Designing An Innovative Learning Tool For Landscape and Architecture Using 360 Videos
About Us

Jakia Salam
Instructional Designer, DELTA, NC State

Muntazar Monsur, PhD
Postdoctoral Research Scholar
Natural Learning Initiative (NLI)
College of Design, NC State
Overview/Background

College of Design and DELTA at NC State worked collaboratively in an exploratory grant to create interactive contents to teach complex relationships between built environment and human behavior. Our goal was to use 360 and traditional videos to teach these concepts.
Project Background: DELTA Exploratory Project Grant

DELTA Exploratory (EX) grants provide funding to examine a single application or to address a unique instructional challenge in an existing course.

- New Software/Tools
- New Technology
- Immersive Environments
Instructional Challenges

- Students are challenged to understand the basic built environment concepts, that is very hard to grasp without visuals.
- Concepts have been taught through readings and field exercises using time-consuming “paper-and-pencil” methods.
- There is no option in the current courses for students to share their work or field trip experience.
Environment and Behavior Core Concepts

Affordance is the functional property of the environment in relation to the individual.

○ Traditional videos/Map Tool

Behavioral Settings - Behavior settings are ecological units where the physical environment and the behavior are indissolubly connected

○ Traditional videos/Map Tool

Elements of Urban Form - Path, Edge, District, Node, Landmark

○ Traditional videos
Affordance and Behavioral Setting
Behavioral Mapping
Elements of Urban Form
What activities will help students to explore and identify these concepts?
Map Tool - What is it?

The 360 Map Tool is a HTML framework built to work around a set of 360° videos, the users can create and annotate specialized pins on a 2D map to record behaviors they observed happening in the space of the 360 videos. We can visualize 360 video and 2D plan at the same time.
360 Video Interface

Map Tools

Create/Edit Pins

Instructions

Zoom +/-: Toggles the zoom level for the map (± for full screen, -1 to fit on screen).

Pin: Activate to click and drag for moving the map around.

Create/Edit Pins:
- Click on a part of the map to add a pin there.
- Click on an existing pin to edit or delete it.

* Click to open and close the map tray.

Open:
- Load a saved file to view and continue your work.

Save:
- Download a file with the current state of your work.
Map Interface
Map Tool: Paper and Pencil to High Tech

- The tool has the capability to save and load student work
- The students can easily submit their work for review to the instructor
- The instructors can review student work
- It also enables the instructor to create and share example mappings for students for comparative reference
Environments

Kids Together Park (Cary, NC)

LeBauer Park (Greensboro, NC)

Downtown Charlotte (Charlotte, NC)
Interaction/Walk through the Tool - Creating Pins
Walk through the Tool
Walk through the Tool

Affordance Pin

Pin Type: Affordance

Description:

This area affords kids a place to run, climb, and play over a friendly sculpture.

Delete Pin  Cancel Changes  Save Pin
Walk through the Tool

Behavior Pin 0

Pin Type: Behavior Setting - Play

Object:

Behavior:

Boundary:

Delete Pin  
Cancel Changes  
Save Pin
Walk through the Tool

**Behavior Pin 0**

**Pin Type:** Behavior Setting - Play

**Object:**
Dragon sculpture that appears to be swimming through the ground.

**Behavior:**
Children play on and around the sculpture by climbing, running, and sitting on it.

**Boundary:**
The area is bounded by a walkway, fencing, and landscaping.

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**Map Tools**

- Create/Edit Pins

**Instructions**

- **Zoom +/-:** Toggles the zoom level for the map (+ for full size, - to fit on screen).
- **Pan:** Activate to click and drag for moving the map around.
- **Create/Edit Pins:** Click on a part of the map to add a pin there.
- **Click on an existing pin to edit or delete it.**
- **Click to open and close the map tray.**

**Open:**
Load a saved file to view and continue your work.

**Save:**
Download a file with the current state of your work.
Pins!
Technology

• **WondaVR** for its 360 videos

For Web Interface

• HTML5
• JavaScript
• CSS 3 for the web interface.
LAR Environment and Behavior: 360° Video Map Tool Demo

Kids Together Park (Cary, NC)
https://issdev.delta.ncsu.edu/courses/larEB/360Activity/Kids_Together_Park/

LeBauer Park (Greensboro, NC)
https://issdev.delta.ncsu.edu/courses/larEB/360Activity/LeBauer_Park/
Contact information

Jakia Salam
Distance Education and Learning Technology Applications
NC State University
Email: jsalam@ncsu.edu

Muntazar Monsur
Postdoctoral Research Scholar
Natural Learning Initiative (NLI)
College of Design, NC State
Email: mmonsur@ncsu.edu
Additional Authors

Robin Moore
Honorary ASLA
Professor of Landscape Architecture, Director of Natural Learning Initiative, NC State University

Nilda Cosco, PhD
Research Associate Professor, Director of Programs for the Natural Learning Initiative, College of Design, NC State University
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