ABSTRACT

Sincerely Yours: Orchestrating Tangible Interactive Narrative Experiences

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This paper briefly reflects on two aspects of narrative: the use of multimodal analysis to understand the relationships between the senses and the narrative, as well as digital and physical content, and the implications brought from this analytical perspective on the design of interactive narratives. The latter, in particular, concerns narratives that involve tangible interaction and physical manipulation of objects. The creative process of *Letters to José*, a physical-digital hybrid nonfiction narrative, exemplifies this reflection. In this narrative, the person interacting with the story takes upon multiple roles, among them performatively enacting the story and unfolding the narrative through different mechanics of play.

Letters to José is an interactive physical-digital hybrid nonfiction narrative in the form of a series of tangible unfolding story worlds, powered by paper-based physical computing, and combining paper mechanisms with various embodied, visual, and auditory modes. This narrative is based on a compilation of letters written between 1948 and 1957 by Jesús – a young medical student – to his brother José. The letters are not only a portrayal of different everyday occurrences, but also evidence of the social, cultural, and economic changes of Colombian society during the late 1940s and early 1950s. The interplay between sight, hearing and touch, and the role of the interactor-performer, present unique implications on the design of these types of narratives and the orchestration of narrative experience.

With the evolution of technology, storytelling has changed drastically from film and video games to interactive spaces and Virtual Reality experiences. These new narrative media bring interesting considerations to contemporary storytelling. For example, Janet Murray (1997) examines the *Holodeck* – a holographic storytelling device from the TV series *Star Trek* – to illustrate some relevant considerations within these experiences that allow people not only to observe, but to manipulate tangible objects to engage with different characters and events of the narrative. In regard to this type of experience, Marie-Laure Ryan questions whether people will be playing "…a role, inwardly distanced from their characters and simulating emotions they do not really have, or if they will experience their character as their own self" (2002, 593).

It seems the answer to this question is not only about assuming a role or replicating oneself in the narrative, but performing both. This discussion in fact is about the power of interactive storytelling, and the accountability of the storyteller to craft experiences that allow people to take meaningful actions in the story world (Wood 2016). Designers, as storytellers, articulate stories to others through their craft. In the case of designing *Letters to José*, this articulation is the result of a constant dialogue between the designer, the story and the would-be artefacts. The dialogue is characterised as being constructive, critical and reflective. Through this dialogue, the narrative emerges in a sort of metamorphosis from the initial mental representations into an experience. This transformation signifies a continuous relationship between material and cognitive iterations that intend to explore answers to specific aspects of the story. Ultimately, it is designers' goals to carefully plan the orchestration of the experience by mediating between the story and people.

In *Letters to José*, this orchestration depends on the purpose of each auditory, visual or embedded mode: what they communicate, how they communicate, and when they communicate. For example, the story introduces two narrators: one that instructs people on how to act, and one that narrates fragments of the letters. The voice of each narrator has its own tonal characteristic and pace, and they are heard in specific moments: sometimes to trigger an action from the interactor, and other times as a consequence of an action. It could be even argued that the interactor is also a third narrator – a *self-narrator* – as he or she decides what aspects of the story to experience, explore and unfold by acting on the options offered by the narrative. Sometimes these acts are based on the interactor's beliefs, sometimes on their curiosity, and sometimes by impulse and chance. In *Letters to José*, mimetic acts, in which players enact the story, and *diegetic* acts, in which readers narrate the story through play, blend to become performance (ibid). For instance, touching words significant to a story, manipulating an avatar that represents the main character, walking around the story world to observe it, or placing objects inside the physical space of the story, all have consequences for specific narrative events (Echeverri 2019).

This recount is part of the ongoing work from the Ph.D. research tentatively entitled *Experiencing Stories Through Artifacts: A Model for the Authoring of Tangible Narratives* under the direction of Dr. Huaxin Wei. This research proposes a model intended for tangible interactive narratives, which accommodates physical manipulation and characterises the relationship between people, spaces, objects, and digital content.

Sketchbook page. Relationships between orchestrating and contributory modes.

Tactile words: Using conductive ink allows certain words to react to the user's touch triggering audio clips.
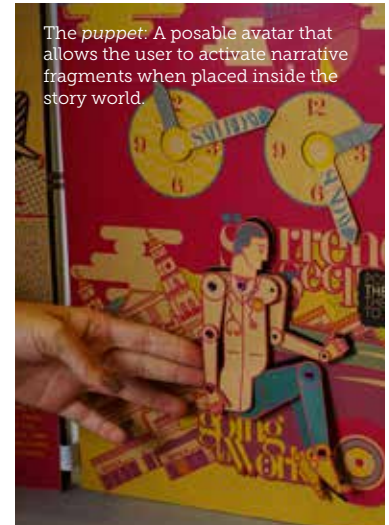
The *puppet:* A posable avatar that allows the user to activate narrative fragments when placed inside the story world.

ORCHESTRATING AN EXPERIENCE:
### INTERFACE, PERFORMANCE AND NARRATIVE

Trajectories are unique user journeys that retain a certain degree of coherence in regards to an experience. These trajectories are ephemeral relationships between physical and digital elements.

The **interface trajectory** looks at the visual and cognitive cues offered to the user, the **performative trajectory** involves physical performance of the user as well as object manipulation, and finally, the **storytelling trajectory** connects specific narrative events through text, environmental sound, music, and other media. As tangible interactive narratives become increasingly complex, orchestrating the relationships between different semiotic modes their intent is essential. This facilitates the designers' exploration of the aesthetic, functional and material expressiveness of various media as a way to support the narrative.

Each user journey has three type of paths: **sequential**, which are the ones that are defined by the designer, **variable**, which are impulses made by the user, usually not following the order established by the designer but directly acting upon an event, and **adjacent** which connects one user journey with the next.
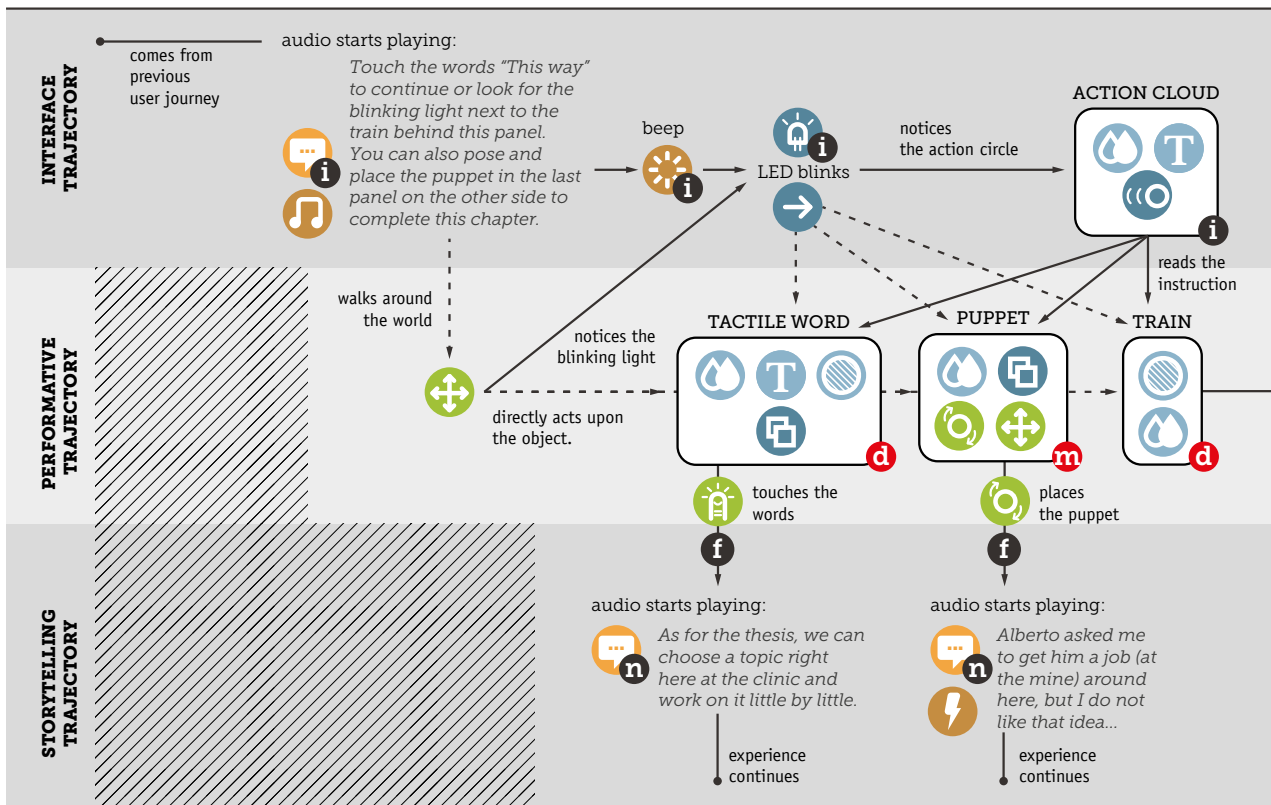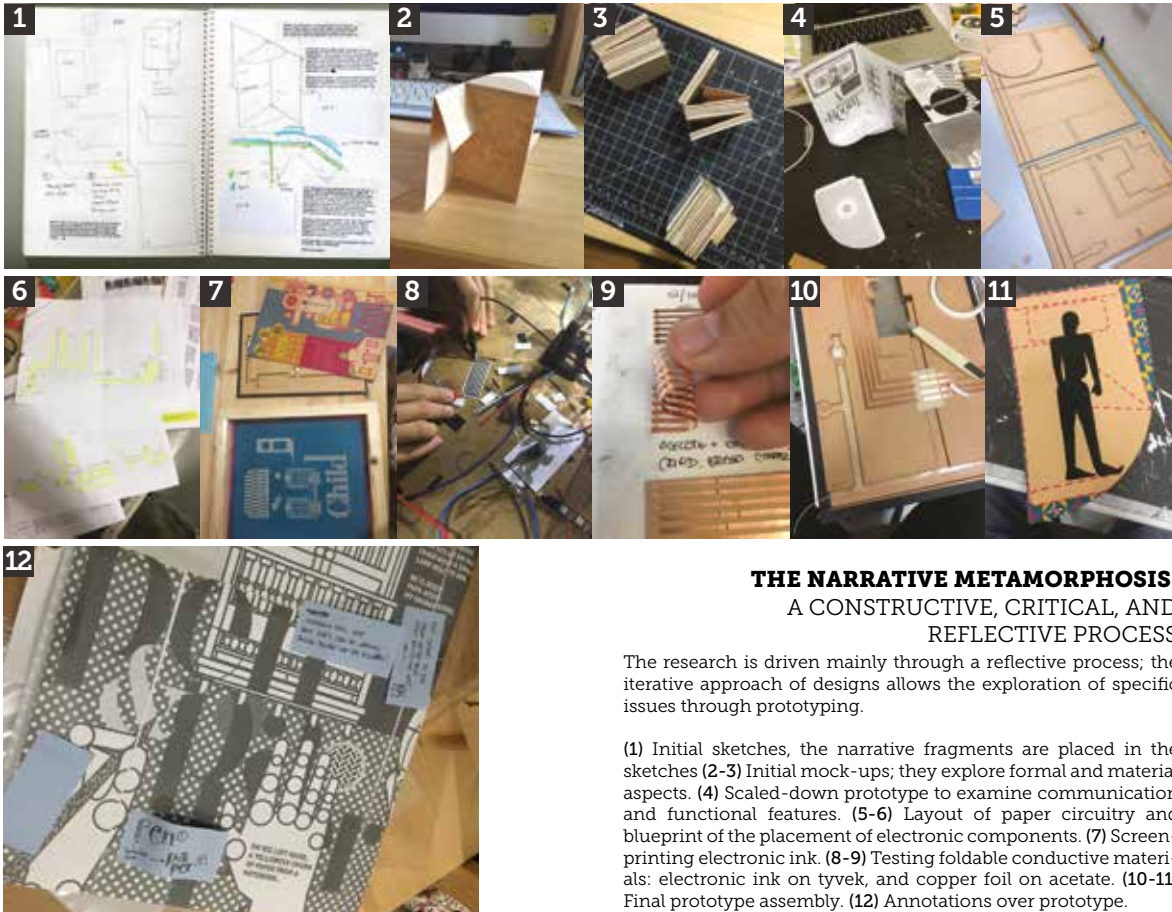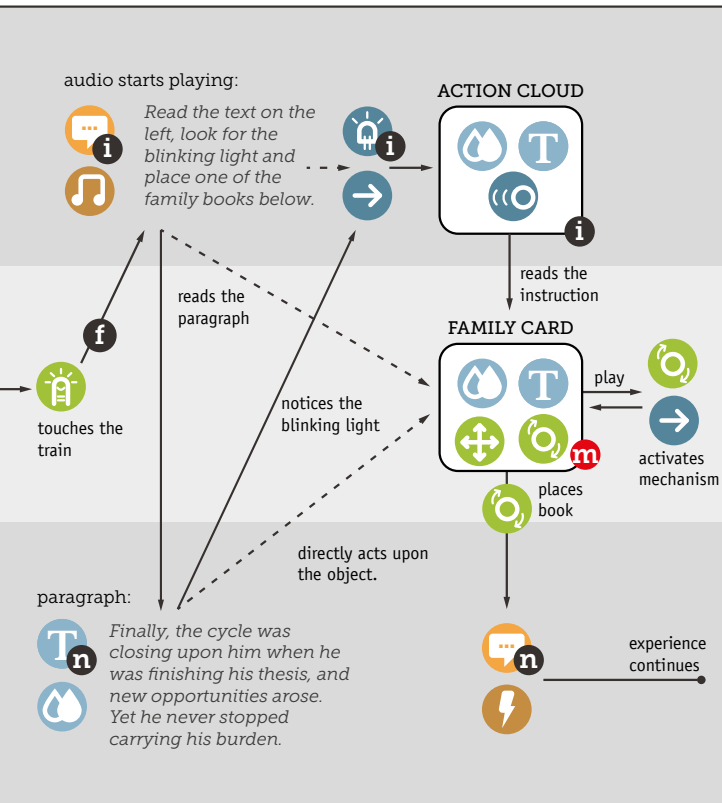
THE NARRATIVE METAMORPHOSIS:
A CONSTRUCTIVE, CRITICAL, AND REFLECTIVE PROCESS

The research is driven mainly through a reflective process; the iterative approach of designs allows the exploration of specific issues through prototyping.

(1) Initial sketches, the narrative fragments are placed in the sketches (2-3) Initial mock-ups; they explore formal and material aspects. (4) Scaled-down prototype to examine communication and functional features. (5-6) Layout of paper circuitry and blueprint of the placement of electronic components. (7) Screen-printing electronic ink. (8-9) Testing foldable conductive materials: electronic ink on tyvek, and copper foil on acetate. (10-11) Final prototype assembly. (12) Annotations over prototype.

Diagram — Experience flow:

audio starts playing:
Read the text on the left, look for the blinking light and place one of the family books below.

ACTION CLOUD — reads the instruction

touches the train

reads the paragraph
notices the blinking light
directly acts upon the object.

FAMILY CARD — play → activates mechanism — places book — experience continues

paragraph:
Finally, the cycle was closing upon him when he was finishing his thesis, and new opportunities arose. Yet he never stopped carrying his burden.

SEMIOTIC MODES

AUDITORY
·VERBAL·
- speech
·NON VERBAL·
- music
- environment
- ui

PERFORMATIVE
- touch
- movement
- manipulation

VISUAL
·GRAPHIC·
- type
- color
- pattern

·EMBODIED·
- motion
- light
- direction
- material

INTENT

·FUNCTIONAL·
- i inform
- f feedback
- n narrate

·EXPERIENTIAL·
- m mimetic
- d diegetic

EXPERIENCE PATH
- sequential →
- variable ⇢
- adjacent ●—

Figure 1: (previous pages): Transcription and annotations of the interaction process. Distinct attention is paid in this transcript to the nested modalities and how they contribute towards the narrative experience. Source: *author.*

Figure 2: The making. Soldering electornic components to adhesive traces of coppper laid on a cardboard circuit. Source: *author.*

Bibliography

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Bio

Daniel Echeverri is a Colombian graphic designer currently based in Hong Kong. He holds a master of fine arts degree in visual communication design from Kent State University, USA. He is also a Ph.D. candidate at The Hong Kong Polytechnic University's School of Design, where he is an interactive media programme tutor in the school's BA faculty. His doctoral research looks at the relationship between agency, transportation and engagement in the context of interactive narrative experiences and explores possible ways in which tangible interaction can support those narratives.