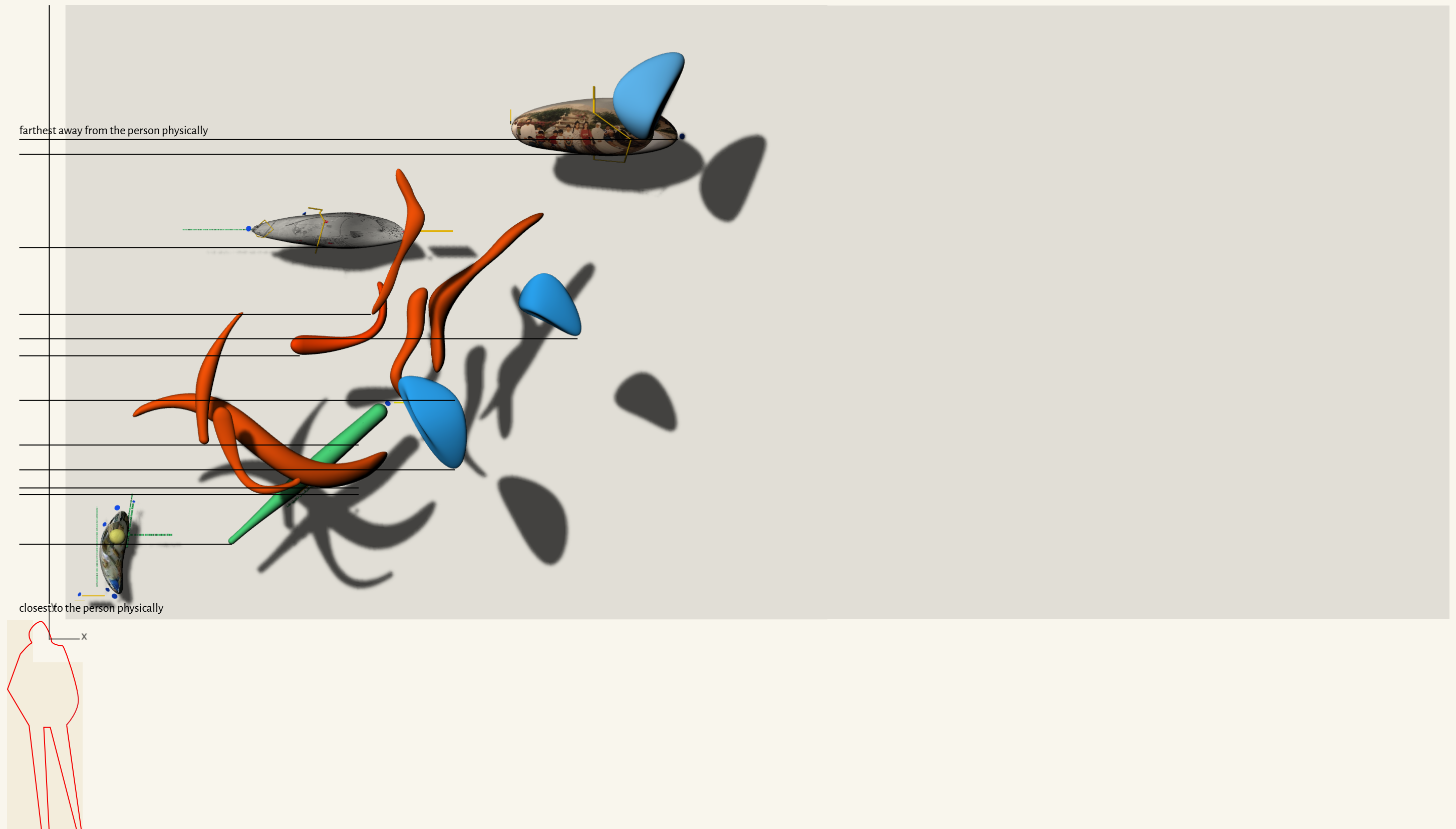
Figure 7.94 — Using the X, Y, and Z axis to place the stories as they relate to the self

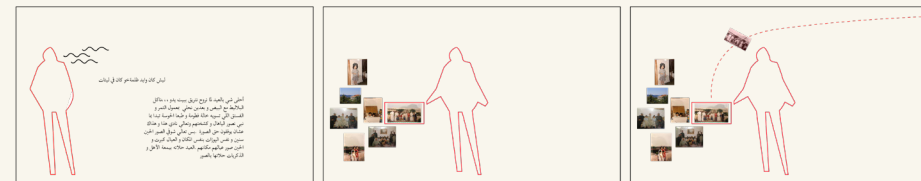
Figure 7.95 — Detailed view of how a story builds up over time on the z and x-axis (see pages 134 and 135)

Figure 7.96 — Detailed view of how a story builds up over time on the y-axis (see pages 136 and 137)

measured from the highest point







TELLING

Figure 7.97 — Storyboard showing the step by step experiential process of the digital archive.

1. You tell a story
2. The story falls into place
3. You add to the story

See the animation at:

<https://college.design.ncsu.edu/thenfinally/hadi/falling.mp4>

See the animation at:

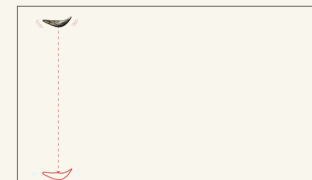
<https://college.design.ncsu.edu/thenfinally/hadi/building.mp4>

Figure 7.98 — A person seeing the story as it relates to themselves (See pages 140 and 141)

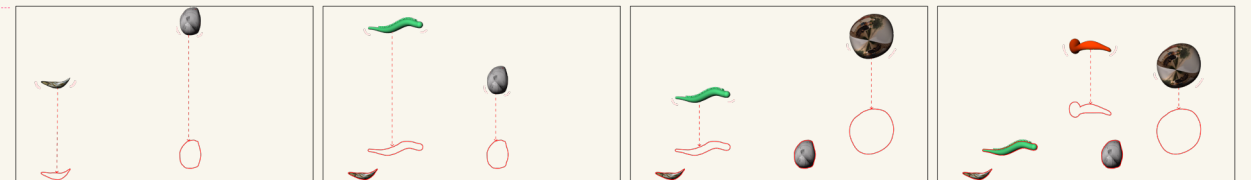
Figure 7.99 — Detailed view of the story with photo additions (See pages 142 and 143)

Figure 7.100 — Detailed view of the story with text and drawing additions (see pages 144 and 145)

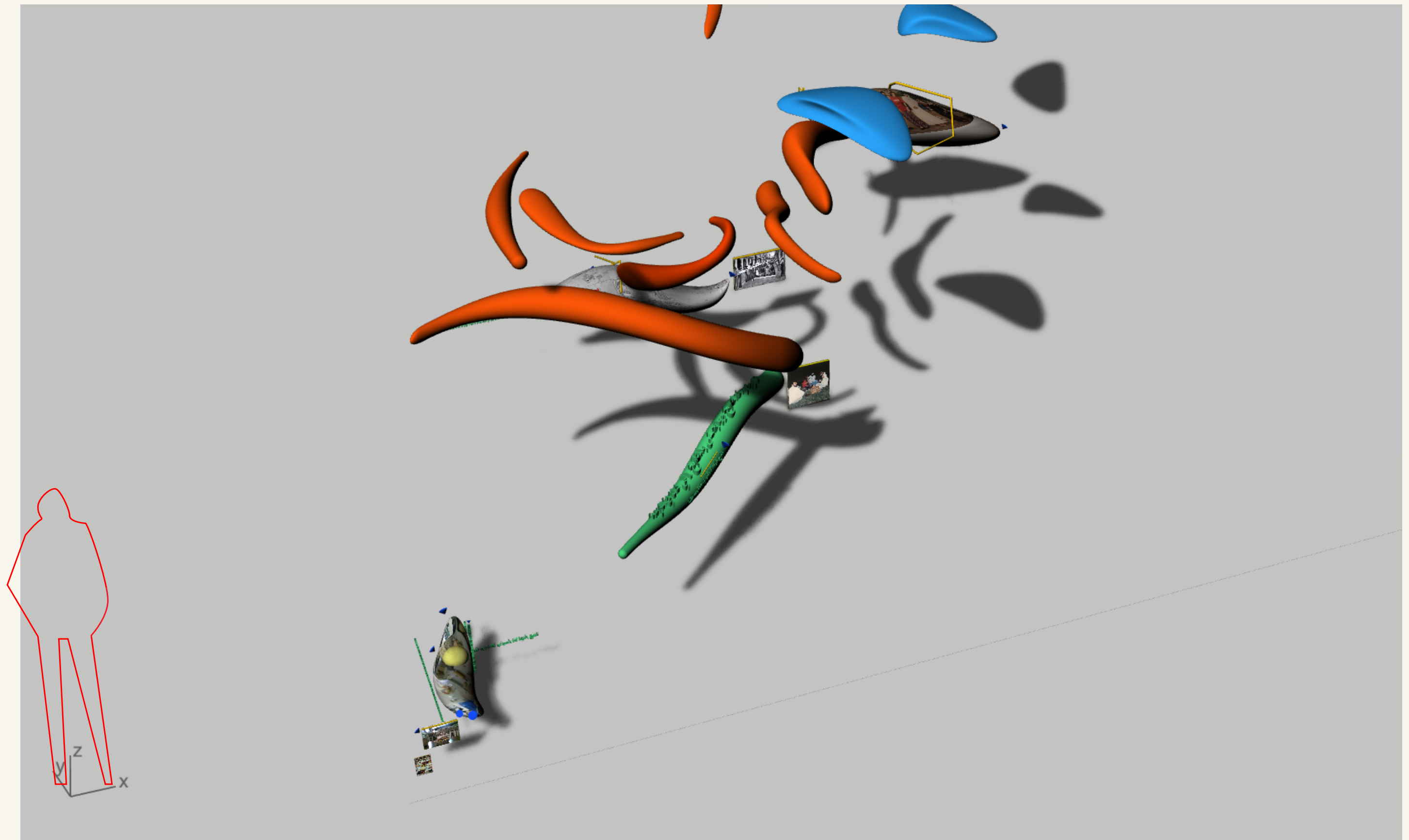
Figure 7.101 — Detailed view of the story with text and photo additions (see pages 146 and 147)



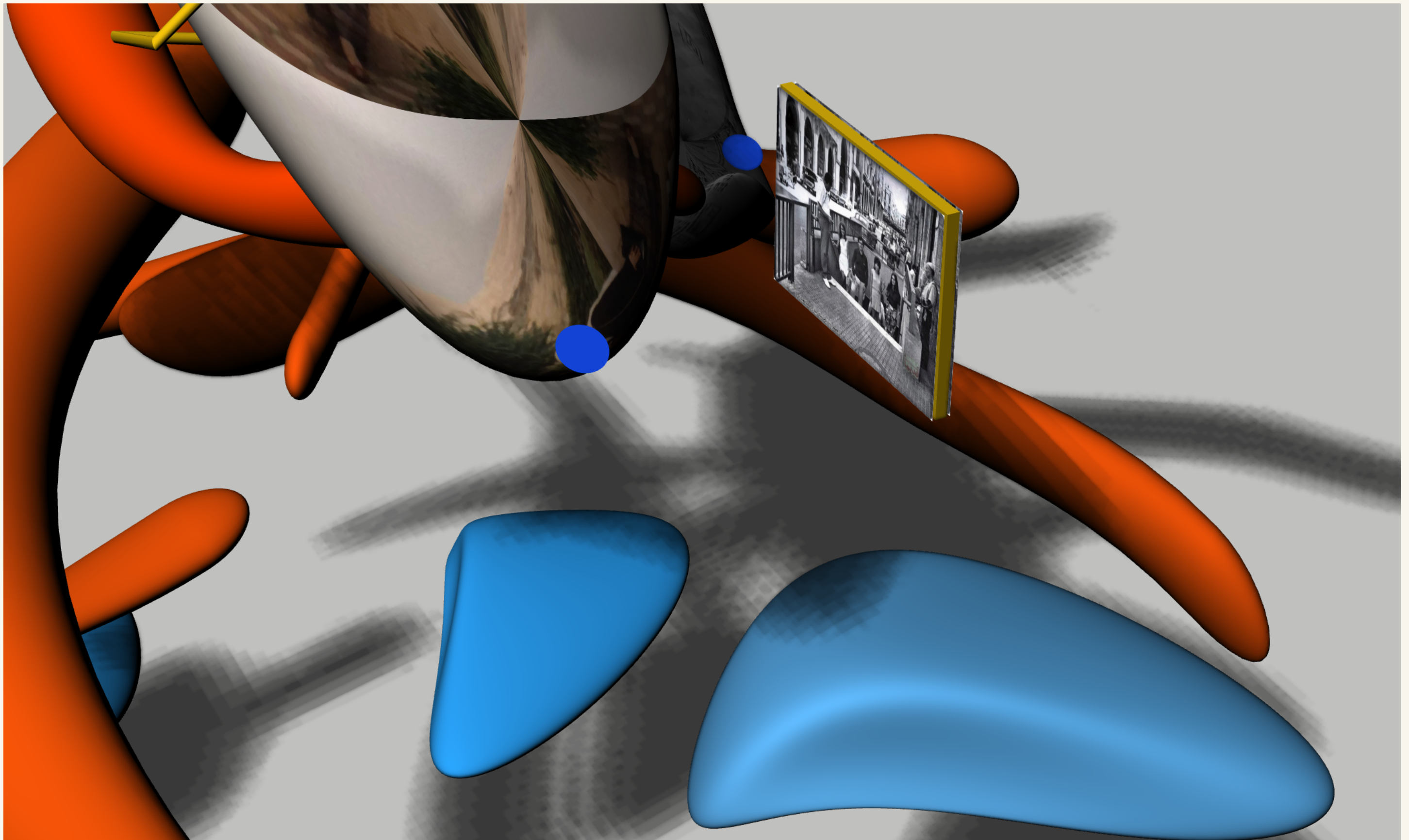
TELLING & EXPERIENCING



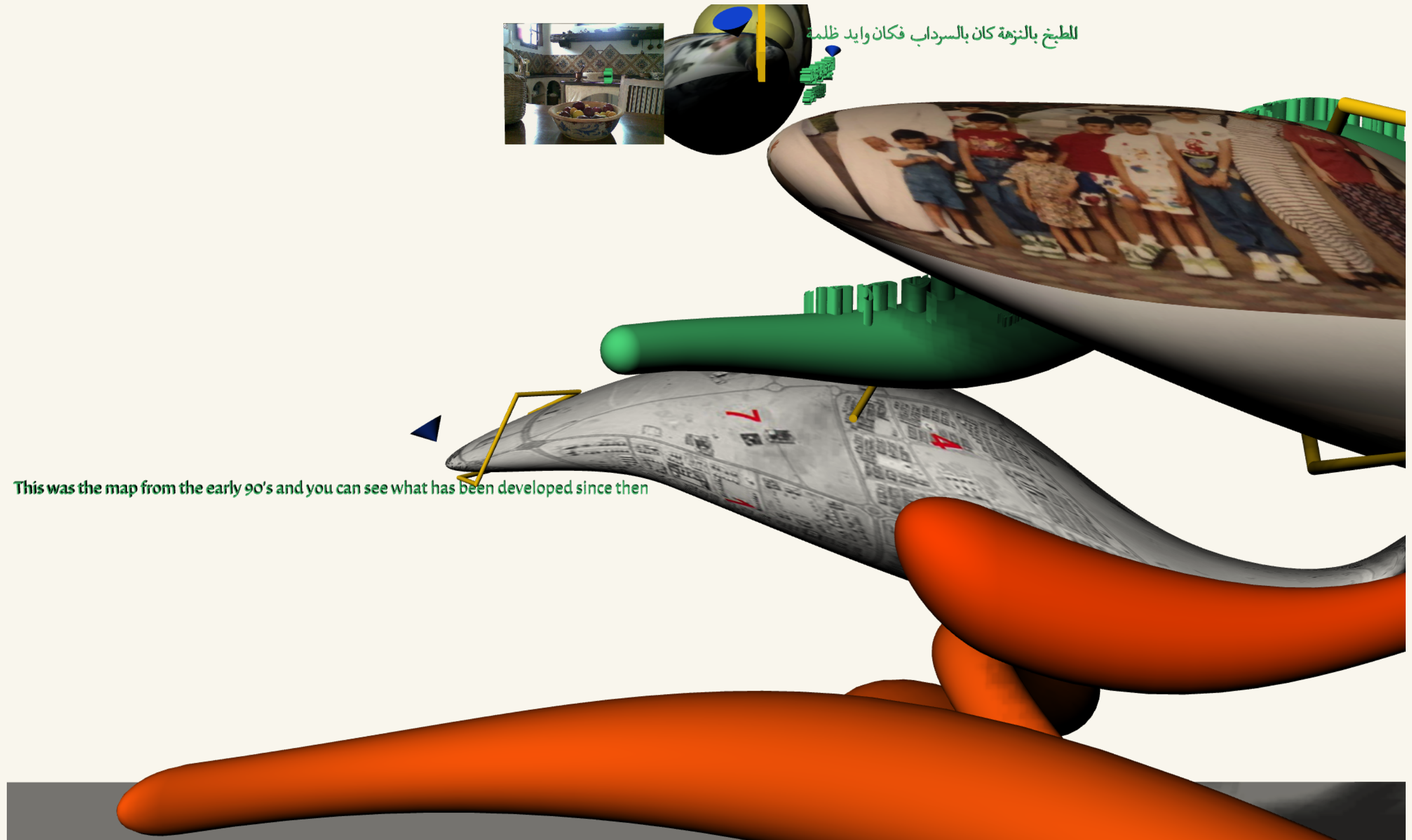
ADDING

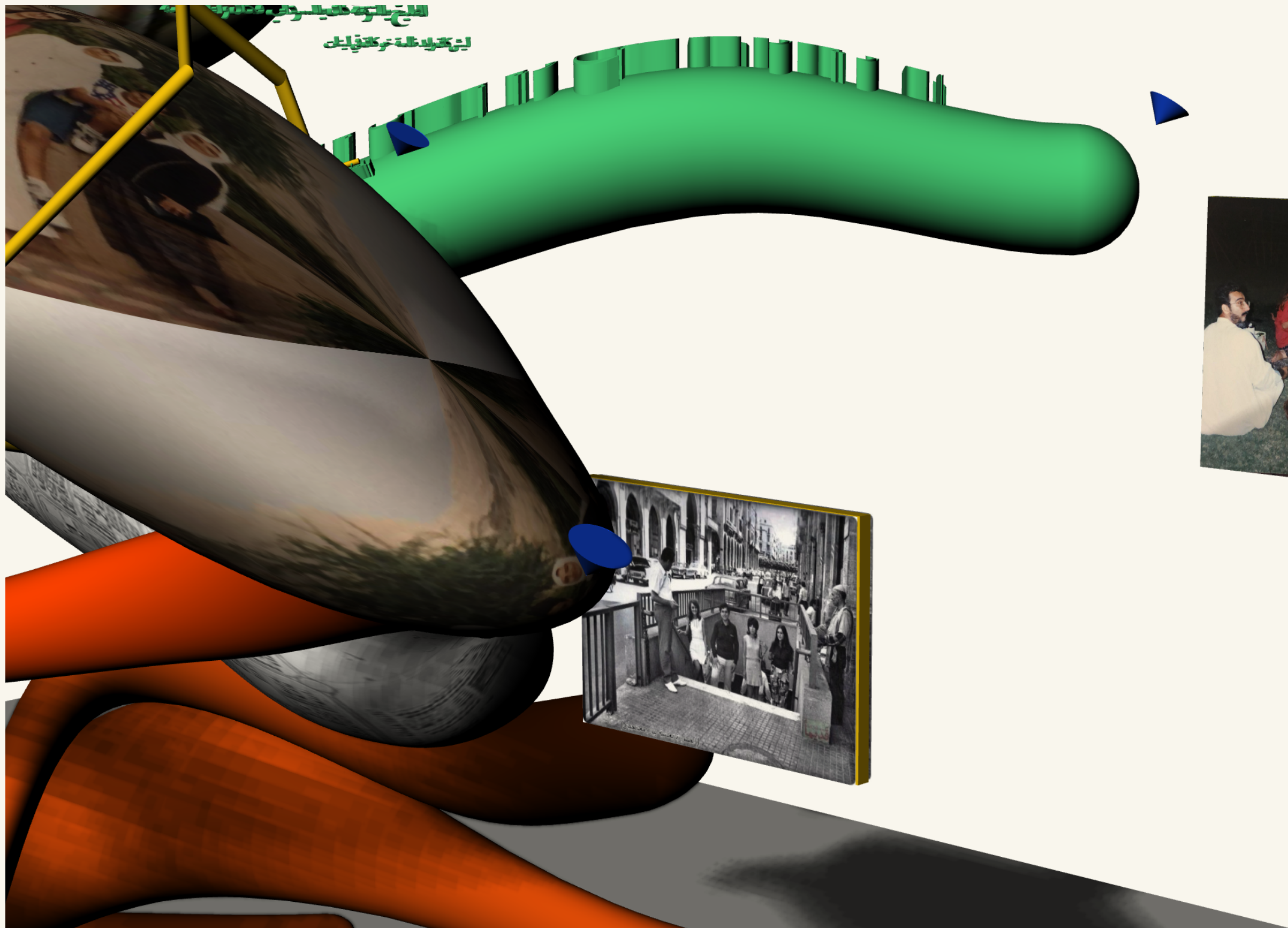
















CHAPTER 8	145	8.1 Design Principles
	147	8.2 Future Work
	149	8.3 Discussion

# +Discussion

## 8.1 Design Principles

The studies for this investigation point towards several spatial representations and experiential techniques designers can use to further build on this research or in ways not realized in these studies. These design principles are scalable and transferable, as they do not have to relate to family stories only, but the broader idea of the archive as a dimensional, spatial infrastructure and to highlight the things that are lost in the archive. Over the course of this investigation, my research has led me to the following design principles, which can help designers create spatial experiences and different forms of representation:

Embracing the Complexity

Complexity in family stories is inevitable and, when embraced, can create beautiful, imperfect, layered experiences that exist beyond the digital space. Designers should embrace this complexity, instead of trying to simplify and create an experience that is reductive. Complexity in design can reveal information in new ways through layering, overlapping, using various forms, and using multimodality to communicate. Simplicity can give false notions of what family histories are made up of, which is why it is important to show these stories in complex ways. Although complexity in information might

	<p>not be easily understood at first, it would help individuals understand the experiences of transnational families.</p> <p>Studies to reference: experiencing (study 01), telling (study 02), and adding (study 03)</p>
<b>Spatial Infrastructure as a Dimensional Experience</b>	<p>Very early on, it was apparent that stories — whether family, fictional, or nonfictional — should be spatially represented in three-dimensional form. Not only does such form create a space more similar to the physical environment, spatial representation of stories engages the viewers on multiple levels. A dimensional experience allows the individual to navigate in and out of family stories, providing a holistic overview of the story and a deeper, detailed view. Creating this dimensional, spatial experience provides an opportunity to bring in the physical element of objects by thinking about the weight of objects and the speed at which such objects fall into the digital space. These characteristics are lessons learned from the physical environment, which looks at depth, shadows, the materiality of the objects, and how the objects can exist in the digital archive.</p> <p>Studies to reference: experiencing (study 01) and adding (study 03)</p>
<b>Temporal Infrastructure as a Space to Revisit the Past in the Present</b>	<p>Time is a component that is heavily intertwined when it comes to transnational families, especially when it comes to negotiating their sense of belonging and ontological security. It is critical for transnational families to able to see themselves in the past and present, and imagine themselves in the future. Storytelling also relies on time: when the story was told, when the story took place, how long the story is, and how long are the pauses between each line. Designers can create a temporal infrastructure to allow people to navigate and experience the space through the lens of time.</p> <p>Studies to reference: experiencing (study 01), telling (study 02), and adding (03)</p>
<b>Forms as an Expressive Story</b>	<p>The container in which the story lives and is delivered is just as important as the story itself. The shell gives form to the intangible, ephemeral aspects of storytelling. Designers should seek out forms that closely relate to what they are communicating. Organic forms in these studies reference the fleeting, conversational stories that happen orally. A ‘one size fits all’ is not appropriate for capturing family stories; therefore, forms need to be explored based on situation and context.</p> <p>Studies to reference: experiencing (study 01), telling (study 02), adding (study 03), and finding (study 04)</p>
<b>Fragmentation is Embedded in the Process</b>	<p>Stories, just like archives and transnational families, are fragmented. Stories are told from different perspectives and points of view, each telling a unique story. Designers should consider the fact that information is fragmented by accommodating for an uncompleted storytelling experience. When designers look at storytelling as fragmented pieces, the pieces become more important than the whole, leaving room for creative ways of telling. The experience of sharing a story becomes fragmented as well, where activities like telling, adding, and finding take place.</p> <p>Studies to reference: experiencing (study 01), telling (study 02), adding (study 03), and finding (study 04)</p>

<b>Capturing the Essence vs. Realism (Abstract vs. Concrete Metaphors)</b>	<p>All of the studies point toward a specific visual style; they are meant to capture the information in a way that encourages curious engagement. The digital archive should be a space that goes beyond literal representations by experimenting with form. The archive should not be a literal shoe box that represents family archives; rather, it should pull lessons and metaphors from the shoebox and use it as a stepping stone.</p> <p>Studies to reference: experiencing (study 01), telling (study 02), and finding (study 04)</p>
<b>8.2. FUTURE WORK</b>	<p>The investigations of this research are by no means complete; these investigations cover only a fragment that has been discovered and uncovered. The research is limited in scope due to the time spent addressing these complex problems; however, there are possibilities beyond the specificities of this research. The studies address a specific context in a complex space that is full of opportunities for continued exploration, investigation, and design intervention. Further research and exploration exist within these fields of archival research, design, and family sciences.</p>
<b>Tangible Outcomes as Family Artifacts</b>	<p>While the main focus of these studies address the digital space as a place to promote representation belonging, it does not yet examine the physical world. While tangible artifacts were not within my scope of research, having the ability to transfer or translate the digital archive into a physical artifact has potential. Transnationals often leave their homelands without personal belongings, so having the ability to print and create a physical artifact could take the place of things left behind. A tangible outcome would provide an opportunity to address what it means to have an object explicitly and exclusively related to family stories.</p>
<b>Gathering and Tracking Metadata for Enhanced Experiences</b>	<p>During my conversations with individuals researching and creating archives, I often heard individuals discuss data and metadata. Although some of the earlier studies try to address these components, such components were not fully developed in this research. Gathering data and metadata could further help individuals find and navigate stories. Earlier studies explored the potential for a smart system that allows people to tag materials with metadata and overlay similar stories next to each other for a unique user experience. In the future, creating a system that aggregates this metadata would allow for more extensive and robust features that align with the person’s specific goals and motivations for coming into this space of family archives.</p>
<b>Cultural Visual Language as the Thread Between Here and There</b>	<p>When talking about family histories and stories, culture is embedded within those and is mutually inclusive; it cannot exist without the other. Culture is one of the hardest terms to define; however, research on how culture plays a role in the archives and creates personalized experiences is especially important for transnational families to maintain their cultural heritage and identity. Research on the role of culture in the archives would be beneficial to help transnational families maintain their identity when they separate from their home and family. By introducing artificial intelligence and machine learning, the system can</p>

	learn to use cultural visual language to help transnational families maintain their language and culture, thereby creating a highly personal experience. The system then becomes a tool to connect to family histories, maintaining their language, which they might not be able to speak when they move away from home, and culture.
“Non-Place /Space” Interface	Early in the investigation, I had narrowed down my design to fit a certain digital medium, whether a phone or laptop. Those studies made me realize that the medium or digital technology that is being used is not as important or pertinent when discussing the complex issues of transnational families. However, I recognize the importance of designing with a constraint to develop specific experiences that are directly related to a digital medium. A further investigation would examine the implications of each digital medium and how that can be seamlessly integrated with the experience itself.
Surface Free Interactions	For one of the studies, I looked at how Google Soli, a chip that tracks an individual’s motion on a microscopic scale through sensors, would play a role using gestures to record family rituals. Google Soli uses real time tracking to track the movement of the human hand, which prompted me to create an archetype of gestures. Developing and researching this further would move family archives into a new territory, where interactions take place in the physical environment without ever touching a screen. This idea could easily record gestures of the human hand and track patterns across transnational families.
Codifying Stories	This investigation explores possibilities of a family storytelling experience in a digital archive. However, it does not explore the codification of the stories told. Story circle, which was developed by Dan Harmon, suggests that all stories can be codified into eight steps. See figure 7.14. Although the story circle was not created to address familial stories, merging the two would provide new insights. Directly translating the stories that are told into this story circle would provide new features using the metadata that this codification provides. Features could include searching for specificities of a story like genre, direct comparisons from one story to the next, and data showing the variation within each story to track patterns across stories. This codification would also provide cohesiveness in the way stories are experienced.
Family Disagreements: Interface as a Moderator	Although this research looks at disharmonious family narratives as a way to tell stories, it does not provide means for families to untangle or resolve the disagreements. During the telling of stories, conflict and disagreements are likely to occur. There are ways in which disagreements could be visualized; however, research into how the interface could act as a moderator would be highly beneficial. Further research into mitigating online family disagreements would provide an understanding of what tools and features are needed to facilitate such a feature. Ideally, the interface would create opportunities for family members to untangle these disagreements by allowing individuals to see the other person’s point of view. Design methods and characteristics like divergence and convergence can be used to show when disagreements dissolve into agreements.

Visualizing Being: Ontological Considerations	During my early studies, I looked into visualizing being in a digital space to show presence in the space. However, that raised multiple questions that did not fit within the scope of this research. There are a lot of potential, benefits, and implications that this would provide. Visualizing being in a three-dimensional space would provide transnational families a deeper sense of connection by seeing family members tell the stories. On the other hand, the following question arises: how can an individual visualize being in a digital space without concretely replicating the actual person and recreating the individual in the digital space? Traditional online platforms that are two-dimensional and provide spaces for messages and conversations usually use avatars or some form of photo as an identification. More research needs to be done to address how a person would be shown in the digital three-dimensional space.
Identifying Family Members in the Digital Space	My investigation has not looked at how individuals would be identified in the digital space; rather, it looked at how information was building and stories were developing. It would be impactful to identify who added what part of the story, and whether it was during the experience by seeing a person in the space or after they have added to the story. Being able to clearly see what a family member has added to the story would change the way people interact with each other in the space using multimodal communication.
Truth Seeking Archives	Although this entire investigation is not about truth seeking archives, there is potential to expand on this challenging idea. Truth seeking archives would be valuable because information coming into the archives would be regulated, curated, and deemed as truthful through evidence. To seek truth in the archives is to create an archive that authentically, accurately, and legitimately shows family stories. Creating archives that represent factual family stories could foster deep representational belonging and accurate identity construction.
8.3. CONCLUSION	The primary research question that this study was trying to address asked “How can a dynamic and dimensional digital archive interface promote representational belonging amongst distant, transnational family members using multimodal inputs to visualize and experience a narrative?”. The topics of a digital archive and transnational families provide a great deal of design and design research opportunity. The emergent design principles that have been listed in section 8.1 provide methods for creating a digital archive for transnational families that fosters representational belonging. These principles can lead to design interventions not realized in these studies.
	Throughout these studies, I have taken a speculative approach to investigating the way archives are represented in a three-dimensional space. Through multiple explorations, this study examines how a digital family archive can use temporal and spatial qualities to communicate and archive family stories. By situating my studies in the future, I redefined and pushed the boundaries of what a family archive consists of by capturing the everyday life, the mundane, and the ephemeral qualities of our family stories. Although some of these

studies are not as intuitive as they could be in terms of user interaction, they raise important questions about what the future of interfaces would feel and look like. More importantly, these investigations are seeking answers by providing multiple solutions and options because representational belonging in the archive for transnational families seems vast and highly personal. While much more research and investigation needs to be done to fully understand the complexities of transnational family stories and how a digital archive should be represented to create a sense of connection across countries, my research showed the potential that three-dimensional spaces have to address these issues. This research also looks into how these design decisions look back to human aspects to create connections to the physical environment by addressing the forgotten and lost memories, and the way we tell stories, annotate, and bring family narrative characteristics.





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CHAPTER 10

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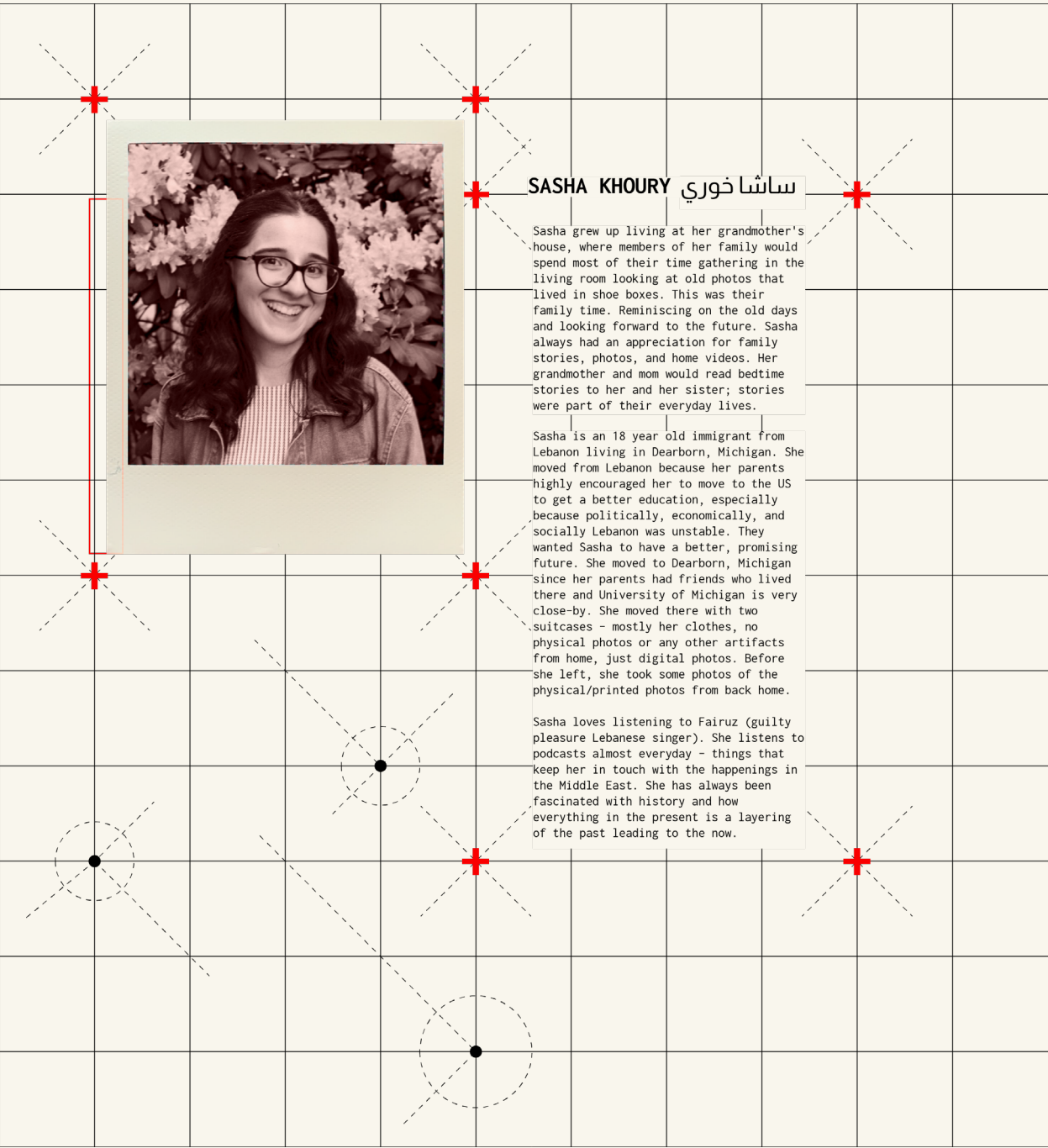


Figure 10.1 — Persona

**Persona** Sasha is an 18-year old immigrant from Lebanon living in Dearborn, Michigan. She moved from Lebanon because her parents highly encouraged her to move to the U.S. to pursue a better education, especially because Lebanon was politically, economically, and socially unstable. Sasha’s family wanted Sasha to have a better, promising future. Her parents decided that she should move to Dearborn, Michigan because her parents had friends who lived there, and the University of Michigan, which is a reputable university, was close to her parents’ friends. Sasha moved to Dearborn with two suitcases — mostly her clothes, no physical photos or any other artifacts from home. The only photos she carried were recent digital photos. Before she left, Sasha took some photos of the physical/printed photos from back home. Sasha loves listening to Fairuz (guilty pleasure Lebanese singer). She listens to podcasts almost every day — things that keep her in touch with the happenings in the Middle East. She has always been fascinated with history and how everything in the present is a layering of the past leading to the now.

Sasha grew up living at her grandmother’s house. It is here where her family would spend most of its time gathering in the living room looking at old photos that lived in shoe boxes. This was her family time. Reminiscing on the old days and looking forward to the future. Sasha always had an appreciation for family stories, photos, and home videos. Her grandmother and mom would read bedtime stories to her and her sister; stories were part of their everyday lives.



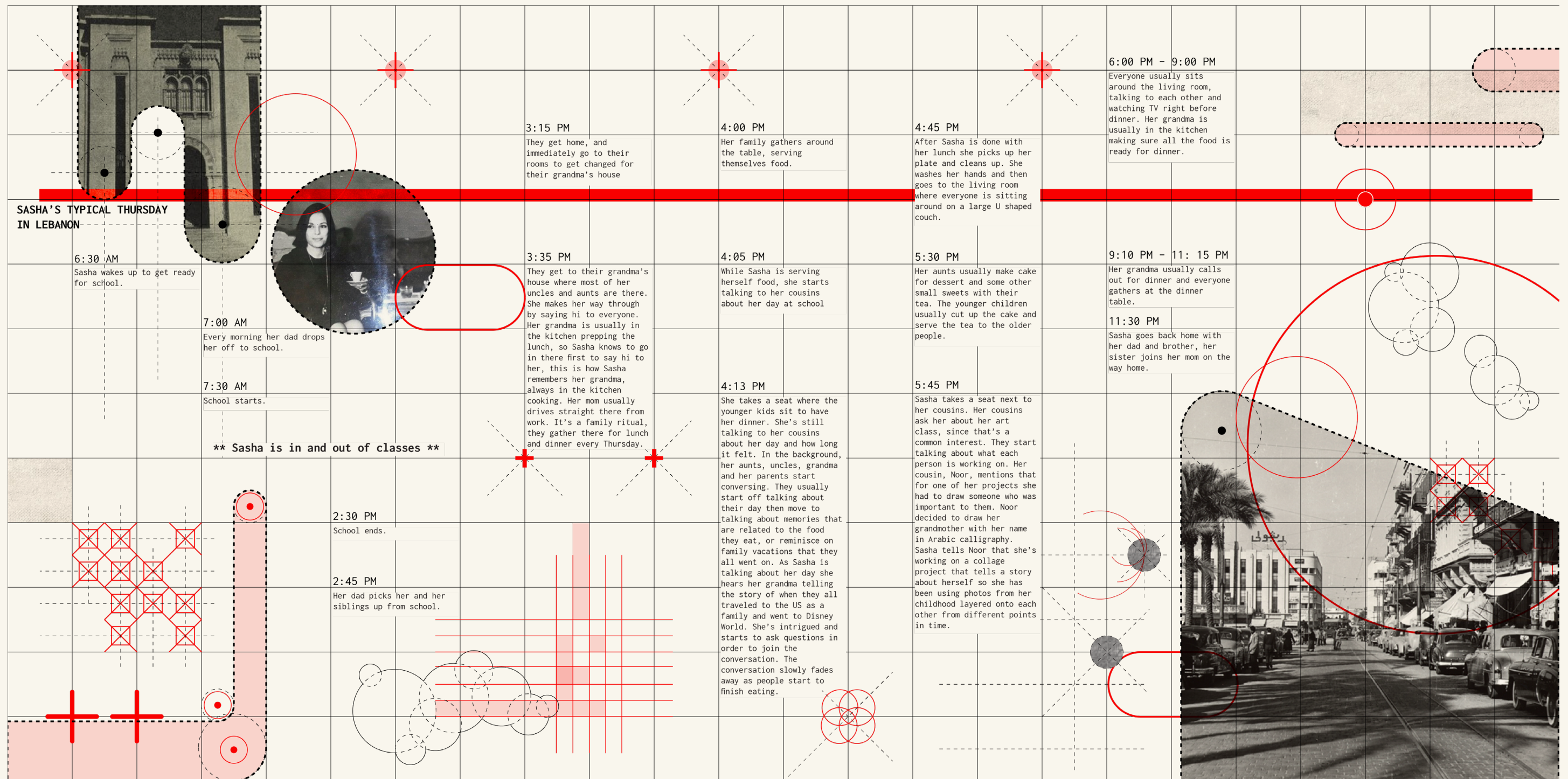


Figure 10.2 — As is scenario showing Sasha's day to day life in Lebanon

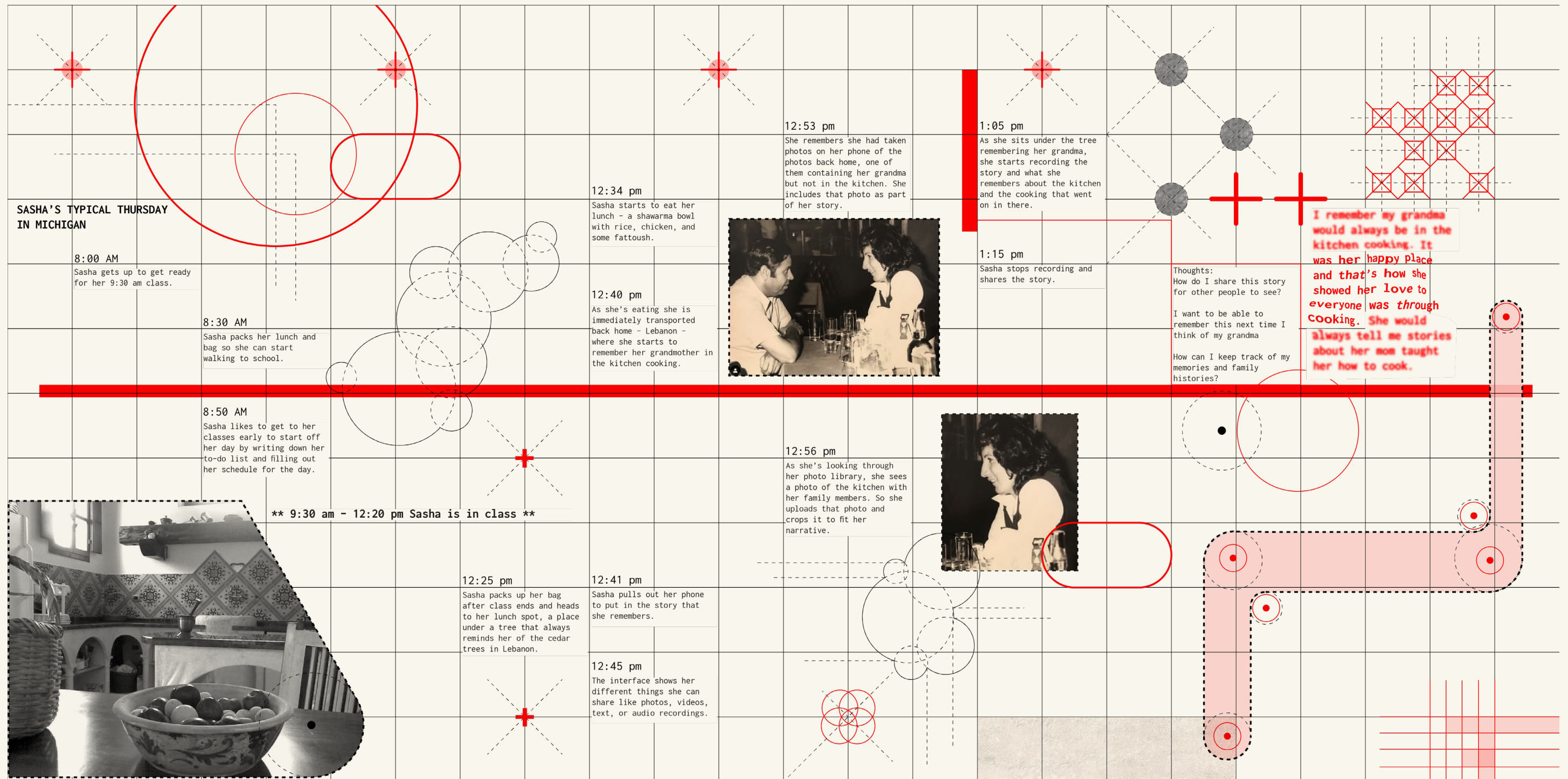
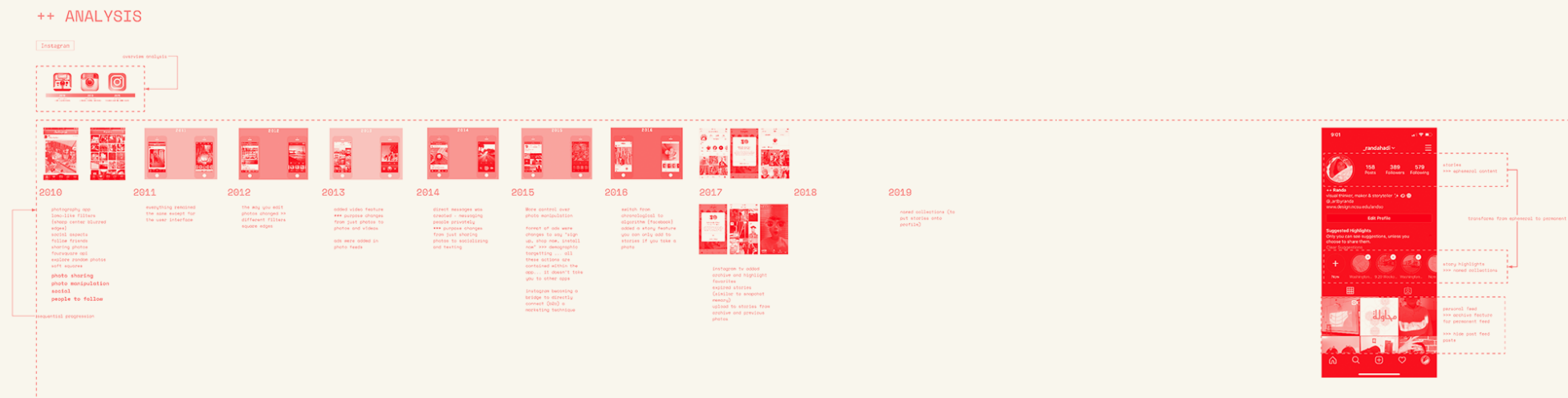
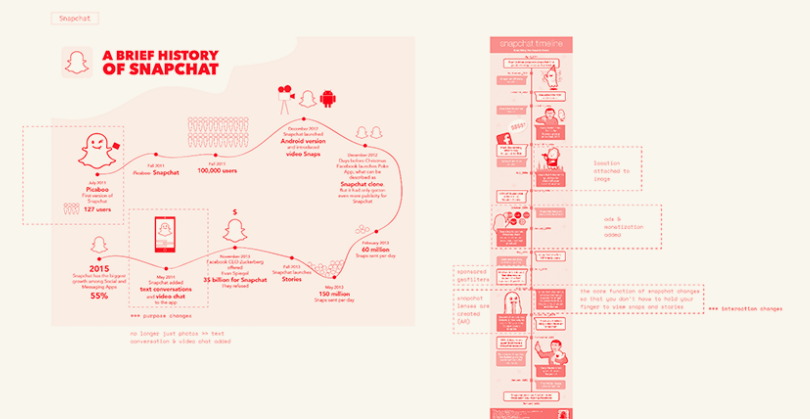


Figure 10.3 — To be scenario showing Sasha's day to day once she moved to Michigan



*Figure 10.4 — Analysis of Snapchat and Instagram, tracking the ephemerality and permanence of both social media platforms*





Sonoe Nakasone 12.05.2019

Sonoe Nakasone is a community archivist currently working at the University of North Carolina, Chapel Hill. She works with five different archiving projects: the Southern Historical Collection's existing community archives projects, including the Appalachian Student Health Coalition, the Eastern Kentucky African American Migration Project, the Historic Black Towns, Settlements Alliance, and the San Antonio African American Community Archive and Museum.

Key takeaways:

- + Goal and value-driven community archives
- + The process of what to archive

During my conversation with Sonoe, she placed an emphasis on how supporting these five different groups of archiving projects differ wildly because the way each is supported depends upon each of the communities’ goals. A great takeaway of my conversation with Sonoe was her response to the question “how do you capture a community in the archives” — the value changed based on the community, their goals drive and dictate how the information is being recorded whether that’s using oral histories, artifacts, or photos. A big part of capturing the community in the archives is based on what the community has access to. That was an important detail — they gather information from what they already have, they do not go looking for new information. Sonoe’s role as a community archivist is to collect these scattered materials and harness them into one archive; helping communities aggregate information and facilitate the archiving process. Information is archived based on two parallel factors: flavor and relevancy. She describes community archives as tools of reflection that people can look back on, creating a connection between the people and places. We talked about community archiving and how the projects she is currently working on address that. The projects she is currently working on have limited participatory features, such as commenting on posts. Sonoe talked about not being aware of great archives that facilitate interactions among people and ways in which these records and information can become activated. The conversation ended with Sonoe acknowledging this design gap, where individuals can interact with community archives, beyond mere commenting

Jason Reed 02.07.2020

Jason Reed is the co-founder and director of Borderland Collective, an art and education platform that engages in complex issues through collaborations with artists, youth, educators, and community members. An emphasis is placed on the term “collective” because it points towards a mindset rather than individual people within the practice. He is currently an Assistant Professor of Photography at Texas State University.

Key takeaways:

- + Reactivating archives
- + Potential for a tangible output
- + Multigenerational participation from family members
- + Complexity in time and space (resisting simplification)

One of the first things that stood out to me during my conversation with Jason was his process of reactivating an archive from the past and making it accessible for the present future. He is currently working on a project with a museum in Washington State where he is facing those challenges. I was curious about how to activate static archives that have not been touched and make them relevant in the present. He talked about how most of the information that was available at the museum was about one person and it did not capture a holistic view of the community. It was up to Jason and his collaborators to seek out more information about the community and make it relevant for the present so that people can access it. Reviewing the captions for photos and changing the language to address the present is one way of recontextualizing the archives to become relevant; shifting it from the past to the present. Another interesting point that Jason brought up was to think about outputs that are not purely digital, where a physical artifact can be presented as an outcome, similarly to other platforms that provide printing albums or family trees. This led to a conversation about multigenerational participation, which often occurs when people look at photo albums and people chime in with their perspective of the photo. Time and space is highly integral and mutually inclusive to family histories; showing complexity becomes obvious and reveals the layers of these stories.

Ryan Sprott 02.06.2020

Ryan Sprott is an educator and co-founder of Borderland Collective, an art and education platform that engages in complex issues through collaborations with artists, youth, educators, and community members. An emphasis is placed on the term “collective” because the collective points towards a mindset rather than individual people within the practice. His pedagogical practices lie within the intersection of collaboration, critical thinking, civil discourse, and global empathy.

Key takeaways:

- + Questioning why
- + Focusing on the dialogue

My conversation with Ryan was very informative and inspiring because of his approach to projects that were introduced to students. I came to the conversation wanting to know how he facilitated these workshops or projects with students to get a better understanding of how I can take some of those lessons and apply them to this digital space. I had prepared a number of questions targeted to better understand how he engages his students in such complex issues and his answer was simple yet obviously unrealized — focus on the dialogue, the conversation that is happening around that topic is the driving force. One of the projects that he talked about involved asking students to take photos of their personal belongings and focus on the following question: “what do you wish people knew about you?”. In terms of the actual workshop, the instructor-led facilitation ends early in the process. The project is introduced, the students briefly talk to Ryan about it, and then the students gather their materials. Ryan made it clear that the workshops are free-form, which allow the students to really explore and experiment as much as they want to when answering these questions.

International Students 12.03.2019

I sent a survey through Google Docs to international students in the MGD program to get an understanding of when individuals experience memory recall and what are some of the specific artifacts or moments that remind them of their families. This informed my scenarios and user by providing key information on what these memory recall moments are like. See Appendix (X) for the survey.

Key takeaways:

- + Key moments memories arise
- + Things that provoke family memories
- + What types of stories are shared
- + When these stories come up
- + Mode of communication

This survey was a way for me to provide more accurate information and assumptions about international students or transnational families. When I looked back on the responses to the survey, I noticed that something was prominent in all of the answers — the students shared that they usually use WhatsApp to communicate with their families. WhatsApp is a messaging application for the phone and laptop that allows users to send messages and voice messages, make phone and video calls, and share photos, documents, and user locations. Most students shared that they tended to remember their families most during a holiday or special event, each of which is typically a time when families gather. An additional common thread in the answers was that families were brought up when a conversation sparked a memory and that led the student to share a story about his/her family. The fact that students did not live at home was a leading factor in the way they responded to whether or not they felt in touch with their family archives. Most expressed they did not feel in touch with their family archives because such archives live in boxes back home filled with printed film photos.



Domestic students

01.15.2020

I sent a survey through Google Docs to non-international MGD students to get an understanding of how they communicate with their families, what those moments look like when they share family stories, and how that can be mediated in a digital environment and space. The group of students I sent the survey to included students whose families live within the United States, but not necessarily Raleigh. I wanted to better understand what stories they shared about their families, and when and how that was prompted during conversations. See Appendix (X) for the survey.

Key takeaways:

- + How families communicate and share stories when they live together
- + What stories individuals share
- + Moments that remind them of their family

This survey gave me a better understanding of how families who live together tell and share stories about their families. The students' answers aligned with international students: people most commonly share, tell, and are reminded by their families during holidays and special occasions. Another common thread was that people felt most connected to their archives when they went back home, which was a similar response to international students. Students' family archives existed as physical objects, especially photos.

Darah Ghanem

01.22.2020

Darah Ghanem is a Palestinian photographer, journalist, producer and multi-disciplinary artist based in the UAE. She is the founder of a digital zine "Middle East Archive" that lives on social media, Instagram. Her project is a platform that crowdsources family archives from the MENA region.

Key takeaways:

- + Institutionalized vs. community-driven archives
- + Alternative ways of telling stories
- + Decentralizing curation
- + Authorship of the archives
- + Designing archives out of pragmatism
- + Skewed understanding of history

When I first found the Middle East Archive, I was really interested in its history and how the project came to be. After explaining to Darah what my project was about and mentioning the difference between institutionalized archives and community archives, she mentioned that her project was created as a response to institutionalized archives. She wanted to create a space where people could freely send in photos and captions to express their family histories, thereby creating an alternative way of telling stories and decentralizing the curation process. Something else that was brought up was people who she would talk to had a skewed understanding of history because those stories were never told by the community, it was always someone from the outside, far removed. The Middle East Archive lives on Instagram, bringing it into contemporary light. I asked why specifically Instagram and Darah's response was that she wanted this archive to be as accessible as possible, where world participation can take place. What was interesting about creating this on a social media platform is that the Middle East Archive does not take ownership of the archive itself, ownership and authorship remains at the hands of the person sharing the story.

Sample Survey for  
International Students

Name:

Age:

Country you're from:

Country you're living in currently:

When do you think about your family the most?

When do you talk about your family?

How often do you talk to your family? How do you communicate with them (ex: WhatsApp messages, FaceTime, etc)?

When was the last time you shared a story about your family?

How often are you in contact with your family?

Do you feel represented in the county you reside in?

Do you feel in touch with your family archives?

What form does your family archives take shape? Is it mostly digital? Are they photos back home?

Describe a self defining moment in your life.

Sample Survey for  
Domestic Students

Name:

Age:

Country you're from:

Country you're living in currently:

When do you think about your family the most?

When do you talk about your family?

How often do you talk to your family? How do you communicate with them (ex: Whatsapp messages, FaceTime, phone, etc)?

When was the last time you shared a story about your family?

How often are you in contact with your family? How often do you see them?

Do you feel represented in the county you reside in?

Do you feel in touch with your family archives?

What form does your family archives take shape? Is it mostly digital? Are they photos back home?

Describe a self defining moment in your life.

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<b>Figure 7.46</b>	What if the system would notice if there are overlays in the narratives by placing them on top of each other to illuminate the similarities?	<b>Figure 7.57</b>	Interface design that aggregates photos to help with memory recall
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<b>Figure 7.48</b>	What if tags were used in a spatial way to indicate their relationship to one another? The planes and axes would suggest their relationship based on the location and whether the edges would be touching.	<b>Figure 7.59</b>	Interface design showing how a recording of a story builds up over time and the transformation from lines to text See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/ribbon.mp4">https://college.design.ncsu.edu/thenfinally/hadi/ribbon.mp4</a>

<b>Figure 7.59</b>	See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/typography.mp4">https://college.design.ncsu.edu/thenfinally/hadi/typography.mp4</a>	<b>Figure 7.70</b>	Early explorations of organic forms as blobs See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/blob.mov">https://college.design.ncsu.edu/thenfinally/hadi/blob.mov</a>
<b>Figure 7.60</b>	Early exploration of what additions to a story entails		
<b>Figure 7.61</b>	Types of add(itions) taxonomy, which looks at existing methods	<b>Figure 7.71</b>	Early explorations of organic forms with rotating spirals See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/rings.mp4">https://college.design.ncsu.edu/thenfinally/hadi/rings.mp4</a>
<b>Figure 7.62</b>	Kinds of add(itions) taxonomy, which looks at how they can be drawn on a story	<b>Figure 7.72</b>	Final exploration of organic forms with three-dimensional type
<b>Figure 7.63</b>	Transforming existing add(itions) into a three-dimensional space See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/additions.mov">https://college.design.ncsu.edu/thenfinally/hadi/additions.mov</a>	<b>Figure 7.73</b>	Exploring organic forms to represent a story and contextualizing the forms See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/organic.mov">https://college.design.ncsu.edu/thenfinally/hadi/organic.mov</a>
<b>Figure 7.64</b>	Mapping the components of a family archive shoe box and looking at organizational strategies that are used	<b>Figure 7.74</b>	Diagramming out the parts of the story and the order things were told See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/organictwo.mp4">https://college.design.ncsu.edu/thenfinally/hadi/organictwo.mp4</a>
<b>Figure 7.65</b>	Adding to a textual story using text elements See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/shiftingtext.mp4">https://college.design.ncsu.edu/thenfinally/hadi/shiftingtext.mp4</a>	<b>Figure 7.75</b>	Visualizing different types of three-dimensional expanded add(itions) to a story See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/stories.mp4">https://college.design.ncsu.edu/thenfinally/hadi/stories.mp4</a>
<b>Figure 7.66</b>	Adding to a graphical story using graphical elements	<b>Figure 7.76</b>	Visualizing different types of three-dimensional textual add(itions) to a story
<b>Figure 7.67</b>	Adding to a textual story using graphical elements like drawings or photos See the animation at: <a href="https://college.design.ncsu.edu/thenfinally/hadi/shiftinggraphics.mp4">https://college.design.ncsu.edu/thenfinally/hadi/shiftinggraphics.mp4</a>	<b>Figure 7.77</b>	Visualizing different types of three-dimensional textual add(itions) to a story and organizational methods
<b>Figure 7.68</b>	Diagramming what a story and addition are made up of — graphical and textual features that are broken down into different types	<b>Figure 7.78</b>	Visualizing different types of three-dimensional graphical add(itions) to a story
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		<b>Figure 7.80</b>	Diagrams showing schemas for archival practices and methods

- Figure 7.81** Exploring different organic forms that represent a story
- Figure 7.82** Creating rules for how the shapes take form in the archive
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- Figure 7.84** Sequence of hierarchy shifting between foreground and background
- Figure 7.85** Shifting the hierarchy between two elements, controlling the blur and opacity of the story  
See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/time.mov>
- Figure 7.86** Exploring what falling stories look like through animations; how a story would fall into place  
See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/falling.mov>
- Figure 7.87** Spatially placing stories by using depth cues and other visual languages to indicate that space
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- Figure 7.96** Detailed view of how a story builds up over time on the y-axis (see pages 136 and 137)
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1. You tell a story  
2. The story falls into place  
3. You add to the story  
See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/falling.mp4>  
See the animation at: <https://college.design.ncsu.edu/thenfinally/hadi/building.mp4>
- Figure 7.98** A person seeing the story as it relates to themselves (See pages 140 and 141)
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- Figure 10.1** Persona
- Figure 10.2** As is scenario showing Sasha's day to day life in Lebanon

- Figure 10.3** To be scenario showing Sasha's day to day once she moved to Michigan
- Figure 10.4** Analysis of Snapchat and Instagram, tracking the ephemerality and permanence of both social media platforms



