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EDUC 236 / CS 402 Beyond Bits and Atoms | WIN 2018



Motivation



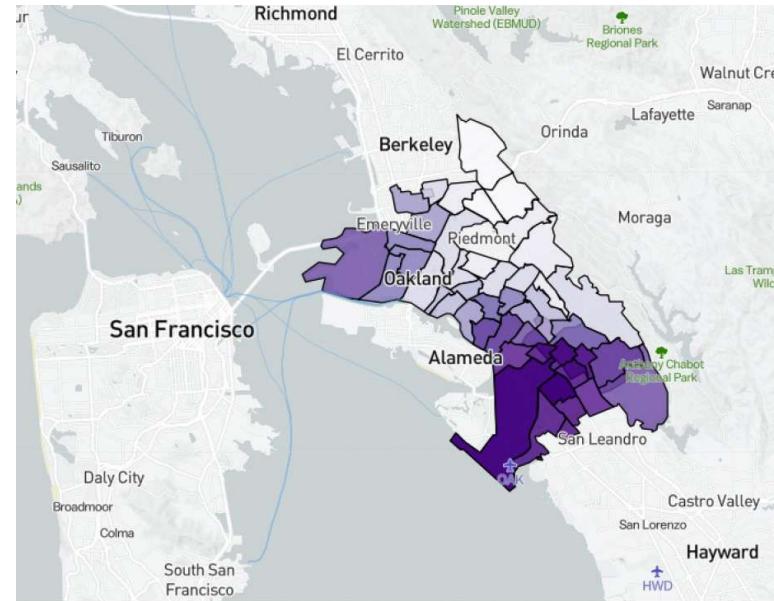
The Problem

Little reflection time on personal history

Limited means of sharing and engaging with personal history

Lack of knowledge of community history

Urban segregation





How Might We...

... enable learners to construct and share their **life stories** and explore how their **community's history** connects with these stories?

Theory



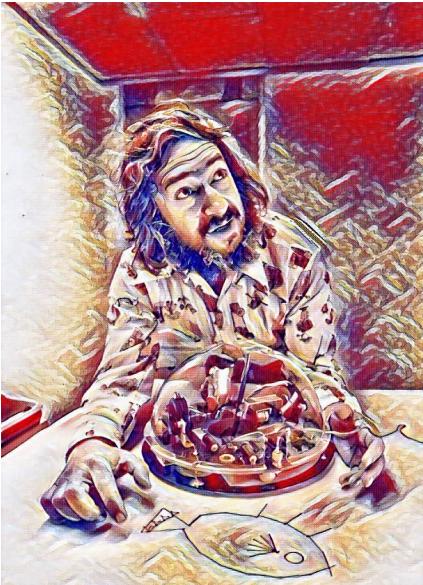
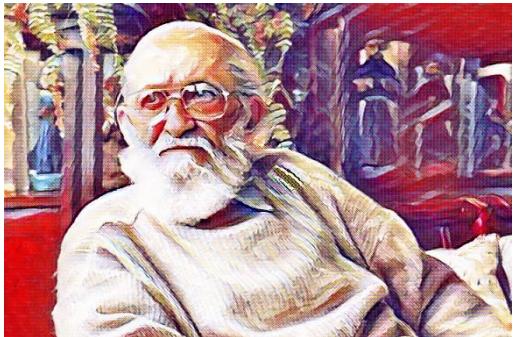


Theory

Paulo Freire

Praxis: Students do not simply explore, but actively transform and construct the world

Conscientização: Students understand that they are part of this dynamic reality and can change it



Seymour Papert

Objects-to-think-with: Learners grasp abstract concepts through tangible means and share ideas in concrete ways to the world

Erik Erikson

Identity vs. role confusion

stage: Adolescents seek historical frameworks, identities, and roles in which to make sense of who they are

Uri Wilensky

Restructurations: New symbols and structures of knowledge that make it possible for learners to achieve previously difficult tasks



Identity Construction Environments

“...technological tools purposefully designed to afford opportunities for **exploring identity and engaging in reflection and discussion** about personal and moral values.”

--- Marina Bers



Identity Construction Environments

Design Principles

1. Purposefully designed to help young people learn about their identity, particularly personal and moral values
2. Designed on a theoretical model that positions identity as a complex and dynamic construction composed by conflicting values
3. Afford opportunities for learners to design dynamic computational objects and spaces representing aspects of the self
4. Offer opportunities for storytelling and elicit narratives about the self
5. Support the creation of and participation in a community. No sense of self develops in a social vacuum



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Identity Construction Environments

Zora

The image shows two side-by-side screenshots of the Zora Identity Construction Environment. Both screens have a top bar with 'Log Off' and 'Camera' buttons, and a bottom status bar with a message log.

Left Screen (zoraHospital : The Teleport Room):

- Top Bar:** Log Off, Camera.
- View:** A 3D room with a ceiling featuring large green circular patterns. A small green artifact object is visible.
- Context Menu (Artifact):** More about Artifact..., Read my stories, **Look at my values** (highlighted), Talk to me, Add me as Hero, Add me as Villain, Take (only owner), Clone.
- Authoring Tools Panel:** Standard tab selected. Teleport to room: City Hall. Buttons: Add an Object, Add a Place, Add a Hero, Add a Villain.
- Bottom Status Bar:** You enter zoraHospital. You drop Artifact. Eliana1 says, "hello" Eliana1 says, "how are you?" Eliana1 says, "fine and you?"

Right Screen (Zora : Jewish Temple):

- Top Bar:** Log Off, Camera.
- View:** A 3D room with yellow walls and a floor decorated with Israel flags. A central pedestal holds a purple cloth.
- Context Menu (Artifact):** More about Steven Spielberg (highlighted). Text: Steven Spielberg was born in 1946 in Cincinnati. One represents who enjoyed when he was young. As he grew, he started making films. His films were mostly about discovery and enlightenment and adventure. He, with Jews, invented the summer big budget blockbuster. In 1994 he made Schindler's List, after the holocaust in Poland. Spielberg is the man who saved hundreds of Jews from the Nazis. Spielberg won his first Oscar for that movie, and began his work with the Shoah Foundation. Spielberg is the founder of the Shoah Foundation. The Shoah Foundation has been working for a few years now and has over 100,000 hours of videotaped Holocaust survivor's recollections.
- Authoring Tools Panel:** Values Dictionary tab selected. Values: communication, identity, tolerance, pride, discovery, friendliness, love, annoying. Buttons: All Definitions, Eliany1 says, that Communication allows us to be able to express our feelings.
- Bottom Status Bar:** Welcome to Zora. To move around the space, drag your mouse in the 3D view above, or click in the view and use the arrow keys. You enter Zora. Eli Pedro says, "Hello There!" Eli You approach Eli.

The background of the image is an aerial photograph of a residential area. It shows a grid of streets with numerous houses, mostly with red-tiled roofs. There are also some larger buildings,如公寓楼, and several swimming pools in backyards. The area is densely populated with green trees and bushes.

Design



Learning Goals

1. Personal reflection

Learners will reflect and construct their own **personal stories**



2. Community history

Learners will discover important events and places in their **community's history**, and how it intersects with their own story

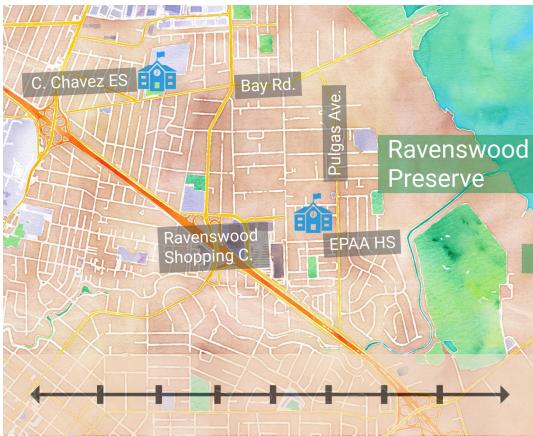


3. Peer empathy

Learners will explore the **life stories of peers** in their own or nearby communities



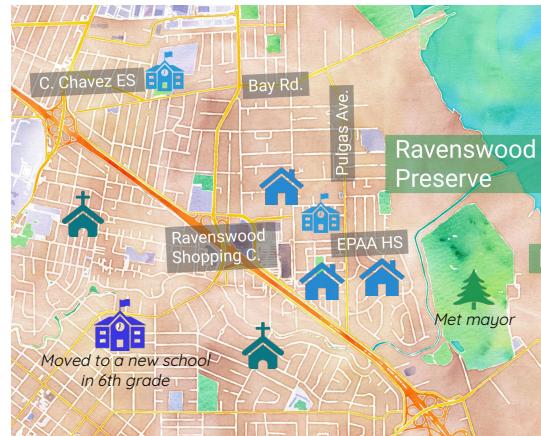
Activities



*Moved to a new school
in 6th grade*

Construct map and timeline marking important personal events and places

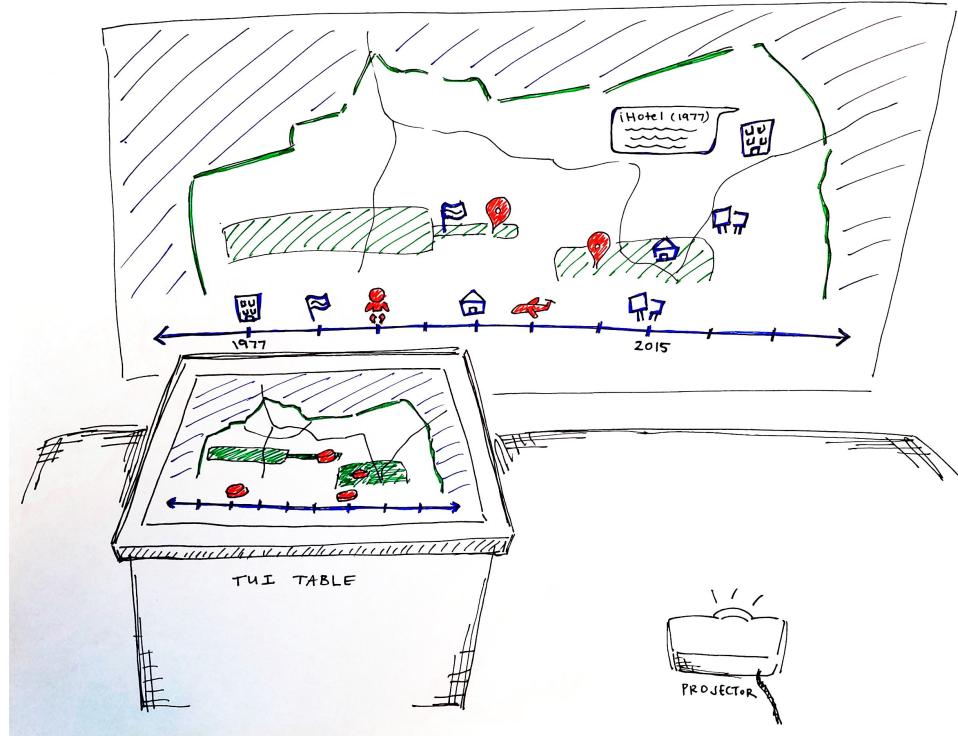
Create textual and visual representations of personal history and community



Explore others' contributions within the same community



PUBLIC WALL



A black and white photograph of a person's hands gesturing over a desk. On the desk, there is an open laptop displaying a grid of icons, a closed notebook, and a smartphone. The background is blurred.

Critique



We implemented many of the ideas we received from experts at Crits

Feedback we received

- Friendlier maps, less like Google Maps
- Fiducials with 3D shapes
- Add anonymity as an option
- Ability to personalize by adding artwork
- Play & pause buttons for the timeline
- Voice-to-text recognition
- Mobile app
- Voice recordings
- Connect to TUIs elsewhere
- Provide scaffolding with preset symbols



Feedback we implemented

- Make the maps friendlier and less like Google Maps
- Fiducials with 3D shapes
- Custom maps with key locations and streets
- Provide scaffolding with preset symbols and sample events

Future features

- See the next slide...

Video Demo





Video Demo



<https://www.youtube.com/watch?v=Ro8TTIYSRcE>

Next Steps



Next steps & future features

Real world testing



Place TUI in public/shared space
with young learners

Personalization



Custom pictures and drawings
Dynamic maps

Aggregated Data



Identifying patterns
Social justice lens



Questions?

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