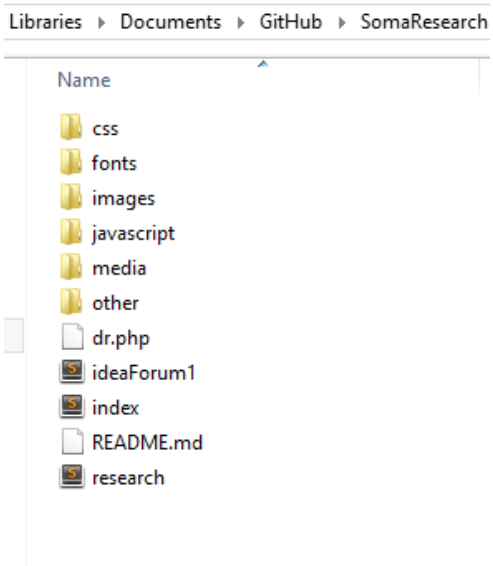
Somatic Web Design Documentation

Architecture

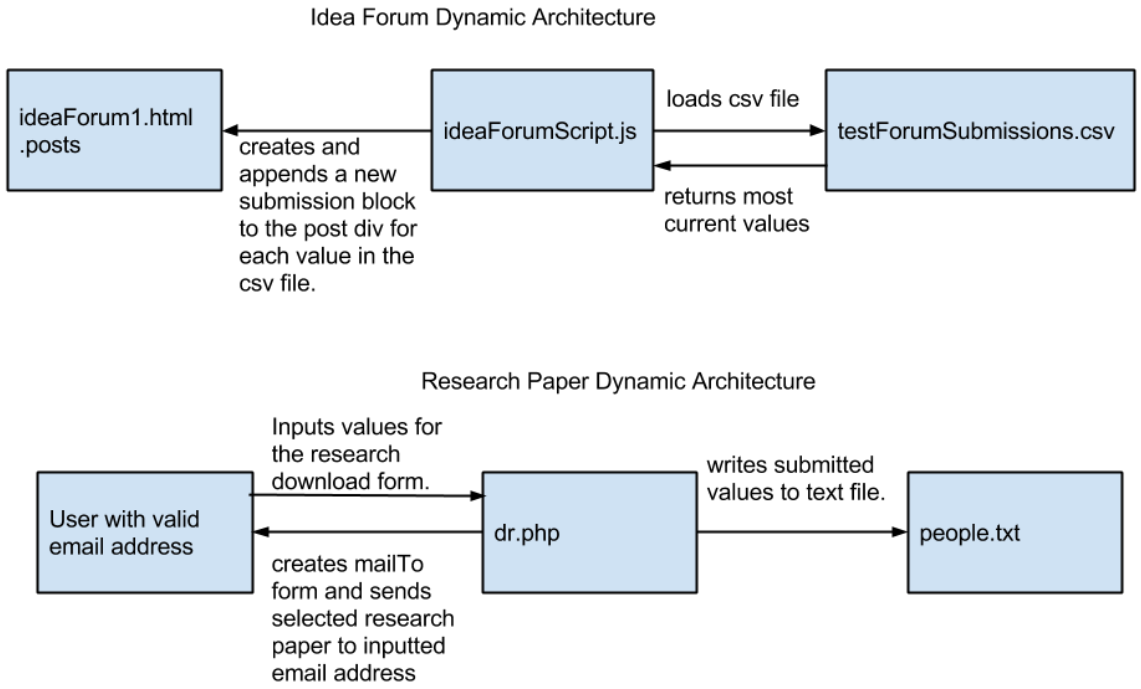
Our website follows the common client server architectural style that is employed by all websites. We will be hosting the website on the lmc.gatech.edu server with a domain name of somaresearch.lmc.gatech.edu. Our files are hosted using FileZilla.

Static Architecture



More specifically, this website has the characteristics of a 2-tier client server architecture. While it is heavily based in the presentation tier of an n-tier architecture system, it has two very basic data stores that are drawn upon and manipulated or changed using a javascript library and php. We have one landing page created in HTML with CSS and JavaScript files to add interaction, movement, and styling. For both the research pages and the ideas forum, separate HTML, CSS, and JavaScript files have been created to define structure and interactions. Our data stores are an Excel document saved as comma separated values (.csv) and a .txt file that is updated by the php. When the user interacts with the website, the HTML and the CSS are static values that define what our website looks like and the location of different objects. Different divs of the html are changed by mouse events that fire JavaScript code. There are several functionalities have embedded in our website that react to user event-based input or actions. For example, if the user clicks on or hovers over trees, different children graphics, or the logo in the website, movement or sound occurs. JavaScript code is also run when the user selects buttons on the navigation bar to move through the website. The php runs when the user accesses the research download page. A form requires the user to submit Name, email address, and selected paper to download, and writes this information to the .txt file on the server. The php also takes the submitted email address and mails a link to the research paper to this address.

Dynamic Architecture



Rationale

The client server website architecture was selected to fulfill the client's desire to have a website that is able to be accessed by a variety of end users from their individual devices. Our architecture also took into consideration the desire to design a website that affords "ilities" such as maintainability, usability and extensibility. These requirements ended up influencing our groups decision during the semester to switch from one website layout to another. Specifically, our group's initial architectural vision was to create a one page website that scrolled horizontally. This website would have been created with a single html file that interacted with JavaScript and css files. However, while this fit with the client's visual and aesthetic desire, our team realized this design seriously lacked extensibility and maintainability. Creating a one page website with a static width left the client no room to expand with future research, and made changing divs and spaces in the website a difficult task. We wanted the client to be able to add more pages as necessary as her research continued. For example, currently the client only needs one idea forum for her current research on somatic engagement, however, we would like to make sure that in the future she would be able to add a second or third page at her convenience. This layout will be implemented with the client's research as well. Instead of attempting to fit all of the information on her research within one block of a horizontal scrolling page, we will provide links to current research and leave space for additional pages to be created as her studies

continue. When choosing how to create the Idea Forum, we selected the JavaScript library d3 which is powerful and has several tools for dynamic data manipulation. This choice was made not only because our group had previous knowledge in the library and could create quickly in it, but also because this choice gives the client the ability to simply update an excel file. Now, when she would like to update the posts displayed on the Idea Forum we believe this solution was one of the simpler options because she will not have to create more code by herself to accommodate new content. The use of php was chosen because it gave us the ability to grab information inputted by the end user and both store this information in a data store on the server while also emailing the user a link to download the research. This functionality was important to have because the client asked that not just anyone be able to download the research paper. By placing a second step in between the user being able to view the research paper itself, the client is also able to keep track of who is viewing and using her work.

Data Design

Currently we do not plan to have a database for our website, however we do have a data store of a few different spreadsheets that will allow the client to add content to the website without having a need for understanding the code or having a specific set of technical skills. Our client will only need to edit the spreadsheet so that it contains the content she desires, and the website will format this input correctly. The data in the IdeaForum csv file, our first data store, will have four mandatory fields and a fifth column that has been added for future extensibility if the client wishes. For each post that will be created, one must fill out: a “date” field with the date of the submission, a “title” field with the title of the post, a “text” field with the content of the submitted idea or post, and an “Author” field with the name of the individual who submitted the idea. There is also an “age group” category which in the future might be used to create a way to filter posts or ideas so that interested parties can view posts that have ideas about somatic engagement for a specific age group. Currently, this category is not processed or used to create idea forum posts.

Our second data store is called people.txt and is a text file with three categories in it. A “Name” field for the name of the individual who requested a research paper, a “E-mail” field for the email that was submitted to receive the paper, and a “Paper” field where the paper requested is listed. Currently, the client only has one paper she would like to have available for download, but if in the future she chooses to post other papers online, the “Paper” field will document which paper has been downloaded.

Currently, we do not have a way to validate the data that is being entered into our php submission form. All three fields of Name, E-mail, and Paper are required, so some sort of content must be entered, however, the data that is submitted may be incorrect. We would like to be able to create validation steps for this data, but it may be a Sprint 4 goal.

Detailed Design

The design of both our landing page and subsequent pages is based heavily in HTML, JavaScript and CSS files. The HTML files were used to create a framework for the website,

CSS files to style content, and JavaScript to create interactivity. In our HTML file for the landing page we create a top and bottom panel out of divs. We used divs within the top panel to create wrappers for items such as the tricycle and the keyboard text hovering above it, the garden of flowers, the trees, the playground, the sun, context boxes, and more. Within each wrapper we placed separate divs that would create the framework for each individual item we wanted to be a part of the larger grouping.

To add content, sizing, positioning (for each wrapper, and for items within each wrapper), and more to each div, we used CSS. In the CSS file, each div that represents an individual item such as a tree or flower is given a width, a height, an image designed by our designer for the background, a z-index, and a position within its wrapper. We designed our html structure with wrappers so that as we were creating different sections of the website, we would be able to shift fully designed pieces of code back and forth without having to update each individual item's location.

Finally, since we wanted our site to have a playful and interactive feel, several different items throughout the website move constantly, react to hovering or clicking, or play sounds. All of this functionality was created in our JavaScript files which listen to and manipulate the div structure in the html.

In the design of our website, the code defining structure, content and interactivity has very low coupling and high cohesion. The low coupling comes from the fact that our HTML structure and related CSS and javascript files are broken into DIVs that contain each item in the website. Therefore, each object and its interactive capabilities is defined separately and can be removed from the code without affecting any of the other content.

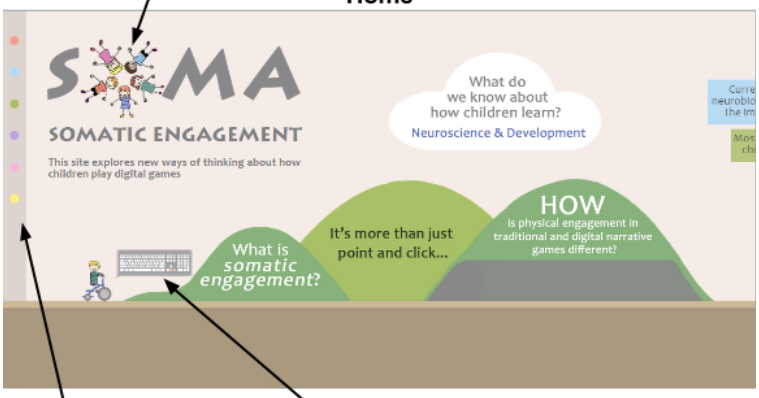
GUI

Since our first meeting with our client she reiterated she wanted the website to be playful, while also having a professional feel. The website will contain papers documenting her and her students research, and it will feature interactive graphic elements that respond to the user which is meant to underscore the importance of somatic engagement in child development. In our initial design iterations, we came up with several different designs, and one more developed wireframe that had a sleek grey and angular design. This design was very professional looking, but it lacked in color and playfulness and did not quite have the balance we or the client hoped to find. After more research, we found a style for the graphics that incorporated a flat landscape design for the website with more detailed children characters interacting with the scenery. The landscape gives the website continuity from section to section, allowing end users to connect the sections visually. The flat design keeps a clean, professional feel, and not only are the children and playground graphics reflective of children, but the equipment found on playgrounds is also an excellent example of how children can learn about the world via interaction. Below is our final landing page design as well as final designs for the research page and Idea Forum. Any interactive pieces have been labeled.

Landing Page GUI:
The following six images are all sections of the landing page. Each image corresponds to a link on the navigation bar, and are as follows: Home, About, Research, Games, Links, and Forum.

O spins on hover

Home



Hovering over a dot causes label text to appear. Clicking on a dot drags the user to the related section of the landing page.

Keyboard alternates with instructional text. As the user advances, the keyboard disappears.

About

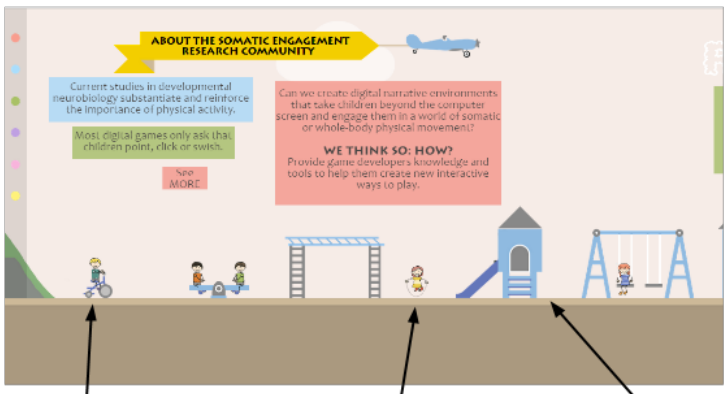


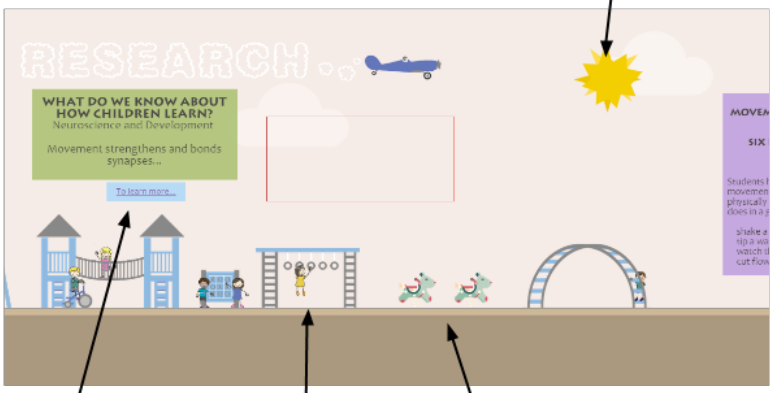
Image flips on right/left arrow key push so that the bike is moving the correct direction.

.gif of girl jumping rope.

On hover, a boy will slide down the slide.

Research

Top two layers rotate in opposing directions.



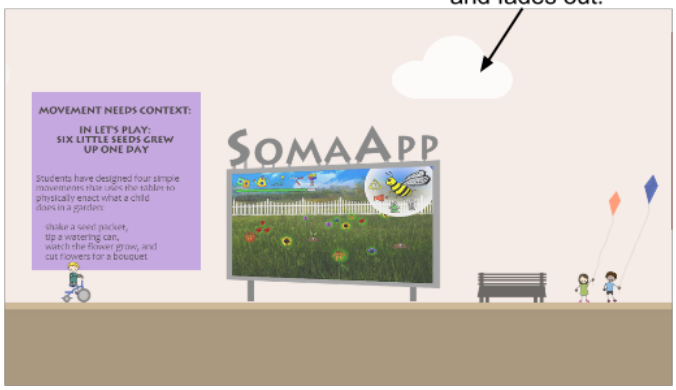
Click here to open Research Overview page.

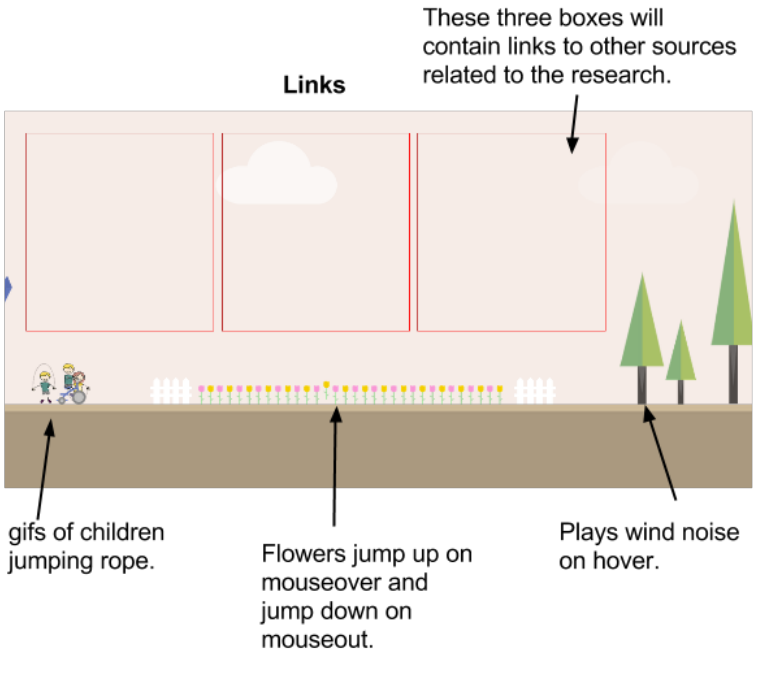
On hover girl moves across rings.

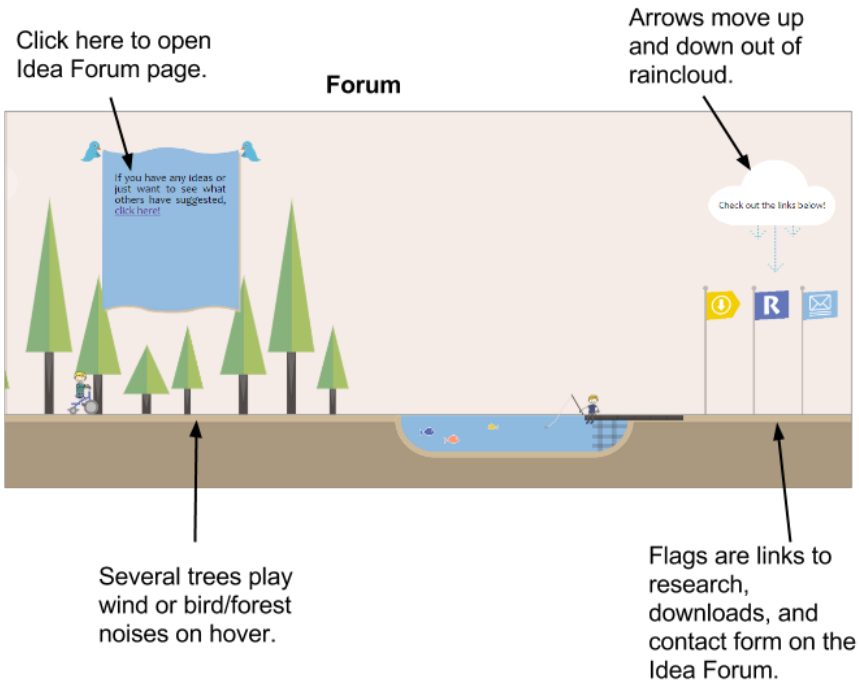
Playground horses rock on hover.

Games

Cloud moves left and fades out.







Research Pages GUI:

The following images are the design and flow of pages if a user decides to click on the “To learn more...” link on the research section of the landing page.

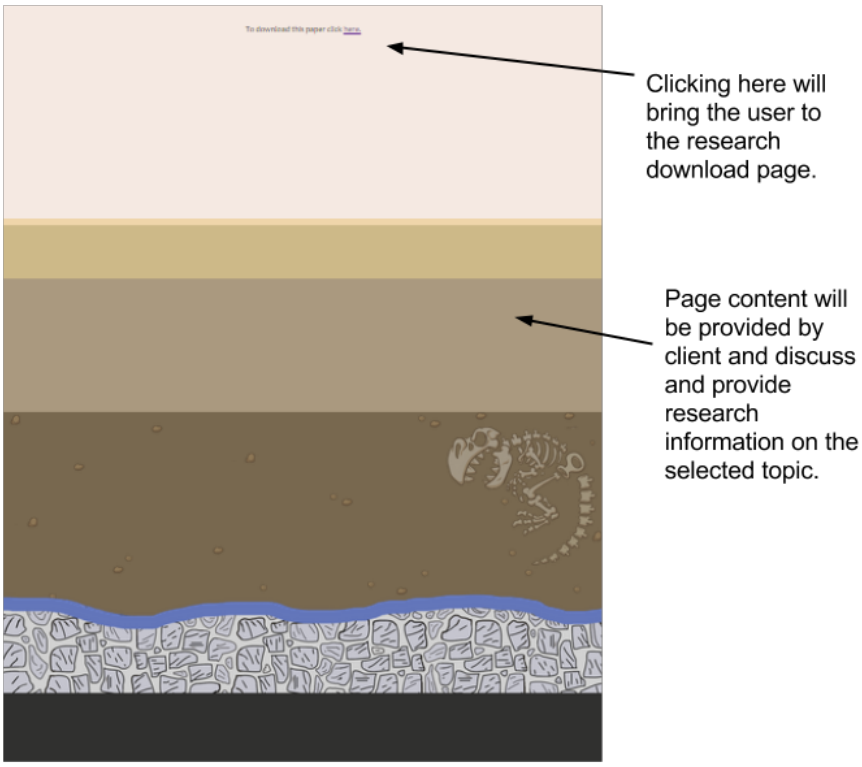
Research Overview Page

Under each section of oral, written, and digital will be a summary about somatic engagement levels and potential.

Click on a “To learn more...” link to open a more detailed discussion of research done on somatic engagement with the particular medium.

If a “To learn more...” link is clicked on the Research Overview Page, a more detailed discussion of this research will be displayed on the page below.

Detailed Research Page for Oral, Written, or Digital



Idea Forum GUI:

The following page is what is displayed when a user selects the “Click here!” link on the Forum section of the landing page.

Validation

As far as validation is concerned for the progress and direction of our product, one of our most important validation steps was to schedule weekly meetings with our client. We managed to maintain a very open line of communication with her throughout the design process. This communication has helped us to understand and change requirements as the client suggests alternate thoughts on how she would like the website to function.

For example, from the very first meetings we brought each potential website layout and design to the client for her to select which version and features she most preferred. For each iteration of the design, we have made sure to show the client wireframes, sample graphics and sample fonts which she was able to approve before we moved forward in implementation. We also brought the original one page horizontal scrolling website architecture to the client for approval and moved ahead with this design, however, when it became clear that implementing this was causing too much of a delay in progress and perhaps creating several complications with extensibility and maintainability of the site in the future, we scheduled a meeting with the client to go over the new architecture that we have finalized in the current product.

Besides weekly meetings and bringing everything from graphics, possible interactive elements (Such as a spinning O in the SOMA logo), and website architecture to the client for approval, we also validated in other ways. Any sort of content for the site was validated because it came straight from the client herself. We gave her blank screenshots of the website with outlines where content could be added, and used the text she filled in to populate the content divs in the website. We also created an extensive testing plan that describes how each part of the website is meant to function. Using this, we were able to determine if everything in the website is working the way that it should be working on different browsers and devices. Minimum requirements for acceptance in our test plan are that there are no bugs remaining that are high in priority. Medium and low priority bugs may be pushed to Sprint 4.