

Collaboration Online by Design:
Developing Web Based Social Networks as a Design Strategy.

The University of Oklahoma Graduate College

Collaboration Online by Design

A Professional Project submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of:

Master of Architecture

By:

David R. Beach

Tulsa, Oklahoma
2009

A Professional Project approved for the College of Architecture Urban Design Studio

By:

Shawn Michael Schaefer, Chair
Showa Omabegho, Ph.D
Hans-Peter Wachter
Christina Hoehn



Copyright © 2009 by David R. Beach
All Rights Reserved

Online Collaboration by Design

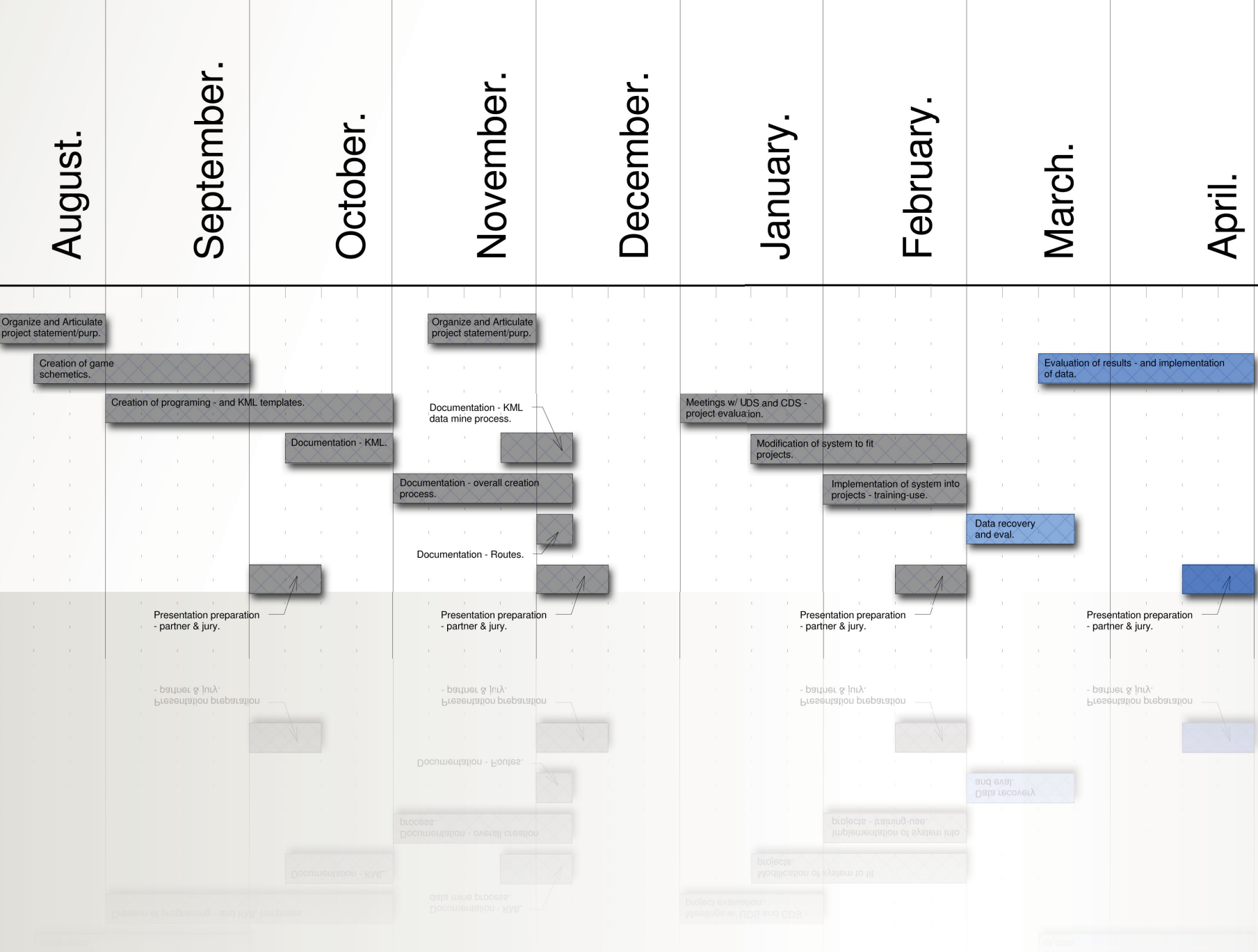
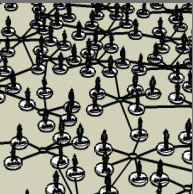


Table of Contents:

Creation of a Topic	3-8
The Web	9-11
The Industry	12-14
Qualifiers of a Successful Site	15-16
Failures, Fits, and Unworkable Tantrums	17-18
Technically Speaking	19
Case Studies:	
Grove Elementary	20-41
White River	42-48
Analysis: A General Critique of the Process	49-58
The Conclusive Opening of New Steps	59
References	60-61



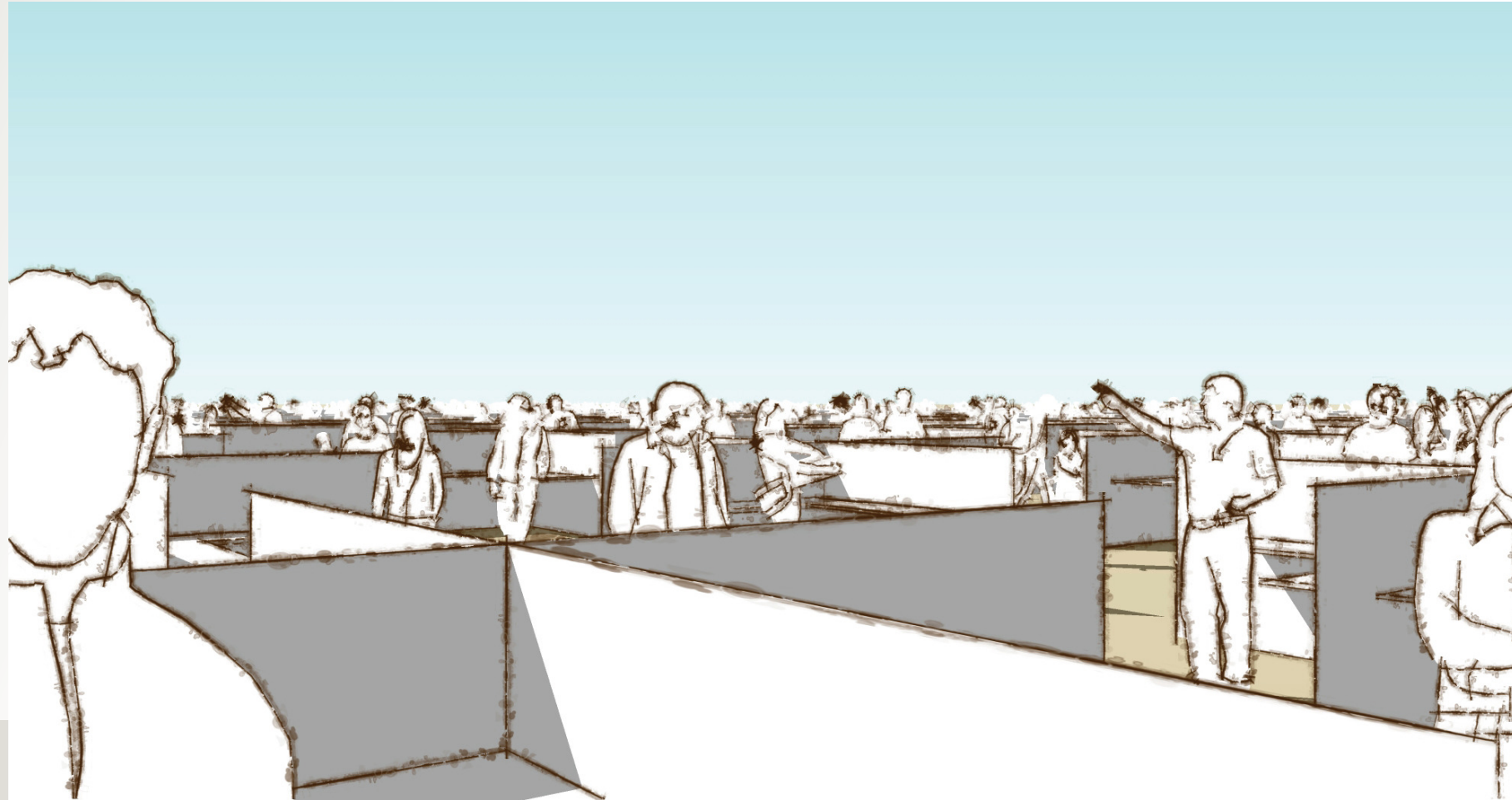


Figure 1. Workspace visualization.

Creation of a Topic:

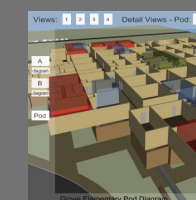
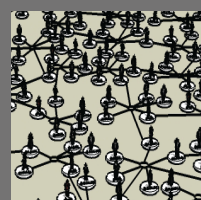
One year ago, while watching presentations for the 2008 Masters of Architecture class at the Urban Design Studio at the University of Oklahoma, I heard the following phrase:

“We called a community meeting for the neighborhood of 200 for our project, only five people came. We sent out an online survey, over 50 percent responded....”

I found this information both compelling and appalling. I began to struggle with the implications, not of just that statement, but of the pervasive attitude I have been sensing regarding the interaction between designer and the society they serve:

- **Why are we no longer placing enough value on our surroundings, our built environment in order to be engaged at a social meeting to discuss design proposals?**
- Answer: If we were not interested, looking at the case above as a typical example, 50% of a community would not be willing to sit down and provide input. We, society, do care.
- **Are we becoming less social? Do we not value attending social functions?**
- Answer: Any popular “event” would revoke a response rebuking the notion that we are no longer social. We care about others, we enjoy company, but our values have shifted as a result of the need to prioritize time.

The most interesting element from my analysis of that simple statement is that the word **social** is currently being redefined.



Creation of a Topic:

I am studying a new system of online communication through tools that are available, accessible and capable of being integrated into a design process . The design industry (both Urban Design and Architectural Design) is failing at effective communication with the client and the non-paying client. This is due to increased time constraints on designers, and decreased time for community participation in project meetings. By creating new methods of communication, education, and acquisition of information online, designers can improve their research data to create designs which better serve the constituents of a project.

There are multiple types of content, multiple layers of interaction, and differing levels of communication. As designers in an ideal world, great design content (drawings, models, written documents) would be created and design elements would be established for interaction with clients. This would create a deeper understanding of the design, about which lengthy, uninterrupted meetings to tackle all the issues of a project would be held. However, under current practice circumstances, that just does not happen. Design content must be manufactured with a focus on time and budget, rather than need, desire, and attention to the broader architectural goals. This is often something not simply driven by the economy of the market, but by the client's expectations as well. Often, clients want hyper productive meetings where they are presented with answers, rather than the development of design questions to be resolved. This creates a system where design becomes stale, and the built environment exists in a rut where clients do not develop the buildings and spaces they need...the design team plays the role of creator, filling needs based on assumptions. It must become the design team's job to begin educating the client on their involvement without *exhaustive* research, meetings, and potentially divisive confrontations.



Figure 2. The "Idea Game Guys" from the Grove Elementary Renovation Web Site.

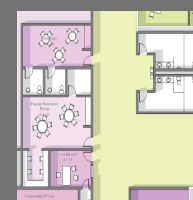
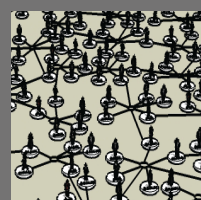




Figure 3. Failure of design to be socially responsive: Pei & Cobb, Boston City Hall.

Creation of a Topic:

A good process should create consensus with the client, provide design data to the architect, and allow clients and non-paying clients the feeling of ownership in the final product.

The results of the typical design strategy are the complaints heard from clients that start with: "The plans in my last building did not work because..." The cause of this is rarely deficient design, but more often than not a problem in extracting good information from clients. Not attaining the design information could of course be construed as deficient design, but typically the problem is communication. Communication in itself must not be limited to just the source of income for the design team or the direct "client." Information must also come from the users of the design which often fall under the category of non-paying client. In the instance of a school, the non-paying clients would be the students and teachers, both of whom have a direct interest in the outcome, but do not have the authority of the school administration (the client) that is working directly with the design team.

The availability of presenting, and receiving design information over the internet is not complex. It is simply a matter of "mashing" a set of existing tools together to create what is already available and in use in various industries. Creating the content to be placed online is changing as well. With the immergence of BIM (Building Information Modeling), the standard format of design is no longer two dimensional information, but three dimensional computer models. This means that creating interactive computer generated walk-throughs, is a byproduct of the design creation and documentation process. What the design industry needs is the creation of an updated process to share this information, gain feedback, and enhance communication.

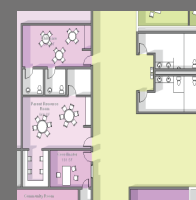
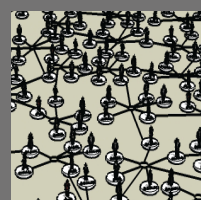




Figure 4. Analysis model of Jordan Valley Park as viewed real-time in Google Earth.

Creation of a Topic:

To do this, a new process, and new set of tools to complete a “mash-up” of existing tools is necessary.

To consolidate (mash-up) a new set of communication tools, several key areas must be explored:

- First, the evaluation of multiple programs to find the right tool that is open to the public (free for use), easy to use, and flexible must be explored. Through a bit of research and experimentation, Google Earth is the probable application for this professional project. It is available for free use, has the entire planet for context (including terrain, satellite photos, and the ability to import and export 3d content), and has the ability to host a variety of information within the program, associated with specific locations.
- Second, a strategy for presenting the information must be adopted. The best method for this, quite simply, is research and testing. What has been done in a similar way, with traditional communication tools and is adaptable to an online strategy. *Design Games* by Henry Sanoff is a very appropriate first text to reference, as it discusses information collection through the process of interactive “games” to educate clients, extract design data, and create design direction consensus. As a guideline, the idea of creating design games is very powerful, and lends itself to a modern online update.
- Third, the method of creating and placing the data online needs to be developed. This third step will create the process of actually creating elements within Google Earth, and broadcasting them over the internet to allow for interactions from constituents of a project. There are two key elements in the creation: one, a three dimensional computer model

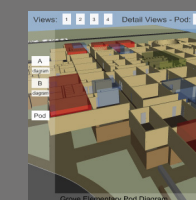
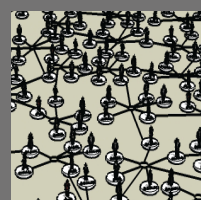




Figure 5. Kim Berns, Vice Principal at Grove Elementary - Grove project.



Figure 5. Lisa Owen with White River Valley Historical Society.

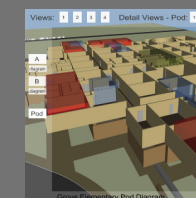
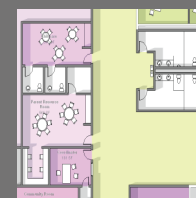
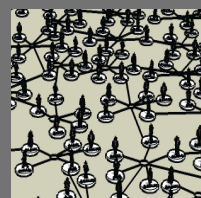
Creation of a Topic:

representing the design location, decisions, options, or proposals and two, the creation of KML (keyhole markup language) coding to allow interaction and input by the constituent with the design elements.

- Fourth, the process needs to be put into a form that can be duplicated, and put to use by designers for their specific projects without extensive knowledge of KML programming, or the advanced features in Google Earth. This means the creation of templates that can allow for the input of information on a custom project, modifiable to client needs and a desired level of interaction. The goal will not be to create every template for every situation imaginable, but a base set of templates that can be used for putting projects online, and gathering information for the project online in Google Earth.

To evaluate the process of online collaboration, I have taken two architectural client groups and implemented my strategies into their design phases. Approaching a project with an online design tool requires many assumptions about its acceptance from both the clients, and the design teams. A great amount of energy needs to be devoted to the success or failure of improving communication through an online strategy. The primary questions that need to be addressed are:

- Will participation in the project by the clients and non-paying clients improve?
- Is the system easy to use on the client end? On the design end?
- Is the feedback generated capable of being assimilated into information that is helpful to the project?

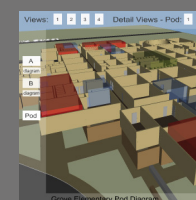
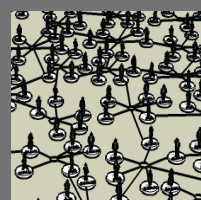


Creation of a Topic:

- When face to face meetings take place, is the communication of the project enhanced by the online strategy?
- Is the feedback and information gathered more or less forthright than information gathered from a meeting? Does it fall within expected patterns, or does information become more random?



Figure 6. "Wordle" word cloud created from my Professional Project Proposal.



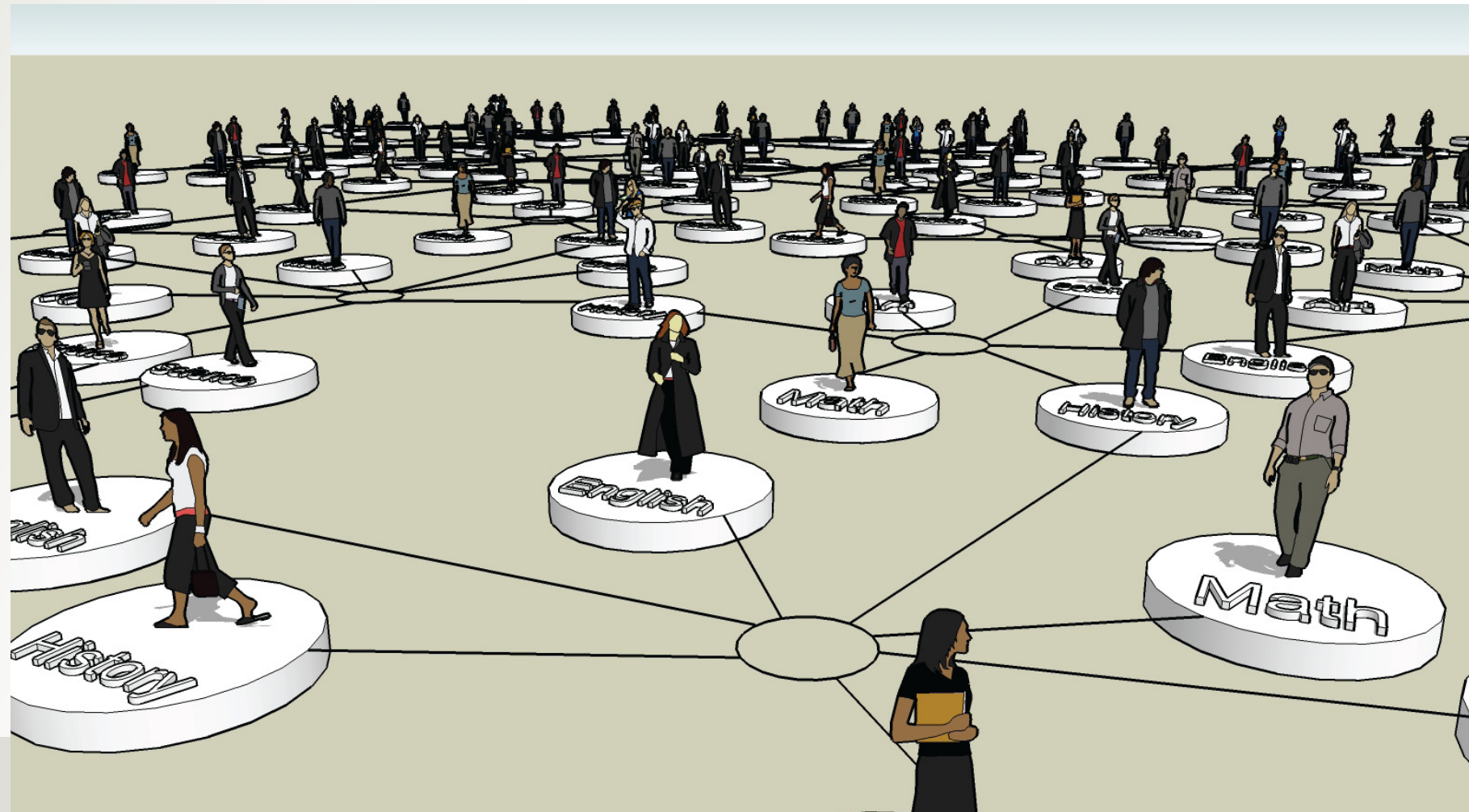


Figure 7. Visualizing a social network for an open source online education.

The Web: Defining the Machine

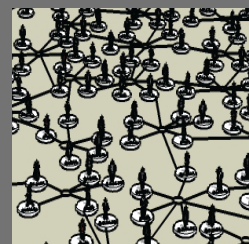
In my introduction, I mentioned the concept that the word “social” is being redefined. Through my explorations of Online Collaborative Design, I have gained a thorough appreciation for the depth of this new definition. Without the internet, it is quite obvious that I would not have a topic...beyond that, the Web is really driving the new understanding of social. Within a few hours of work, I can find groups with a common interest, without the need of forming a place, or particular location to meet, and jointly begin collaboration. This new ability to incorporate individuals is remarkable, powerful, frightening, and at the very least a significant cause of change. A base understanding of the Web, in particular “Web 2.0,” is crucial to linking the changing notion of social, as well as the impact it will have on the design profession.

Quantifying the Web has been a topic of research for Kevin Kelly, co-founder of *Wired* magazine. His research describes the Internet in the following way:

In the last 5000 days the Web has become:

- 100 billion clicks per day.
- The consumer of 5% of all global energy.
- Seven terabytes of information transferred per second.
- 55 trillion links within web pages.
- One quintillion transistors within the computers connected to the Web.
- Given 55 trillion synapses, and one quintillion neurons, both of which perform similar tasks, the Web is roughly equal to one HB, or one human brain.

The rate of growth of the Web is doubling each year. The ability of this machine to integrate transparently into our lives is not an opportunity, but a simple reality.



The Web: The Paradigm Shift

Early considerations of the Internet were based around what we knew about media. The assumption was made that the Web would be the next generation of TV. We would sit in front of our computer screens and passively receive information or entertainment. However, the evolution of the Web has changed from a passive environment to an active environment. It is far more than a tool for observation and collection, but an opportunity for mass interaction with others. This evolution of the internet has created a new social paradigm.

As a result, the life of the design professional, and for that matter the entire business world, is undergoing a paradigm shift. This paradigm shift has been described in *Here Comes Everybody* by author Clay Shirky. In the book, he describes the process of how and why the change in our corporate structure is occurring.

A general understanding of Shirky's observations leads us to understand the deconstruction of the typical corporate structure. Business has historically been able to accomplish tasks, designs, and innovation by creating a mass collection of workers. Beginning with a Chief Executive Officer (figure 8a), the Board of Directors or Middle Management (figure 8b) who answers to and works with the CEO. Then a great number of employees (figure 8c) all working for, and under the direction of the CEO, Board, or Middle Management. This entire crowd of workers strives to make a product for consumption (figure 8d). The product may be something physical, it may be an idea, or a design to be built. Regardless, the corporate structure needs the consumer of its goods or services (figure 8e).

The real power in this system does not stay with the CEO, board, or employee...but rather lies with the consumer. They have the ability to drive the company



Figure 8a.
The CEO.



Figure 8b. The CEO + Board
or Middle Management.



Figure 8c. The CEO + Board or
Middle Management + Employees.



Figure 8d.
Product.

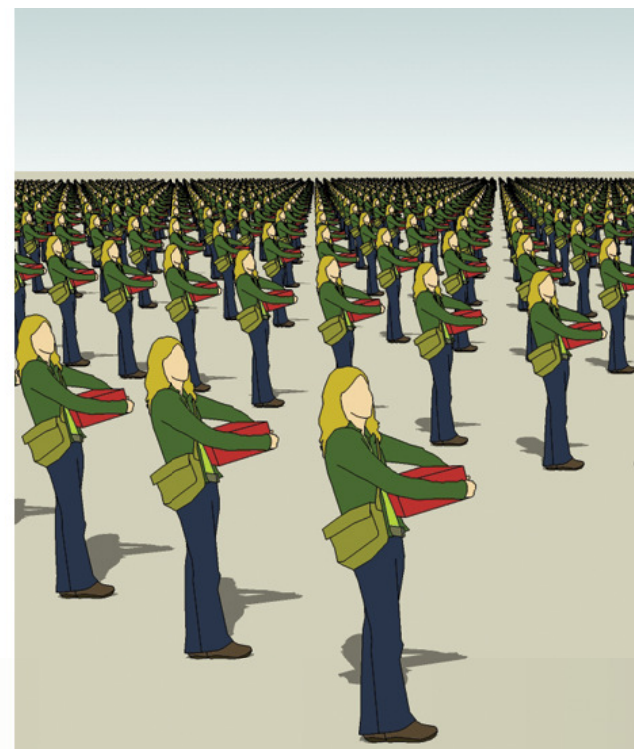
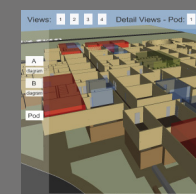
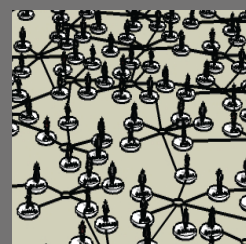


Figure 8e. Consumers - the majority...who now have
the power to collaborate.



The Web: The Power to Collaborate

through demand. However, they have brand new ability to drive the corporate structure by the opportunity to coordinate, and collaborate online. This opportunity could mean mass rejection or consumption of a product not by the traditional “word of mouth” pattern, but by the new “message board/blog/twitter” system. Even more interesting, the consumer could circumvent the company all together by creating their own product by collaborating online, an opportunity that did not exist before Web 2.0. Clay Shirky explores the concept of online crowd design in *Here Comes Everybody* by stating

“Collaborative production, where people have to coordinate with one another to get anything done, is considerably harder than simple sharing, but the results can be more profound. New tools allow large groups to collaborate, by taking advantage of non-financial motivations and by allowing for wildly differing levels of contribution.” (pg. 109)

This kind of collaborative action is happening rapidly. It is not just a fictional understanding of a utopian free sharing world of information. The first example is Wikipedia (figure 9), the free online encyclopedia where articles are written by volunteers who login to add to a collection of information (<http://en.wikipedia.org>). Founder Jimmy Wales reports that there are more than 2 million articles, 1.4 billion views per month, and a higher accuracy rating than Encarta (by Microsoft), with only one on-staff employee.

Also of note is OpenOffice (figure 10), an entirely free and open source competitor to Microsoft Office which is designed and programed by volunteers collaborating online. Next, The Linux operating system...also open source, designed and programmed by volunteers, and free for use. Demand is changing supply, and social is being redefined.

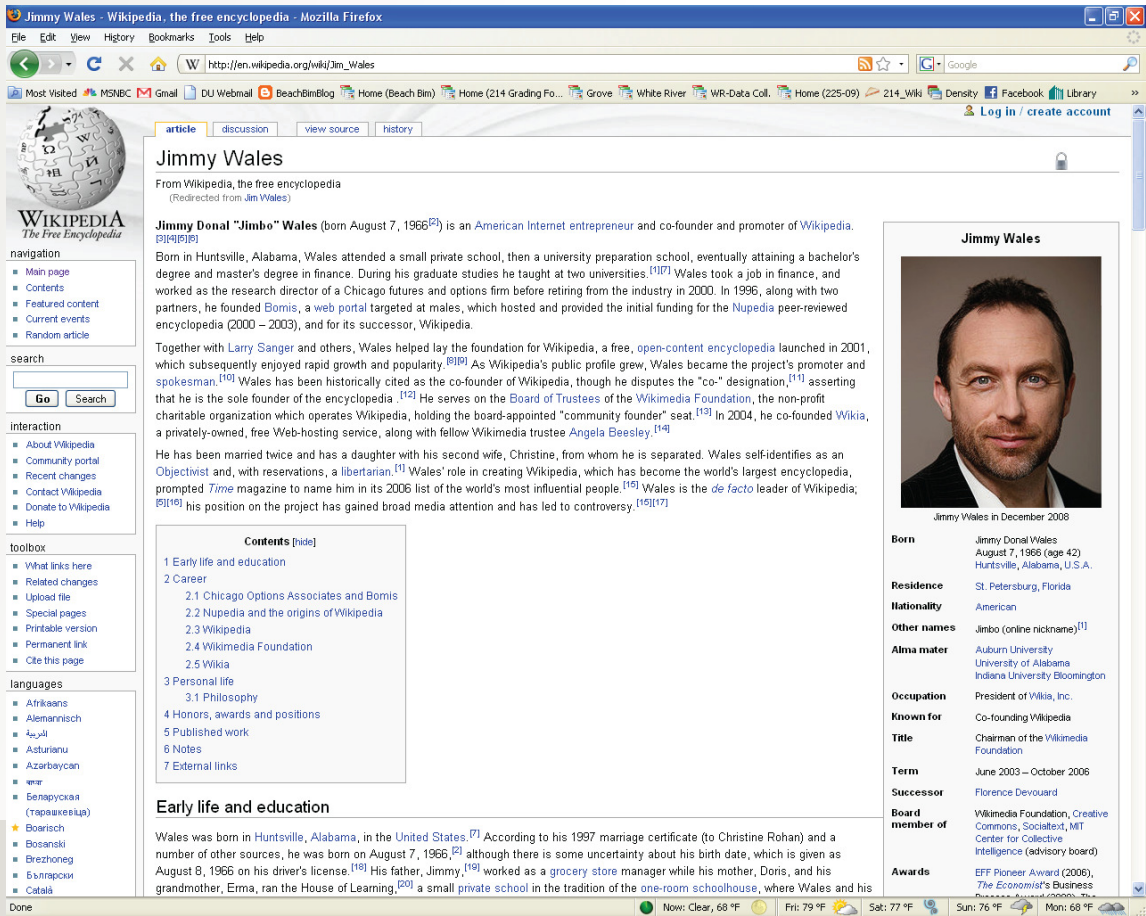
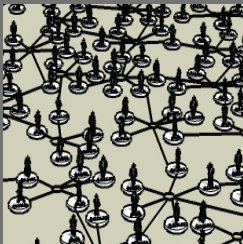


Figure 9. Wikipedia - a complete online and open source encyclopedia developed through collaboration.



Figure 10. The OpenOffice interface, with products that are the equivalent to the Microsoft Office Suite.



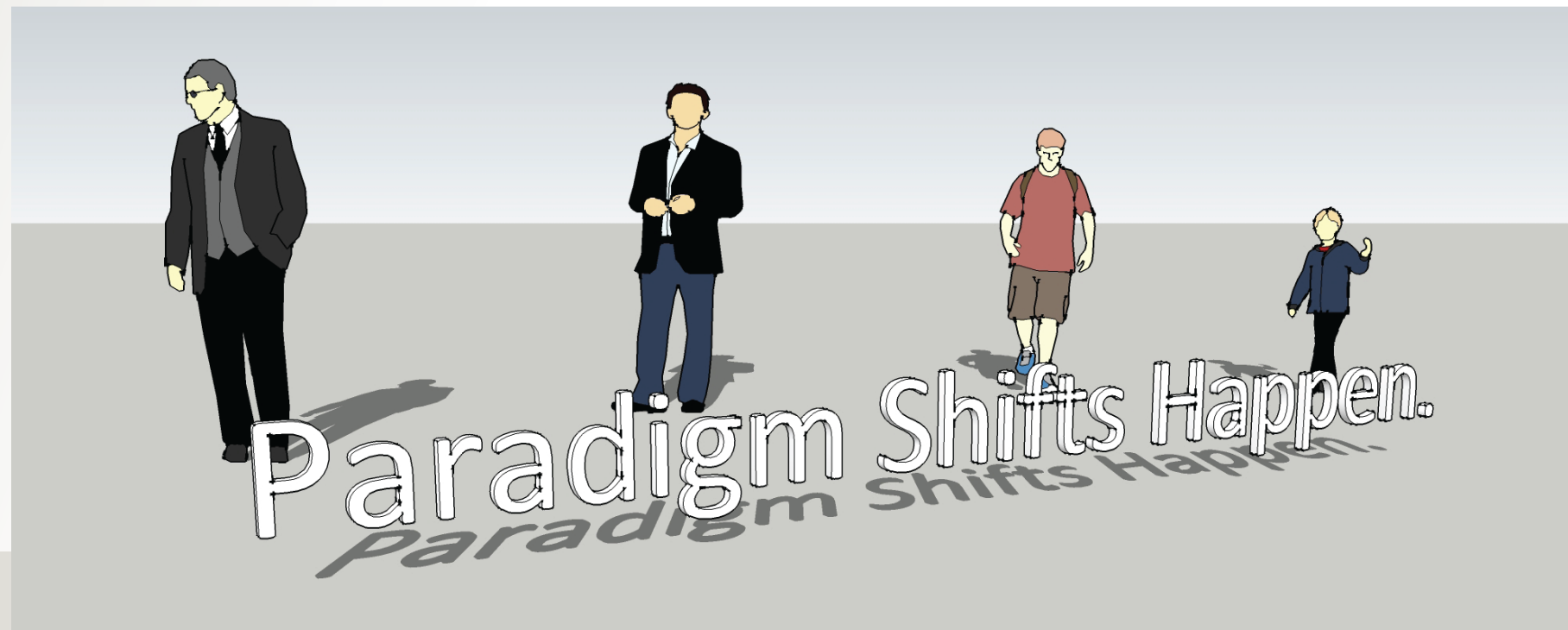


Figure 11. Paradigm Shifts - Generational, Corporation(al), Physical, Technological.

The Industry: The Net and Design

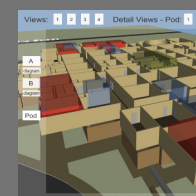
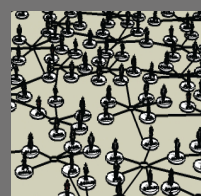
It is incredibly important to note that this paradigm shift is happening in all forms of business. The design industry performs tasks centered around ideas and the construction of conceptual thinking. This however, does not preclude architects, planners, and other designers from being affected by the change in corporate structure which yields control to online crowd collaboration.

Design can be thought of as art: Attainable by years of education and apprenticeship. Many late nights are spent struggling with form, sequence, meaning and relations. Design can also be thought of as a system or rule set: Codes, precedents, and building components.

Any group or individual could collaborate to use the latter as a means of designing spaces. With respect to my career, I have seen this taking place, as owners, builders, and communities strive for control and precision over their individual facilities. Programs already exist that coordinate code simulation while drawing plans, and using key elements of building components to provide solution based precedents.

The downside to an owner or builder who develops their own facility is two fold. First, designers are innovators-striving to improve upon successful precedents while creating new forms and arrangements of spaces to reflect a shared passion with their clients. Second, it is the job of a design team to see beyond the scope of an individual project. The design team must see each project as an unfolding continuation of the built environment. Each project adds to and improves upon its local context.

Currently the design industry, in many cases, is not being responsive enough to the two issues listed above. Innovation and context add value to their service and prevents itself from being consumed by an online crowd of



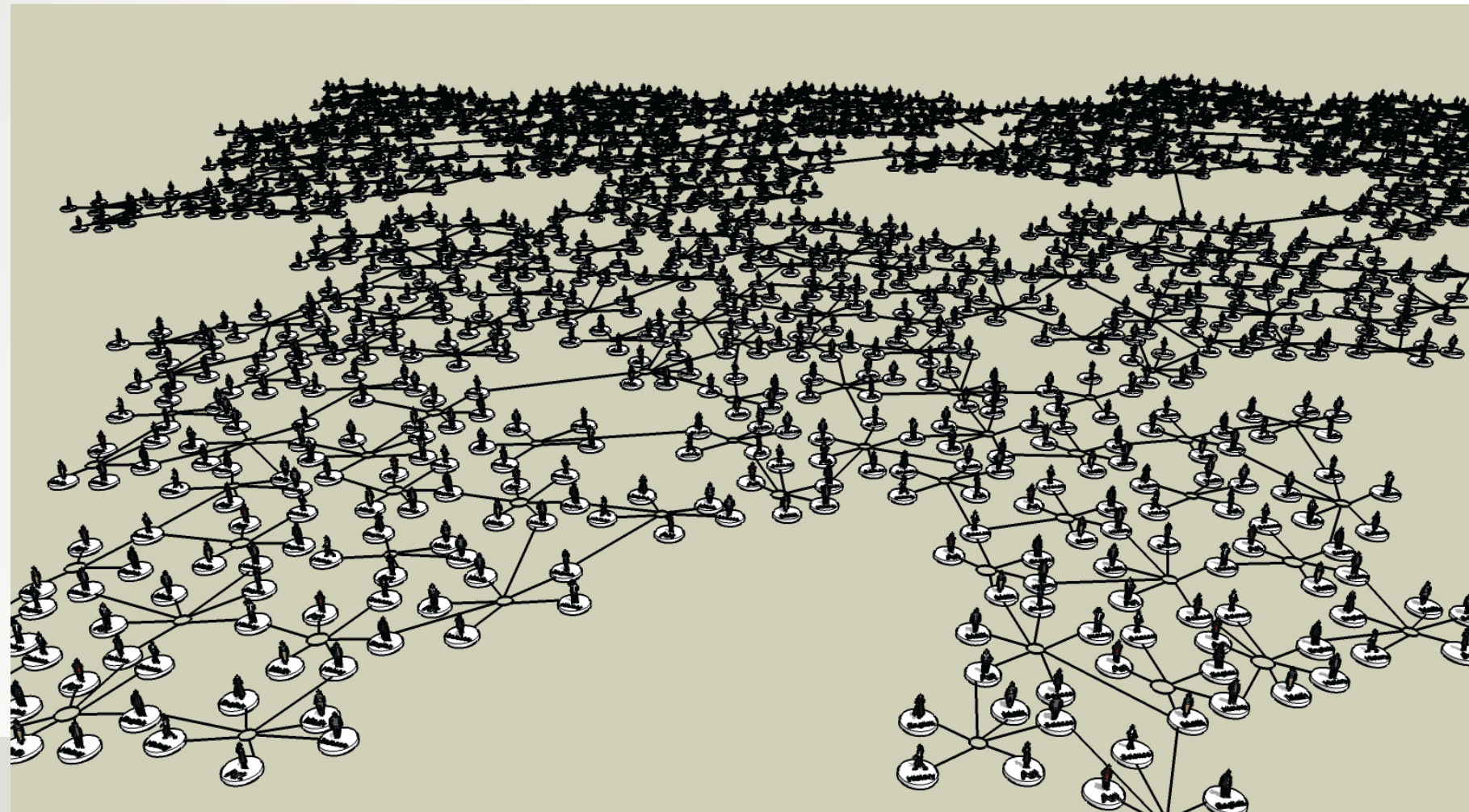


Figure 12. Visualizing a social network for an open source online education.

The Industry: The Net and Design.

collaborative design. Arguments can be made that design teams are struggling too much to meet smaller budgets; technology is focusing on creation of a standardized process rather than the articulation of a specific product; or the profession is no longer being held to a standard of previous generations. Regardless, the design community is primed for change, either a self-imposed internal change to improve the quality of the work or by external forces that will simply prepare the work for itself.

The first goal for change is pushing the design process to reinvent itself as the social activity that it once was (using the modern definition of social of course). The current image of a designer is that of late nights, desk lamps, and the “spark of imagination” that creates a design. Great design strives to serve the community and this *cannot* be done through a socially introverted process. The reality is that design takes teams of people working socially with a client to create a product which is serviceable to both their and the community’s needs.

The second goal is to start pacing with the industry’s available technology allowing the design community an opportunity to move progressively. This requires acceptance of integrated design (fully realized 3d computer models) that exists within the web to allow for collaborative online design. The right process and tools will improve communication, enhance client relations, and raise the expectation level of the designers. This empowers the client through creating an educational and interactive environment. Releasing the design team from “stylistic form” and allowing the client to take ownership of the design does not remove the creative elements of a project from the designer. Rather, it raises the expectations on the design team to create work about the client and community, not just provide as a service to them.

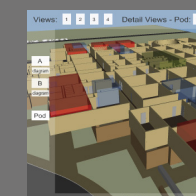
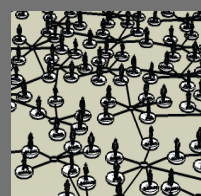




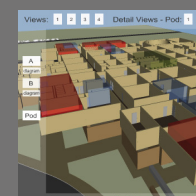
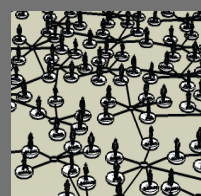
Figure 13. Generational emotional response to online collaboration.

The Industry: The Net and Design

In general, people are adverse to change. Through discussions regarding the idea of shifting how we interact with clients in the design field, I have come across a range of responses. Though an unofficial tabulation, a pattern developed that is perhaps worthy of additional study. For the scope of this project I wanted to catalog the observation.

There was a range of emotions from the different generations which I presented the change to “online social” to. They can generally be described as follows: The CEO generation is somewhat appalled at the notion; the baby boomers are angry at the paradigm shift; my generation (Gen-X) is confused by the implications; and the current college age student has already accepted the change, integrating the Web as part of their social life.

Any logical step in coping with change is having acceptance of the situation. But currently, at no point in my discussions have I actually stumbled across many people that had a simple response of “yes, that seems to be an appropriate and progressive step to move the design process.” Even my current undergraduate students, who are fully immersed in online social networking, do not see the significance of the change, or realize the potential. Because of this, I would simply call this social change as a happening, or an event. In terms of how rapidly this progression has taken place, one could easily argue the happening of a new social understanding has gone unchecked in the design community. We need to think progressively past the phase of acceptance (especially since the opportunity for acceptance is already gone), and consider the ideas of innovation and exploration within design methodology as an ambiguous, leaderless, and potentially wonderful collaborative environment of online social networks.



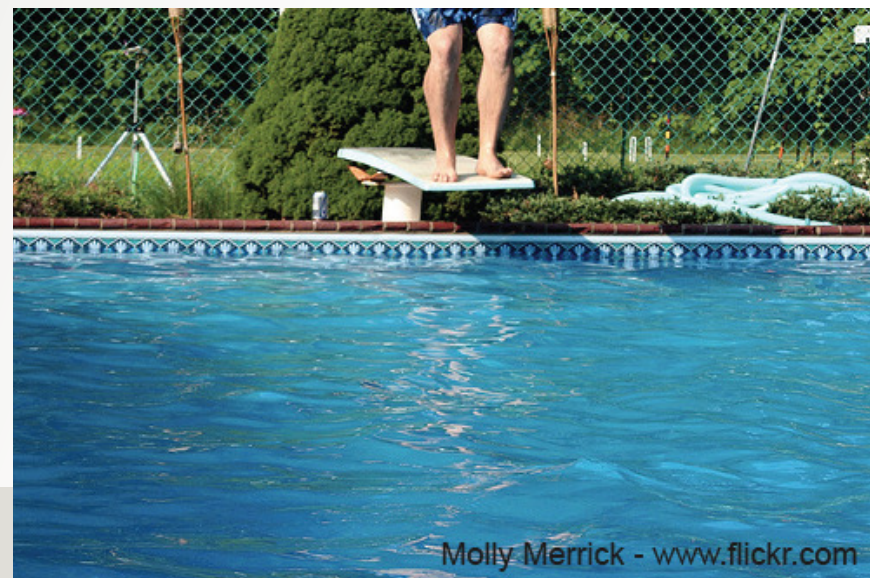


Figure 14a. "Get ready..." Collaborative photography from Flickr.com.



Figure 14b. "Get set..." Collaborative photography from Flickr.com.

Qualifiers of a Successful Site:

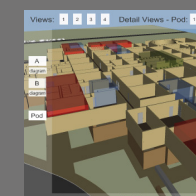
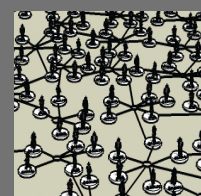
Taking the design community to the Web is a concept I call Online Collaboration by Design. The reasoning behind the title is that it is not enough to simply place geometry on a web site and anticipate action and interaction between client, community, and design team. The integration of online collaboration must be done with implicit intent within the design process, and must be accessible to any user that wants to opportunity to participate.

Researching for tools that allowed designers to interact with clients, I discovered Henry Sanoff, Professor of Architecture at North Carolina and author specializing in understanding how to interact and engage communities in the design process. In particular, reviewing his book *Design Games*, I devised a specific set of needs that should drive the design of a web site created for the purpose of designer and client interaction.

First, the site should create the notion of "play." When we are playing, we forget that we are learning...and we also learn our most valuable lessons. By engaging in a sense of play, we can also broaden the audience of the site.

Second, the site should not regard the decision making process as "voting." The goal should be to inform the client and design team of what within the design is valued. It should work to broaden the client's understanding of its their own internal needs and open the channels of communication between all levels of management. This gives a voice to both the client and the non-paying client. The end result should work to create a consensus about design rather than simply voting on an option.

Third, to create this type of environment one should not just throw a community or client into design dialogue. Immersion into the process should be organized to help the client articulate their position, values, and needs. Establishing an environment where creative ideas can be



Qualifiers of a Successful Site:

explored requires an active process of research. To discuss these ideas, the site must foster a *design vocabulary*. The design vocabulary will allow precise communication with the client and begin project discussions internally with a common set of descriptive project terms. A design vocabulary will allow for the description of goals, an understanding of what the project should be, and how it should server the needs of its users. The site should create a vocabulary that articulates the design problems and potential hurdles for the design, construction, use, development and life span. The vocabulary should begin to identify the strengths, weaknesses and opportunities of a given project. This allows for a logical assessment of the project goals.

The next phase of the collaborative site should begin creating a *visual vocabulary*, or a non-verbal vocabulary. Words are crucial to the formation of design goals while visual imagery is crucial to the form and design concept. Through the use of visual imagery, the client and design team should begin defining a pattern and archetype for the project to follow. There should be a connection between form and implied action that is generated by various spaces. For instance: "This type of space implies motion, connection, quiet, or community..."

Finally, a successful collaborate site should create a sense of immersion and interaction. This should be the last piece of the sequence, as through interaction, the finality of design issues should reach consensus. This phase should create an increased awareness of spaces, their relationship to the site context, their adjacency within a project, and their formative expression. It should allow for a culmination of values, creativity, and expression.

The ultimate goal is for the client and community to feel ownership and vested interest in the design.



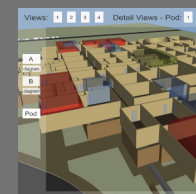
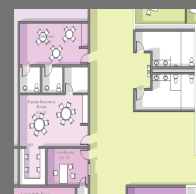
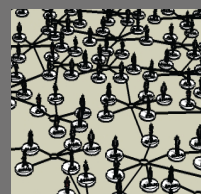
Molly Merrick - www.flickr.com

Figure 14c. "The drama builds..." Collaborative photography from Flickr.com.



Molly Merrick - www.flickr.com

Figure 14d. "Splash!" Collaborative photography from Flickr.com.



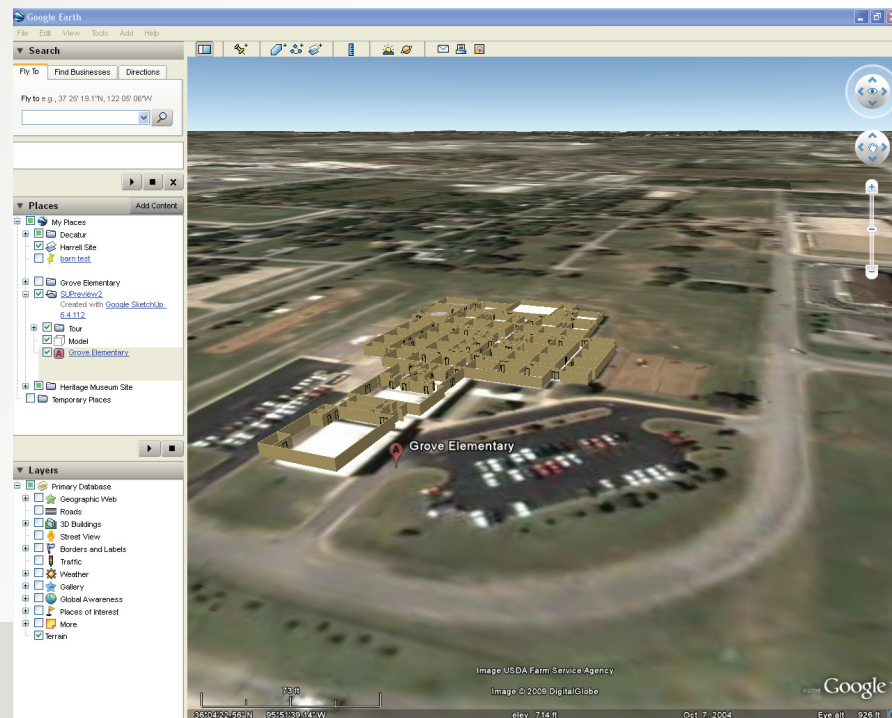


Figure 15a. Google Earth model of Grove Elementary, on site.

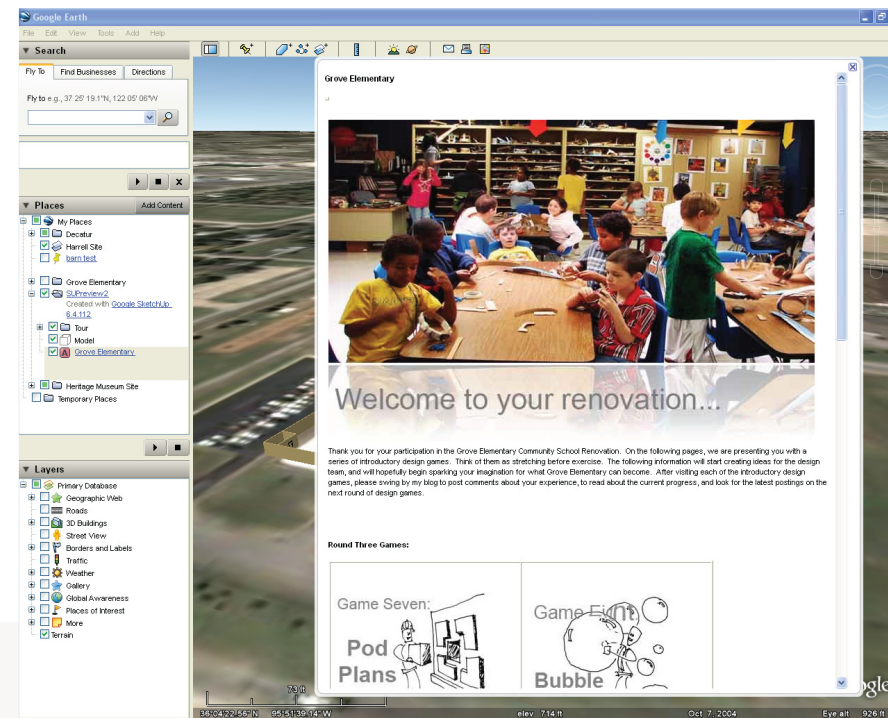


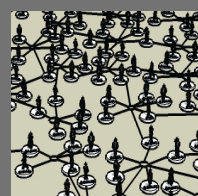
Figure 15b. The Grove Elementary Web Site, embedded into Google Earth, activated by hitting the "Tab A" icon.

Failures, Fits, and Unworkable Tantrums:

As with any research project, the first goal should simply be to figure out how many times you can fail...that way you don't get discouraged. I too went down many wrong avenues, and with the goal of this project being educational, it seems worthwhile to discuss what went wrong before quantifying the things that came together well.

The first online collaborative design community observation was the discovery of Second Life. The architecture firm Wikitexture has taken the Second Life concept and used it to place their practice online. Wikitexture has established its projects as creations that anyone can come in and modify and interact with in a realtime world. My first attempt visiting the site was filled with navigation problems within the world. The notion of teleporting was new to my virtual experiences. And when the instructions said to "remove all attachments" I did not realize that clothing was, in fact, an attachment. This left my virtual character (called an avatar) naked. This de-clothing discovery within Second Life was also accompanied by technical issues with computer lag, and a climate that feels more like a game than a potential design community. That said, Second Life is a remarkable and exciting tool...but it is not a place I would send a school board, church group, community organization, or any other professional group that employed a design service. As such, it did not make the cut as a potential avenue for collaborative design.

My second exploration involved tools created by Google. Google makes two remarkable tools that play incredibly nice over the internet: Google Earth and Google SketchUp. Both tools have wide dispersion across the internet, are easy to use, and more professional in their environment. Could these tools establish a connection between client and design team? To answer this question, I posted 3d computer models from Google SketchUp into



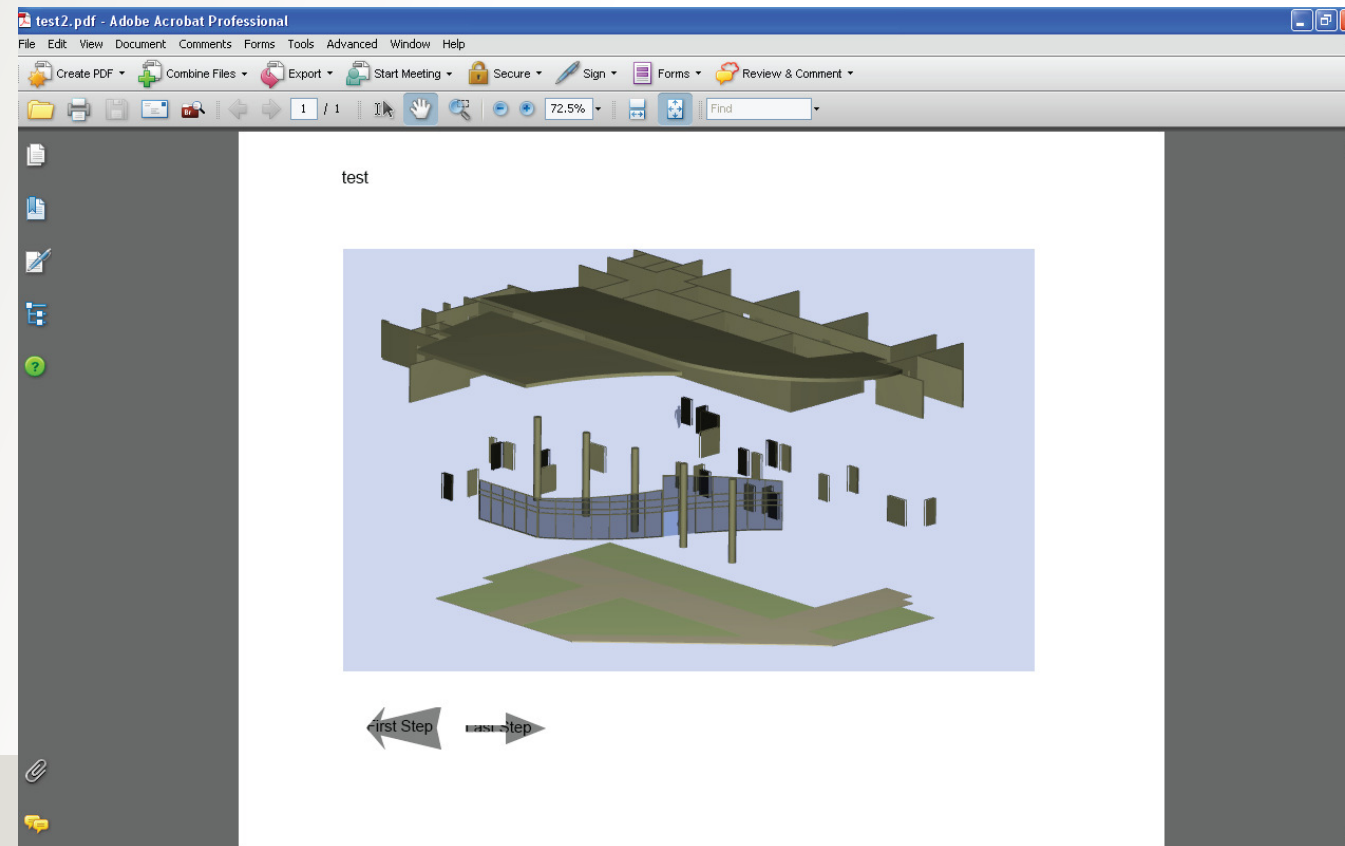
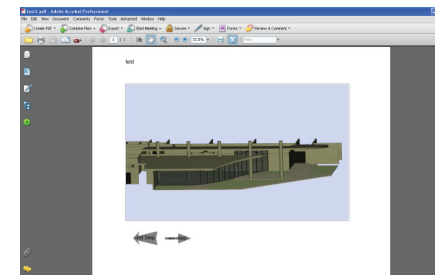
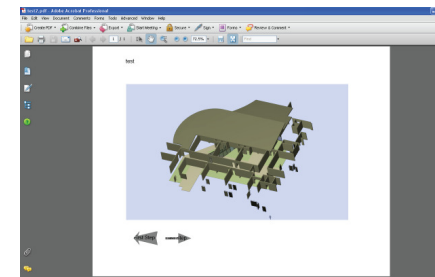
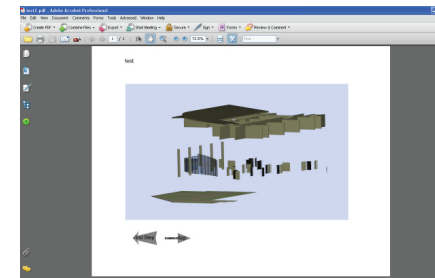


Figure 16. Portable Document Format (PDF) file with embedded interactive 3d content (an early design for the new entry at Grove Elementary).

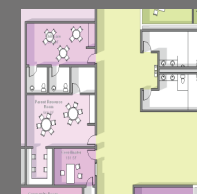
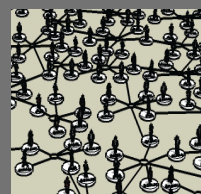


Failures, Fits, and Unworkable Tantrums:

the virtual environment of Google Earth. Within Google Earth, the design team can post a defined walk-through for a building, create pop-up icons with mini web pages that allow for additional information, and thus create what I thought would be interaction. My first attempt at putting together an interactive presentation using Google Earth happened quickly and accurately, but it did not include interaction, just observation. My second attempt began to put interactive surveys into the “mini web pages” It was through the second iteration that I found the short fall of Google Earth within my interactive plans. There was no opportunity for the end user to provide feedback regarding the design through Google Earth.

The next item I came across was interactive 3d PDF (portable document format) files (figure 16). I was shocked that you could embed a 3d file into a PDF document. I was also amazed that the quality was quite good and that you could program interactive elements, and forms for feedback input within the PDF document. I decided to invest the money and purchase a 3d PDF authoring tool called Quadrispace. This broke one of my rules: accessibility to programs already within the design industry. At the time it seemed worth it. Again, this process failed, as the software was really designed for the display of a singular product and not of a building which has both “ins and outs” and the need to move around. Quadrispace was really all about orbiting a single object. It simply did not allow me to move through an object easily.

After already breaking a rule once, I had an easier time doing it twice. The program I settled on for interaction became Esperient Creator. A phenomenal piece of software for authoring interactive 3d, but still not without its flaws which I will catalog in my conclusion. Taking all of this exploration and experimentation as a guide, I settled on three main tools: Google Sites, Google Documents, and Esperient Creator.



Technically Speaking:

Technically speaking, this is how the site(s) are programmed to work (figure 17):

1. A design team creates a site composed of three different game types put together with Google Documents and Google Sites for the vocabulary and visual games. The 3d modeling is done using AutoDesk's Revit and Google SketchUp with output to the web through Esperient Creator.
2. All of these files are stored on a server which is accessed by a client (e.g. Grove Elementary was made up of students, faculty, staff and administration).
3. Each participant goes through the games which output a series of forms and when filtered through Microsoft Excel create design data.
4. The design team applies their creativity combined with the data to create a design.

It is not enough though to simply sift through the surveys internally. The goal of this process is not just to create data, or to avoid client meetings, but to improve interaction with and amongst the client. Therefore, it is imperative that the client be immersed in the discussions and meanings of the data. This helps them understand the pathway that will influence design decisions.

Questions lead to answers which act as an open ended guided inquiry. Again, the process is not about voting, but about creating consensus. The over reaching concept is to design a new mode of critical thinking with new media. This is executed in a way that increases participation, creates design ownership from all parties involved, which make design a social process to form socially responsive spaces.

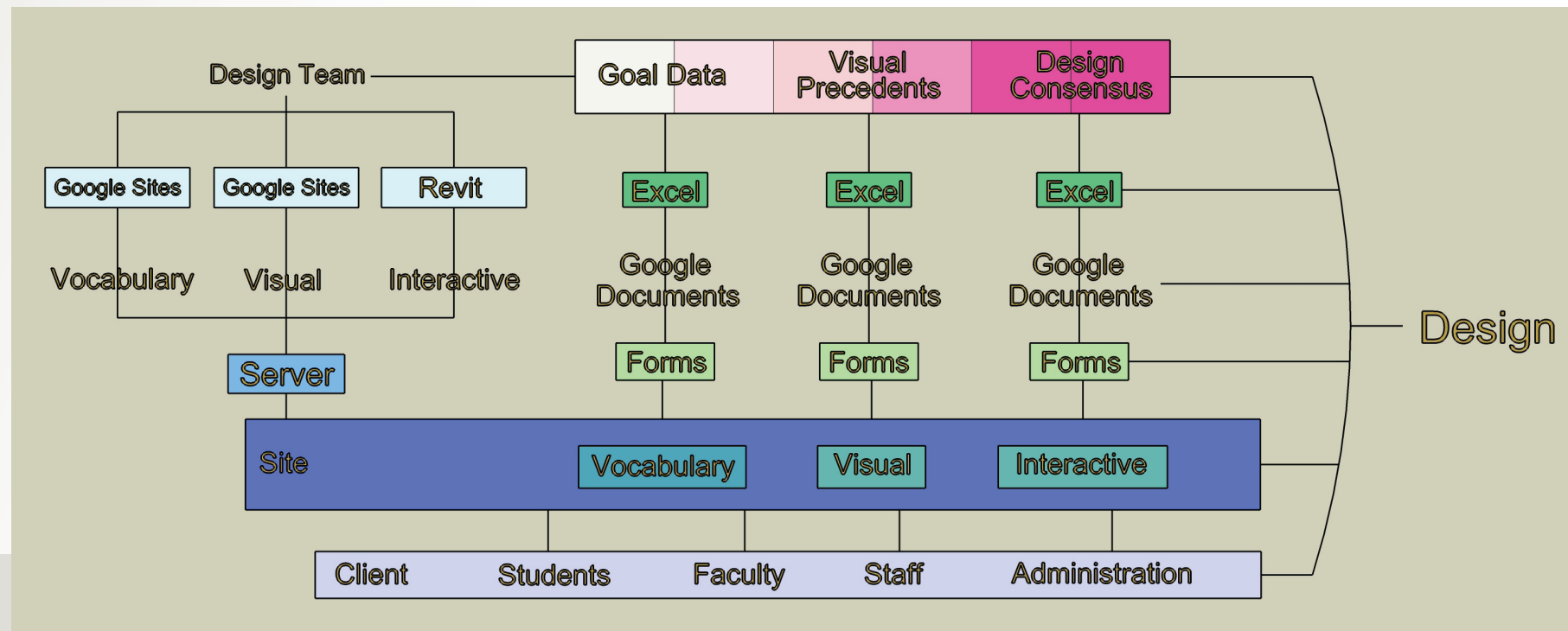
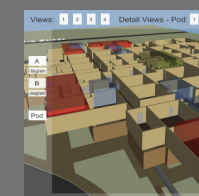
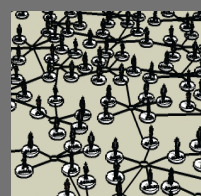
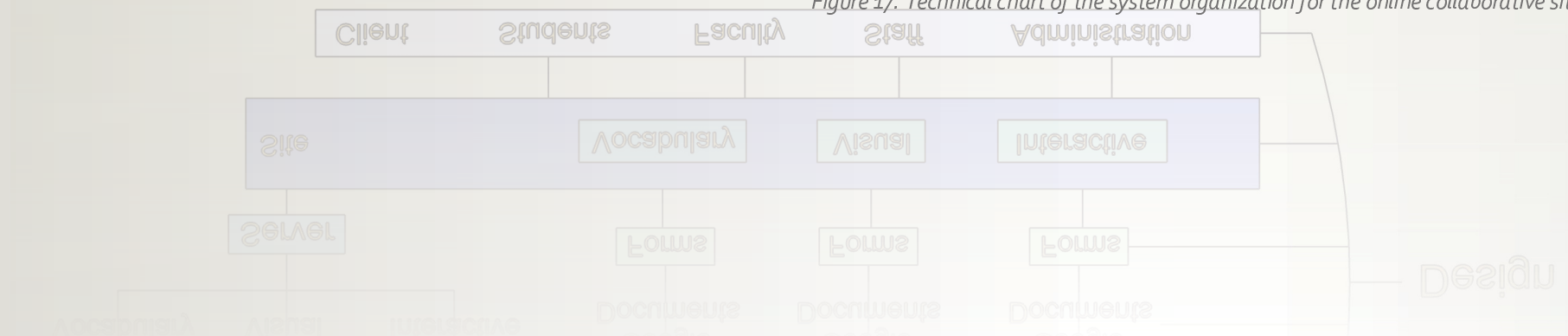


Figure 17. Technical chart of the system organization for the online collaborative site.



Grove Elementary...

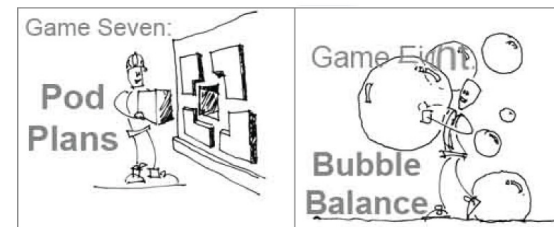


Welcome to your renovation...

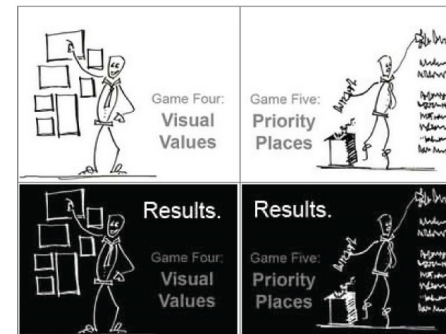
Thank you for your participation in the Grove Elementary Community School Renovation. On the following pages, we are presenting you with a series of introductory design games. Think of them as stretching before exercise. The following information will start creating ideas for the design team, and will hopefully begin sparking your imagination for what Grove Elementary can become. After visiting each of the introductory design games, please swing by my blog to post comments about your experience, to read about the current progress, and look for the latest postings on the next round of design games.

next round of design games. Thank you for your participation in the Grove Elementary Community School Renovation. On the following pages, we are presenting you with a series of introductory design games. Think of them as stretching before exercise. The following information will start creating ideas for the design team, and will hopefully begin sparking your imagination for what Grove Elementary can become. After visiting each of the introductory design games, please swing by my blog to post comments about your experience, to read about the current progress, and look for the latest postings on the next round of design games.

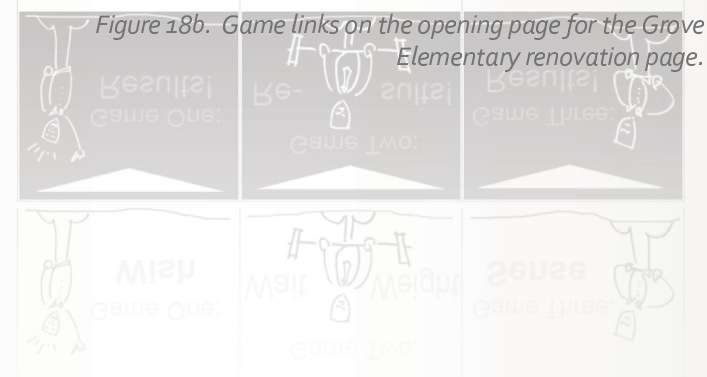
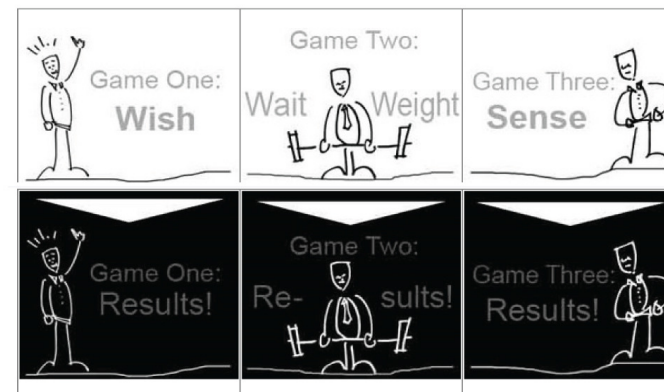
Welcome to your renovation...



Round Two Games:



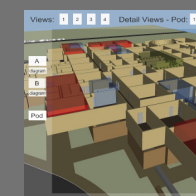
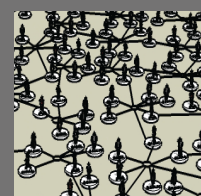
Round One Games:



Case Studies: Grove Elementary

To test the ideas on online collaboration, two design projects were selected: Grove Elementary and White River Historical Society Museum. The first project that I will explore was for the Union School District's Grove Elementary School in Tulsa, Oklahoma. Grove Elementary is a midsize urban elementary school that is preparing for a renovation to a community school. The goal would be to engage the students, the staff, Grove's Administration, and the Union School District Administration in an online collaborative process to design their renovation.

The opening page (figure 18a) was designed to place a priority on kids, essentially what a school is about: creating the best possible learning environment for children. That means comfort, the sense of safety, security and belonging, and the conveyance that they, the kids, matter. Combined with a great environment for children to learn, is a professional work place for the faculty and administration so they may teach to the best of their ability. The entry page began as just a series of three links to the first three games: Wish, Wait Weight, and Sense (figure 18b). Each link directed the participant to the first round of games designed to build design vocabulary.



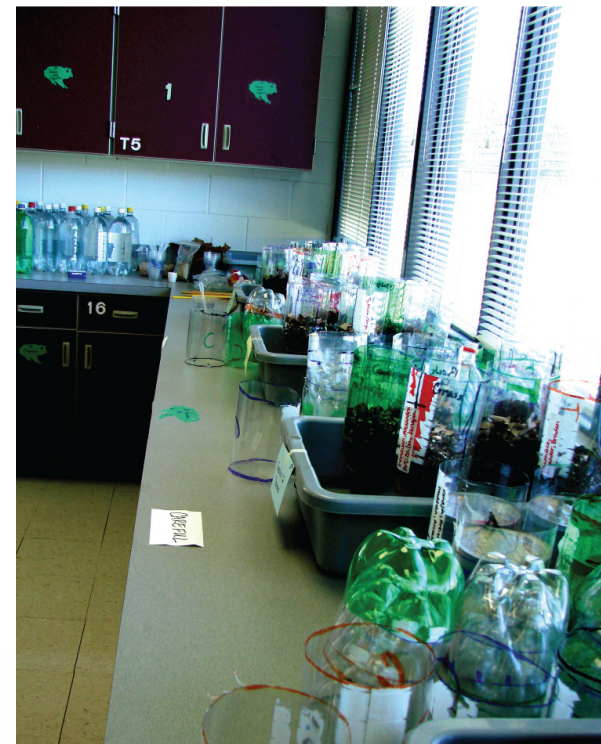


Figure 19. Kids and science from Grove Elementary School.

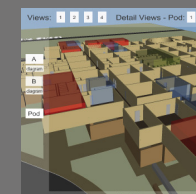
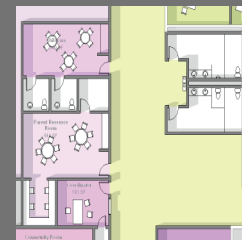
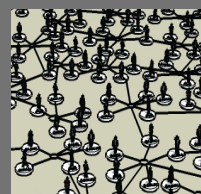
Case Studies: Grove Community School

Teaching and learning are the constant and dynamic goal the nation has for our youth. As a society, we recognize the goal of education with such prominence, that we readily invest our tax dollars and our time debating the validity of different pedagogical techniques. However, one primary issue that needs to be addressed is the architecture creating the environment for learning. In particular, how can we create spaces that promote a learning environment? How do we design and modify buildings that enforce interaction between parents, students, teachers, and community?

The typical school has the opportunity to become the center of its community. This core idea, an educational facility as a community hub, provides children the most important component of learning – being both physically and emotional prepared to absorb knowledge. The community school and all of its elements are ultimately tied to the idea of creating an environment that prepares students to discover the opportunities of education.

Education is the gateway to opportunity. Using architecture to create the best possible scenario to enhance learning preparedness is crucial. The architecture of a community school should perform several key tasks, defined by the National Clearinghouse for Educational Facilities Knowledge Works Foundation, as:

- **Enhancing** the capability to teach, and accommodate the needs of all learners.
- Creating a learning environment that serves as the **center** of the community.
- Becoming architecture that engages and **involves** the community and its interests.
- Promoting a sense of **health, safety, and security** is imperative to increasing educational potential.
- Effectively using all of the available **resources** to improve and enhance education.
- Remaining **adaptable** for future demands of both education and community.



Case Studies: Grove - Wish

The first design game came directly from Henry Sanoff's book *Design Games*. It is an open ended question designed to evoke imagination (figure 20a). No idea is excluded and the bolder, the more interesting. Along with sparking the imagination, if there is a reasonable large number of respondents, "wishes" begin to overlap and take the more overt tone of "demands." The original game was designed to generate a poem. Updating the process to satisfy our more immediate feedback web culture, I converted the list of wishes in to a word cloud through wordle.com (figure 20b).

The words that pop out of the cloud become clear areas for prioritizing work. First, and quite simply: More space. As the design evolves, attention to understanding growth, space, and the importance of being comfortable to learn must be a priority.

If I created an open invitation to faculty, staff, and students of an elementary school, new bathrooms would be at the very bottom of my list of expectations. Why not larger playgrounds or a better gym or a better computer lab? In the mind set of any school client, it is difficult to imagine bathrooms to be the item of design dreams. After talking with the diverse client base at Grove however, it became apparent that the existing bathrooms are actually a nightmare. They are undersized and overused which means they are unsanitary and malicious on all sensory levels. The existing condition inhibits the learning environment.

Seeing the word “hallways” in the cloud informed me that the circulation system at Grove was neither creating nor conveying a sense of navigation, security, and safety. Upon further study, I found that the existing corridors at Grove were too narrow (about 6’ wide) and did not provide additional width where pathways converge.

The Grove Wish Cloud...

Grove Elementary... >

Game One - Wish

In the blank below, complete the single sentence to express your "wish" for Grove Elementary. It may be that you "wish my school would have recess for teachers!" Or "I wish my school had an office for the vice principal." We want to know what you wish...

* Required

Your name: *

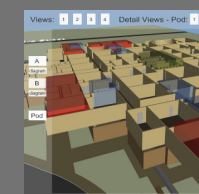
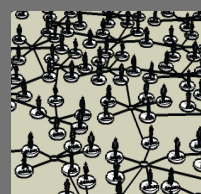
I wish my school... *

Submit

Powered by Google Docs



Figure 20b. Wish Cloud results for Grove Elementary - Design Game One.

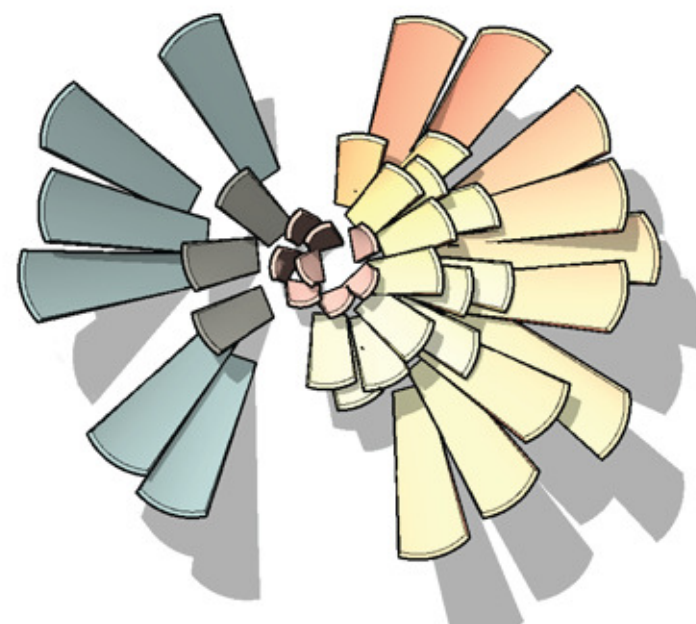


Case Studies: Grove - Data Visualization

To help visualize the data from several of the design games, I created a “flower chart.” The intent of this information plotting system was to enable an understanding of the data at a glance. They are primarily designed to work with a Lycard scale (rating system, best defined as 1-5), but could be applied to any number of question types.

Each response is given one pedal on the flower. Positive responses (as I set up Grove) are located on the left and given a warm tone. Neutral responses in the middle, and negative responses on the right with a cool tone. Once the flower is composed, you can quickly discern the information as a weighted value by observing the chart. By stacking a series in a row, you can track progress across a series of questions.

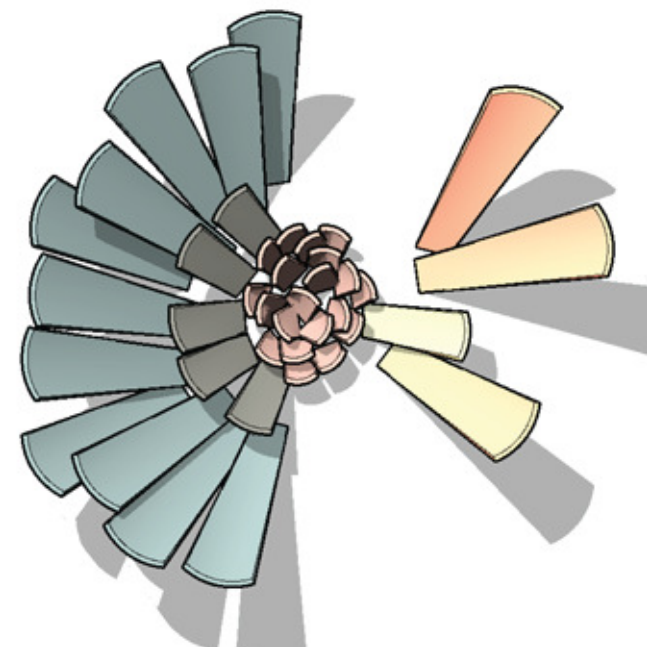
The diagram itself was very useful for explaining the data to the faculty, staff, and administration at Grove. And I will definitely refine the process. The goal however, is to not make the flowers manually in the computer. It should be plausible to create a program that can read information from a Google Documents file, assign a location (with a small variable applied to rotation and placement to make each flower unique) a height and color based on the data.



The temperature at Grove is *

1 2 3 4 5

Just right ☐ ☐ ☐ ☐ ☐ Too cold

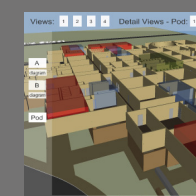
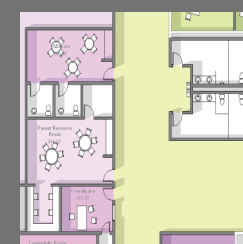
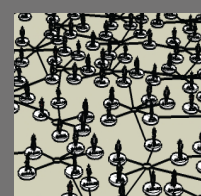


The parking and drop off areas at Grove are *

1 2 3 4 5

Crowded ☐ ☐ ☐ ☐ ☐ Fine

Figure 21. Quantitative flower chart example.



Game Two - Wait Weight

Google Spreadsheet Form

This game is called the "Weight Wait." Our team is looking for responses that are not just yes and no, true and false, but answers that help us understand how you feel. Your responses will help our team determine the design priorities while you patiently wait for your renovation.

Answer the questions below on a scale of one to five, based on how you feel about the descriptive words. If the hallways at Grove are "sort of" comfortable, you would enter a 2 or 3 on the first question. If the hallways make you feel like a fish swimming up stream, maybe you would enter a 5?

Thanks!

* Required

Your Name: *

The hallways at Grove feel *

1 2 3 4 5

Comfortable ☐ ☐ ☐ ☐ ☐ Too crowded

If they are too crowded, is there a location that has the most traffic?

My work space at Grove has *

1 2 3 4 5

Plenty of storage ☐ ☐ ☐ ☐ ☐ Not enough space

The temperature at Grove is *

1 2 3 4 5

Just right ☐ ☐ ☐ ☐ ☐ Too cold

The temperature at Grove is *

1 2 3 4 5

Just right ☐ ☐ ☐ ☐ ☐ Too hot

Is there a specific room that is too hot or cold?

The parking and drop off areas at Grove are *

1 2 3 4 5

Fine ☐ ☐ ☐ ☐ ☐ Crowded

The hallways at Grove make the rooms *

1 2 3 4 5

Easy to find ☐ ☐ ☐ ☐ ☐ Difficult to find

Powered by Google Docs

Figure 22a. Screen capture from Game Two: Wait Weight.

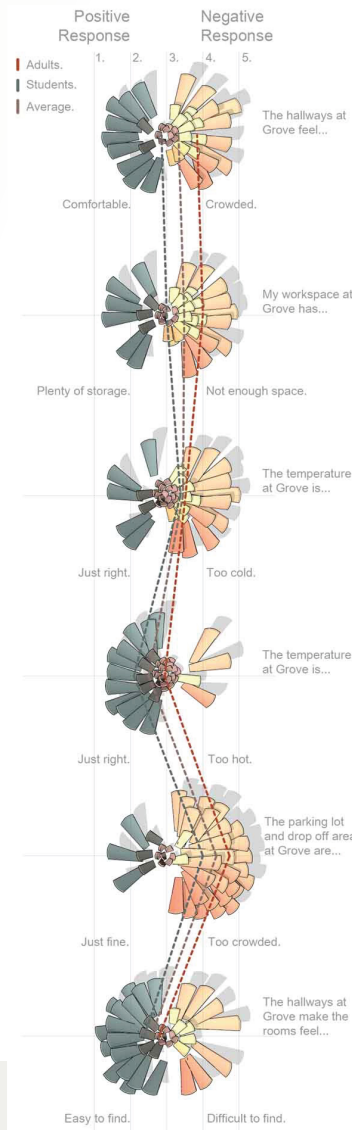


Figure 22b. The distribution of responses from the Wait Weight Game.

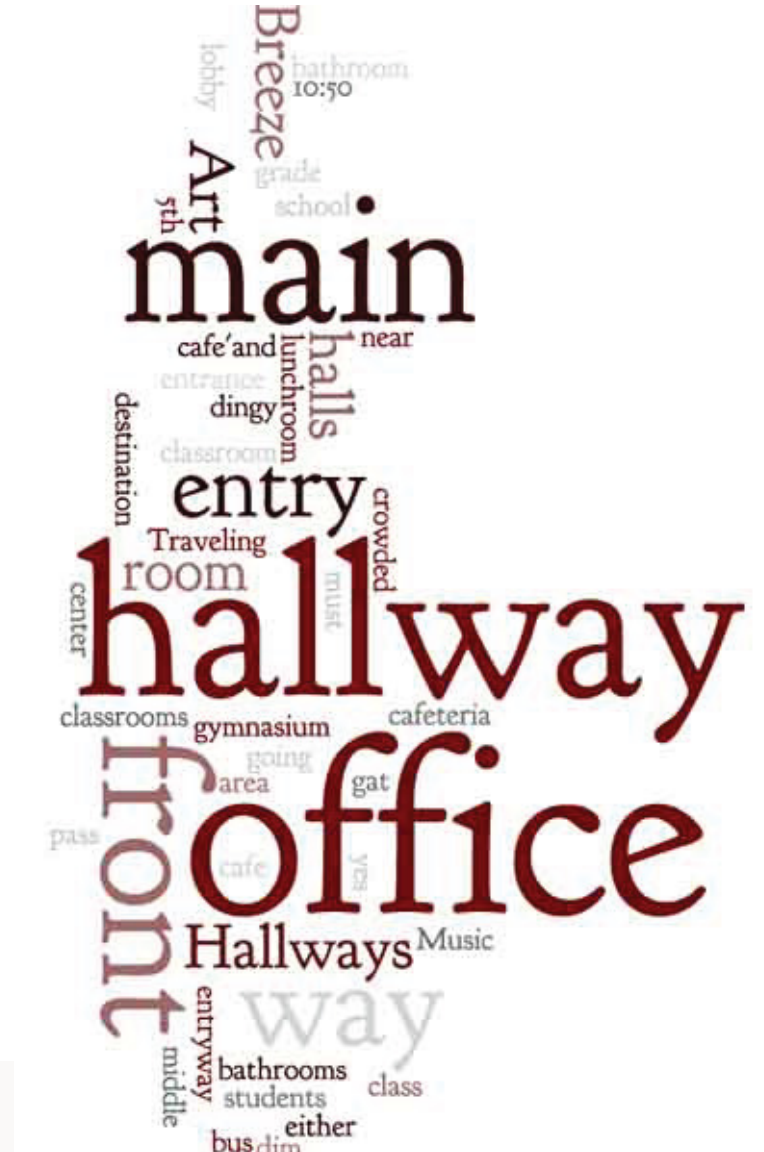


Figure 22c. The crowd cloud listing spaces that feel too crowded. Of note: Front/Office/Entry/Hallway when used in the context of the responses all referred to the same location.

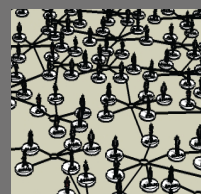
Case Studies: Grove - Wait Weight

The next game in the Grove site was called the Wait Weight. The premise of this game was to evaluate current spaces and user perception of those spaces. This would build a dialogue about which could begin prioritizing the design elements.

The game consisted of a series of questions asking for (typically) a rating of one to five (figure 22a). The responses generated data that turned into a “flower chart,” and tagged each participant’s response with a particular color and location based on their perception (figure 22b). This allowed the information to be read at a glance, with a quick understanding of positive versus negative.

One very interesting finding was the separation of responses between students and faculty regarding the question: "The hallways at Grove feel...Comfortable or Crowded?" The front entry is terribly undersized (about 6 feet wide), and serves as the waiting area, entry, and axis between all the classrooms, gym, and cafeteria. When I ran the initial response, I found indifference to the situation, and was shocked. Separating the feedback into categories, I found that the students quite enjoyed the crowded bustling space. They are of course smaller which helps, but they also do not sense the security and safety issues that the faculty does. The faculty responded very negatively to how crowded the halls feel. Understanding this kind of data swing should be a crucial issue to a designer, tapping the perceptions of the user base to understand design client typology. In the case of a school, we tend to neglect the needs of the faculty, thinking first for "kids," and forgetting that a school is full of professional teachers in need of spaces to help accommodate their jobs.

Also of note: Very negative responses to the parking situation (even from the kids!) and differing responses to the sense of a work space.



Case Studies: Grove - Sense

The third vocabulary building game that I developed for Grove Elementary was called “Sense.” This game requested the participant to link their memories of the school with their senses (figure 23a). The objective was to create discussions on the positive and negative sensations regarding the spaces and generate a design dialogue regarding improvement to those situations.

As mentioned previously, there was a very direct split regarding the sensation of the front entry. Listed on the right for the question “The front entry at Grove Elementary makes me feel...” are word clouds from the combined responses (figure 23c), the students only, and the faculty only (figure 23d). While I shifted the color palettes of each to visually exemplify the difference, reading the words aloud has the most profound impact. Looking at the repeated and emphatic statements regarding the entry several times over justified a complete rework for the entry scheme.

The other overwhelming response from this game was the cafeteria. In figure 23b, the “Loud Cloud” from the question: “It is always too loud in Grove Elementary at...” The cafeteria, even for elementary students, should be a place of refuge than something that assaults the senses. A VCT floor and concrete block walls do more to reverberate noise than the ceiling tiles can make up for. This combined with a dramatically undersized kitchen is enough evidence to consider a complete rework on the cafeteria.

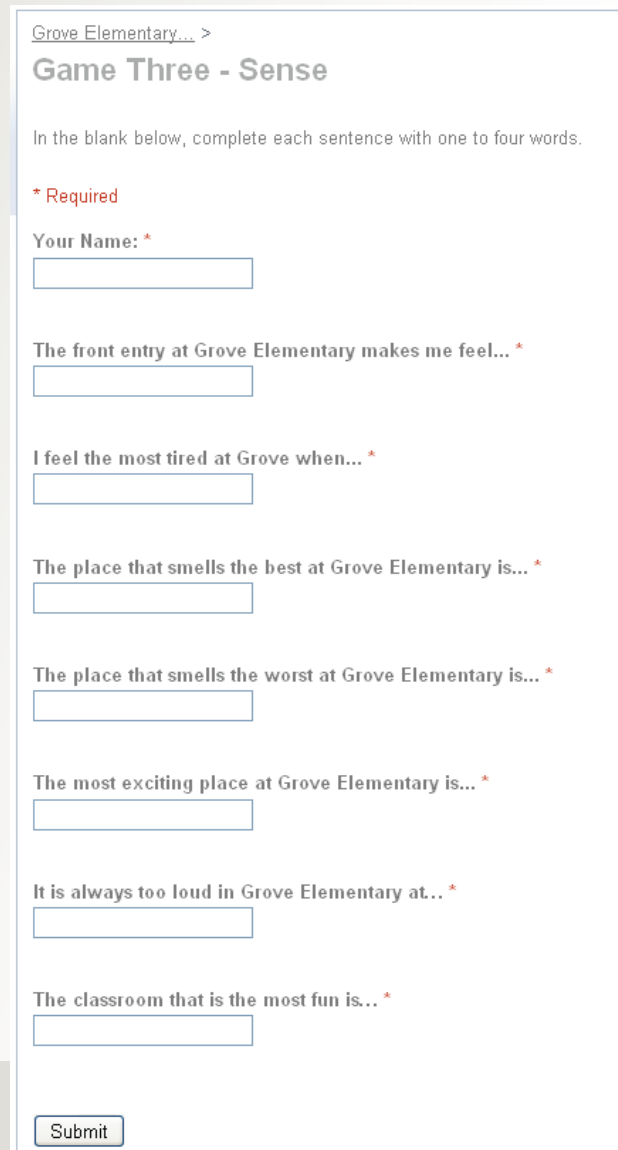


Figure 23a. A screen capture from the Grove Site- Game Three: Sense.



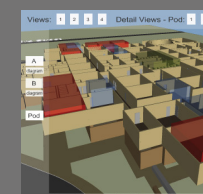
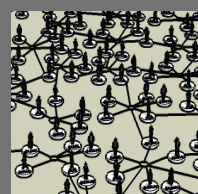
Figure 23b. The "Loud Cloud" for the "What space is loudest at Grove?"



Figure 23c. The combined entry cloud answers from all participants.



Figure 23d. The entry space cloud broken down into two groups, faculty and staff answers (top cloud), and students (lower).



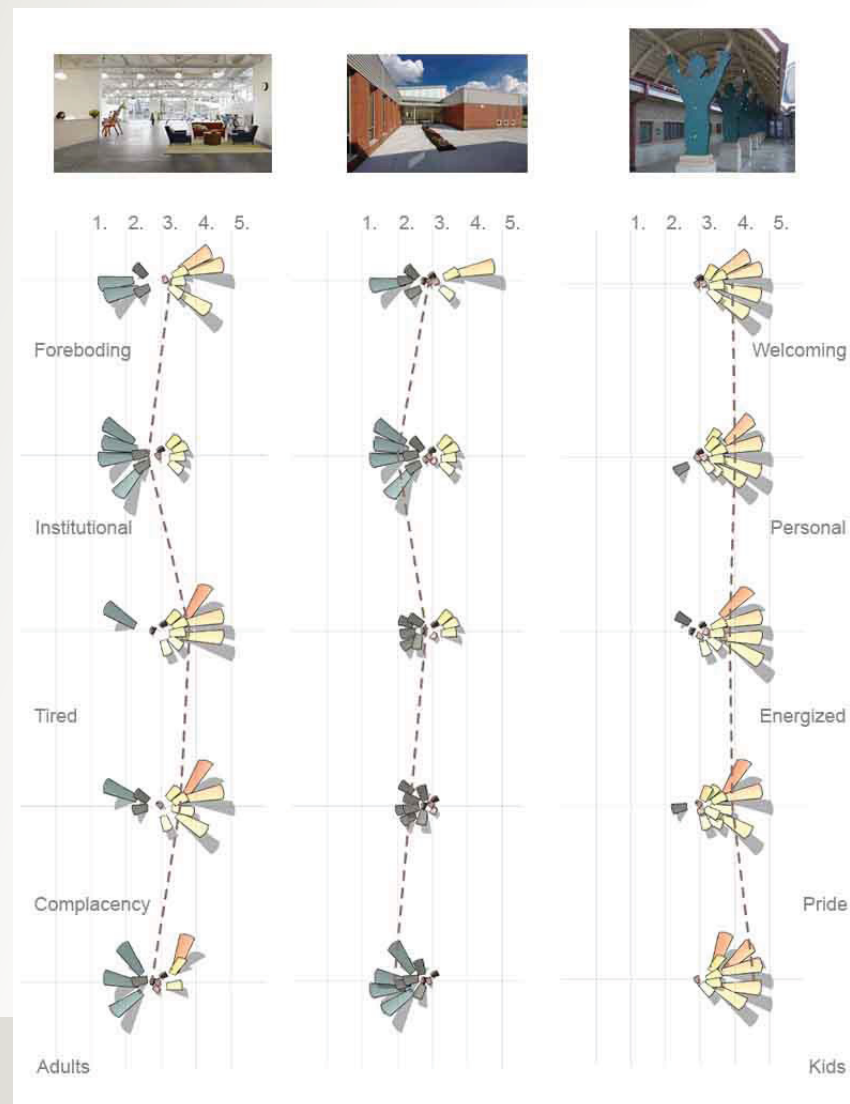


Figure 24a. Entry images from the Visual Values design game. The graph below each image charts the responses of each participant, with 1 relating the strongest to the word on the left (Foreboding, Institutional, etc.) and 5 relating the strongest to the word on the right (Welcoming, Personal, etc.).



Images used with permission from: www.designshare.com.

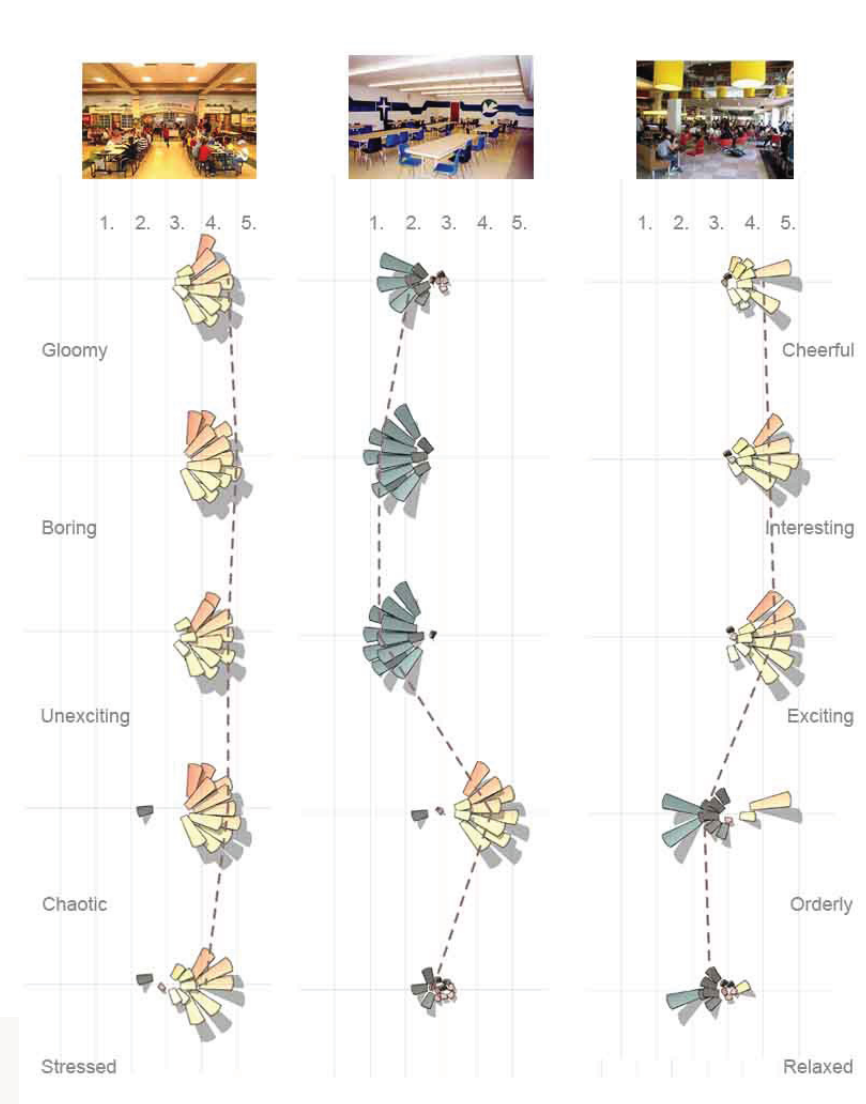


Figure 24b. Cafeteria images and responses from the Visual Values design game.

Case Studies: Grove - Visual Values

Game four, Visual Values, introduced the client group to visual vocabulary games. The game paired images from selected school projects with a list of questions (figure 24c). The results do two things:

First, they provide the design team with a set of visual design ideas and precedents to work through with the client. Establishing visual parameters prior to beginning a “form” for either a building or space helps establish and more often extends a client’s understanding of how form can have physical and emotional implications. Helping a client understand, learn how to respond, or place emotions with spaces allows the design team to work within a creative dialogue with the client.

Classroom - Image One

* Required

Name *

This classroom seems... *

1 2 3 4 5
Repelling ☐ ☐ ☐ ☐ ☐ Inviting

The space feels... *

1 2 3 4 5
Simple ☐ ☐ ☐ ☐ ☐ Complex

The classroom is... *

1 2 3 4 5
Unimaginative ☐ ☐ ☐ ☐ ☐ Imaginative

The space is... *

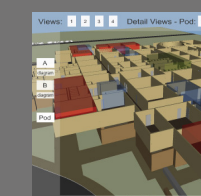
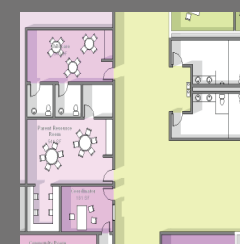
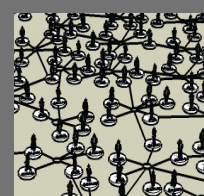
1 2 3 4 5
Rigid ☐ ☐ ☐ ☐ ☐ Flexible

Students in this class would be... *

1 2 3 4 5
Chaotic ☐ ☐ ☐ ☐ ☐ Attentive

Figure 24c. Screen capture of the Visual Values Game questions.

Second, the results of establishing a visual vocabulary begins to develop a sense of architecture within the client. Often, the design conversations with clients move in the directions they are comfortable with, such as choosing a brick color, carpet, and paint color. This does not mean we should play down to the client, rather we should use the opportunity to share architecture that the design team finds intriguing, inspiring, or quite simply terrible. The result helps the client realize that they are often living and working in designs that are not particularly compatible



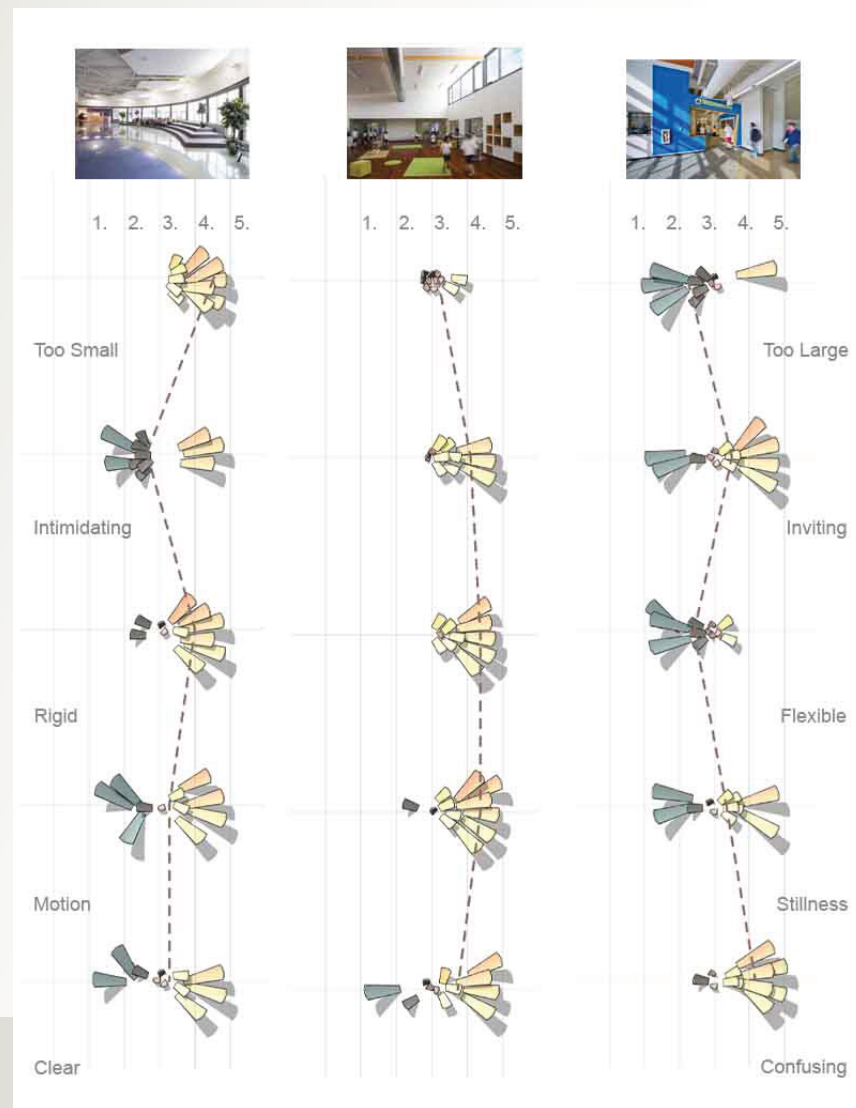


Figure 24d. Hallway images and responses from the Visual Values design game.

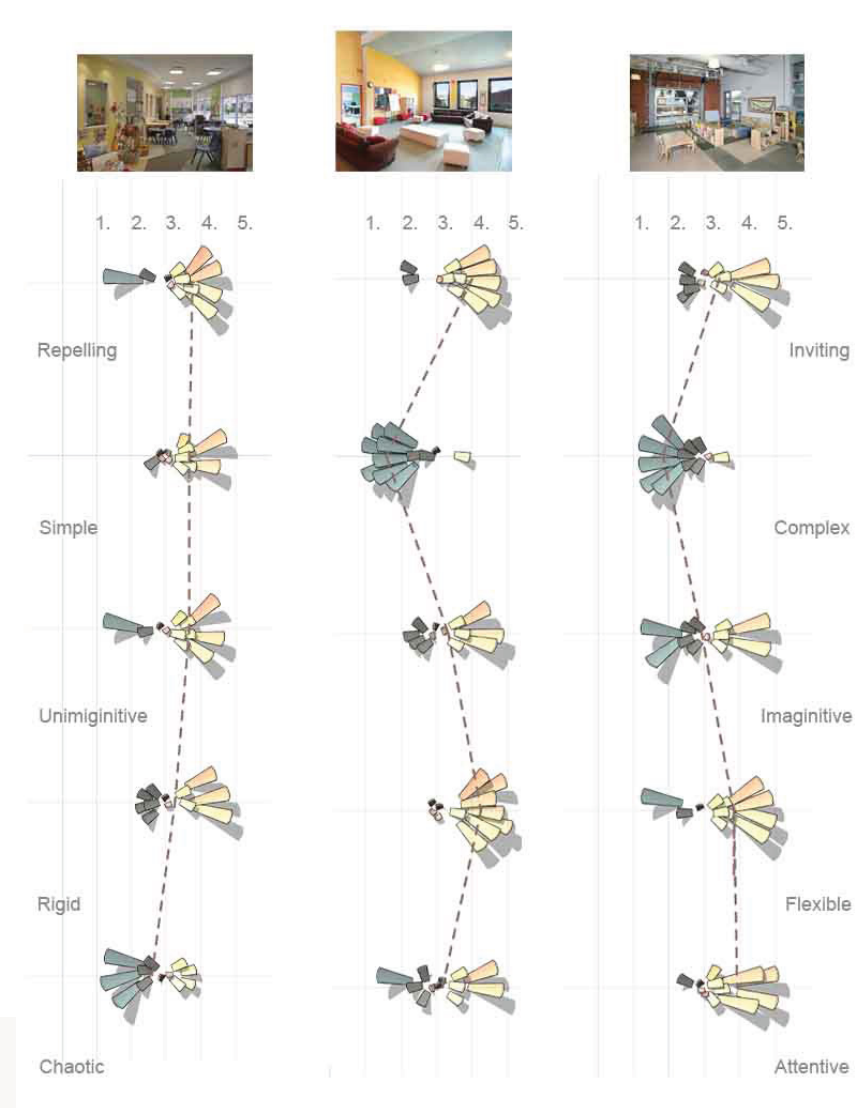


Figure 24e. Classroom images and responses from the Visual Values design game.

Case Studies: Grove - Visual Values

with positive human emotions. The goal is to raise the clients expectations of what architecture can and should accomplish for them. The client should hold the design team, by the nature of this game, to a higher standard for their product.

The first image set was based around three different school entries (figure 24a). As I discovered from the first round of games, a new entry was very relevant to the redesign. Selecting three different approaches to a school allowed me to get a pulse on the type of entry the client would be excited about. Reading the charts from top to bottom for each individual image, positive responses were categorized on the right, more negative responses to the left. The entry with the most popular score had a “theme” about the design (the standing cut out kids holding the entry canopy).

The second image set was a series of cafeteria spaces (figure 24b). With this group, I purposely placed an image of a cafeteria space, approximating what Grove currently had. It scored incredibly low on all issues except “orderly.” This served as my visual soapbox to speak directly with the client about demanding better than what they currently have and understanding why. The current cafeteria is not cheerful, interesting or exciting, rather it is quite gloomy, boring, and unexciting.

The third and fourth image sets dealt with classrooms by looking at both the transition between rooms (halls) and the rooms themselves (figures 24d and 24e respectively). I intentionally added spaces with natural light bringing a more open feel to all the spaces. Many of Grove’s current classrooms are buried in the center of the building. They are crowded and have no natural light. The images that scored well had an intimate comfortable setting, which did a good job separating institution from school.



Figure 25b. Word clouds from the Priority Place Game.

Case Studies: Grove - Priority Places

Game Five, Priority Places, began the process of consolidating all the ideas that were currently on paper (or charted digitally in the web site) and using the crowd involved with the design to prioritize the key design elements (figure 25a). The game asked the participants to select the top three spaces desired for the renovation from a list of options. The information generated from participation in this game creates insight into what the client values, and sets an early hierarchy for completion and phasing. For an academic project, it is quite simple to look at the whole picture and include everything. In a professional project, this game as a tool allows priorities and their resulting values to be balanced against construction budgets. The result of the game should be discernment, discussion, and possibly even bargaining within the client group as agendas must be set aside to achieve common goals.

Looking at the list on the right, select the top three new additions, changes, or modifications that you would like to see at Grove Elementary, and list them in their order of importance in the boxes below (feel free to just copy and paste the text). If your "priority place" is not on the list, you may feel free to add a space, or modification to a space in the boxes below.

Priority Places

* Required

Name *

Priority One: *

Priority Two: *

Priority Three: *

Submit

Powered by [Google Docs](#)

[Terms of Service](#) · [Additional Terms](#)

[Follow me to the home page!!](#)

Therapist Office

Teacher Office Spaces

Auditorium

New Furniture

Global Gardens

New Entry (with wider halls)

More Classrooms

New Public Park (In Playground Space)

Teacher Parent Conference Room(s)

New Infant Spaces

Community Coordinator Office

Facility Repair

New Technology (Computers, Smart Boards, Etc)

Community Room

More Restrooms

New Library

Health Clinic

Outdoor Classroom

New Cafeteria

New Administration Offices

Parent Information Center

New Playground

New Pre-K Spaces

New Parking and Drop Off Area

New Teacher Work Rooms

New Kindergarten Classes

Figure 25a. Screen capture of the Priority Places Game questions.

A simple line drawing of a person with a lightbulb above their head, indicating an idea or wish. The text 'Game One: Wish' is written next to it.

A black and white illustration of a network of interconnected nodes and lines, resembling a complex system or a design.

A photograph of a modern building entrance with large glass doors and a brick facade.

A word cloud on a black background. The most prominent words are 'Restrooms' in large white letters, 'Entry' in large green letters, and 'Parking' in large yellow letters. Other visible words include 'Community-room', 'Cafeteria', 'Multi-Purpose', 'Classrooms', 'Teacher-restrooms', 'Cafeteria/Kitchen', 'Playground', 'Global Gardens', 'Clinic', 'Pre-K', 'Health', 'Administration-Offices', and 'Spaces'.

An aerial photograph of a large, modern building complex with multiple wings and a central courtyard.

A photograph of several yellow lemons hanging from a metal stand, representing a healthy or natural theme.

An architectural floor plan of a building, showing various rooms and spaces.

An illustration of a group of people standing in front of a modern building, representing a community or social gathering.

A 3D architectural rendering of a building complex, showing the overall layout and design.

28

Case Studies: Grove - Pod Plans

The final two design games for the Grove Elementary Renovation were based on establishing an online interactive environment. This allowed the client to observe three dimensional schematic design options, understand the design from multiple vantage points, and provide opportunity for feedback on various design options.

The interactive environments were created by building a file in Revit over a provided survey plan from the Union School District. After adding in walls, doors, and windows the file was exported to Google SketchUp to add color and entourage, and then exported to Esperient Creator to create the interactive 3d elements. The files were then published to the internet.

The first interactive 3d environment posted on the Grove renovation web site was designed to look at two different plan options within the existing school building area (figure 26a and 26b). The teacher and administration staff at Grove mentioned, in one of our face to face meetings, that they were interested in switching the corridors and classrooms to a “pod” concept. The pods would be an extension of the hallway and would bridge the space between the corridor and the classroom. This would provide spaces for student and class storage, joint learning (combined classes) and special needs learning spaces (one or two students from each class), as well as shared resources available for all associated classrooms. I saw the pods as a design opportunity to create an improved sense of community with common classes, and a situation that could be used to do some roof renovation bringing natural light into what would essentially be a classroom courtyard.

Pod Plan option “A” looked to find compromises with the original goal: Provide every classroom with a pod.

Please review the Grove Elementary Pod Diagram interactive, and answer the following questions:

* Required

Name and: Student, Faculty, or Staff. *

Is it more important to create... *

- A classroom "pod" will provide: A common space for classes, much needed storage, reduced congestion in the hallways, and can bring natural light to the center of the building.
- ☐ a new pod arrangement for all classes, requiring 10 new classrooms to be constructed. Option "B" in the interactive file.
 - ☐ pods where possible, reducing the need for new classrooms in an addition. Option "A" in the interactive file.
 - ☐ an addition focusing on new or improved spaces (cafeteria, offices, community rooms, etc.) without the need for new classrooms. The existing conditions plan (opening model) in the interactive file.

Which scheme best fits with a desired growth for Grove as a community school? *

- ☐ Existing Classroom Layout.
- ☐ Pods where possible (Option "A").
- ☐ All classes with pods (Option "B").

Is it more important to have flexibility at... *

- 1 2 3 4 5
- all of the classroom spaces ☐ ☐ ☐ ☐ ☐ the new addition

Submit

Submit

Figure 26a. Screen capture of the Pod Plan Game questions.

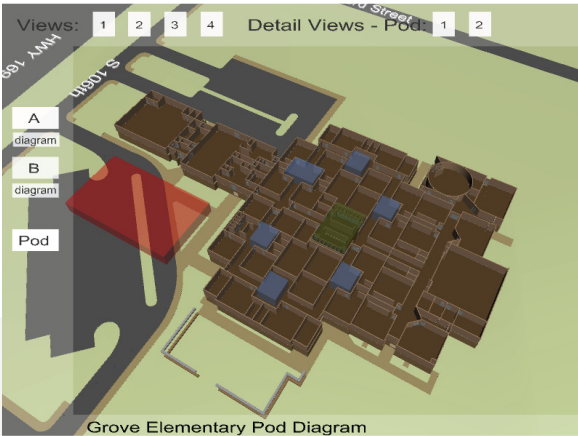
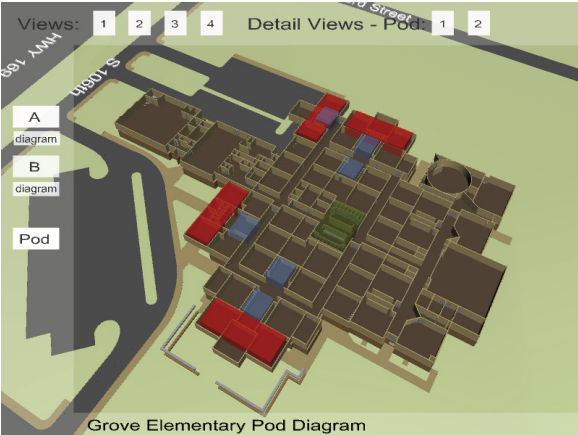
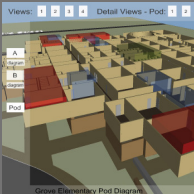
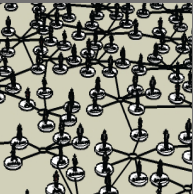


Figure 26b. Screen captures from the Pod Plan 3d interactive.



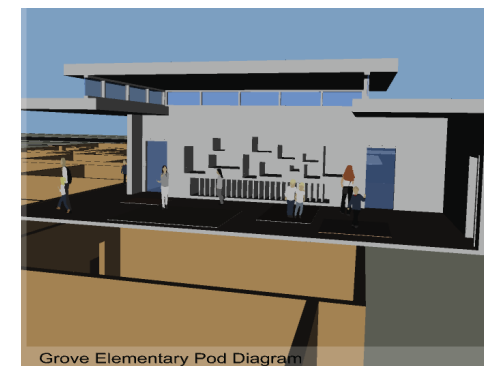
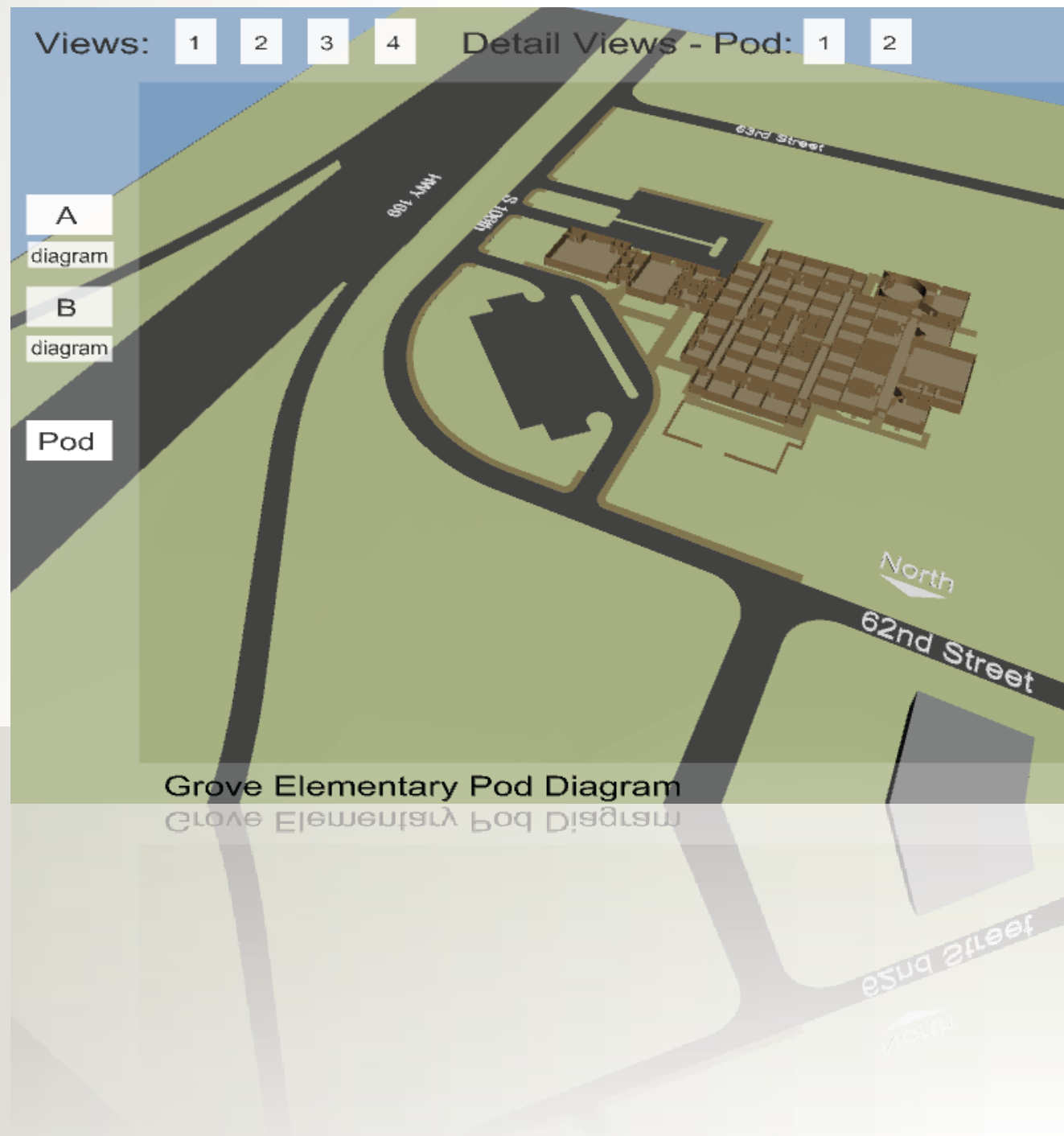


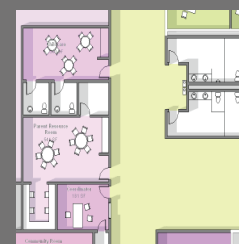
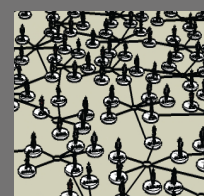
Figure 26d. Proposed Pod options.

Case Studies: Grove - Pod Plans

In doing the initial layout, it quickly became obvious that bringing a pod to each class would be difficult. So I compromised the goal to make pods available where it would make sense given the renovation and addition of classrooms. In total, this design provided six pod spaces in exchange for the demolition of six classrooms. Eleven new classrooms were designed to function with the new pods, providing a net gain of five classrooms with an additional 8500 square feet of space.

Pod plan option “B”, sticks with the goal of a pod for every class. This scheme causes the demolition of eight classrooms, and keeps the building confined to its existing footprint. This caused a displacement of about 8500 square feet that would need to be created to make up for the eight lost classrooms, with no net gain. In my evaluation of the plan, providing a pod for every class was not worth square footage offset and cost that would be required just to keep the existing number of classrooms. However, a balance between classes with and without pods could add to the school and improve circulation by adding an entry space to the classrooms. It could also create a transition space through the existing building shell eliminating the need to add extensive corridors and hallways.

The decision on the pod plans leaned toward Option A (adding pods where possible). The feedback from my live meeting was a definite majority swinging to Option A, but my form results did not come back correctly, so I am only posting the “official results” in figure 26c. I did swing the plan in the direction of Option A, basing my final decision off of a combination of direct (as opposed to online) feedback, and the official forms. In my evaluation of this project as a whole, it is important to note the difficulties experienced in the interactive online files, and their impact on the results for this particular design game.



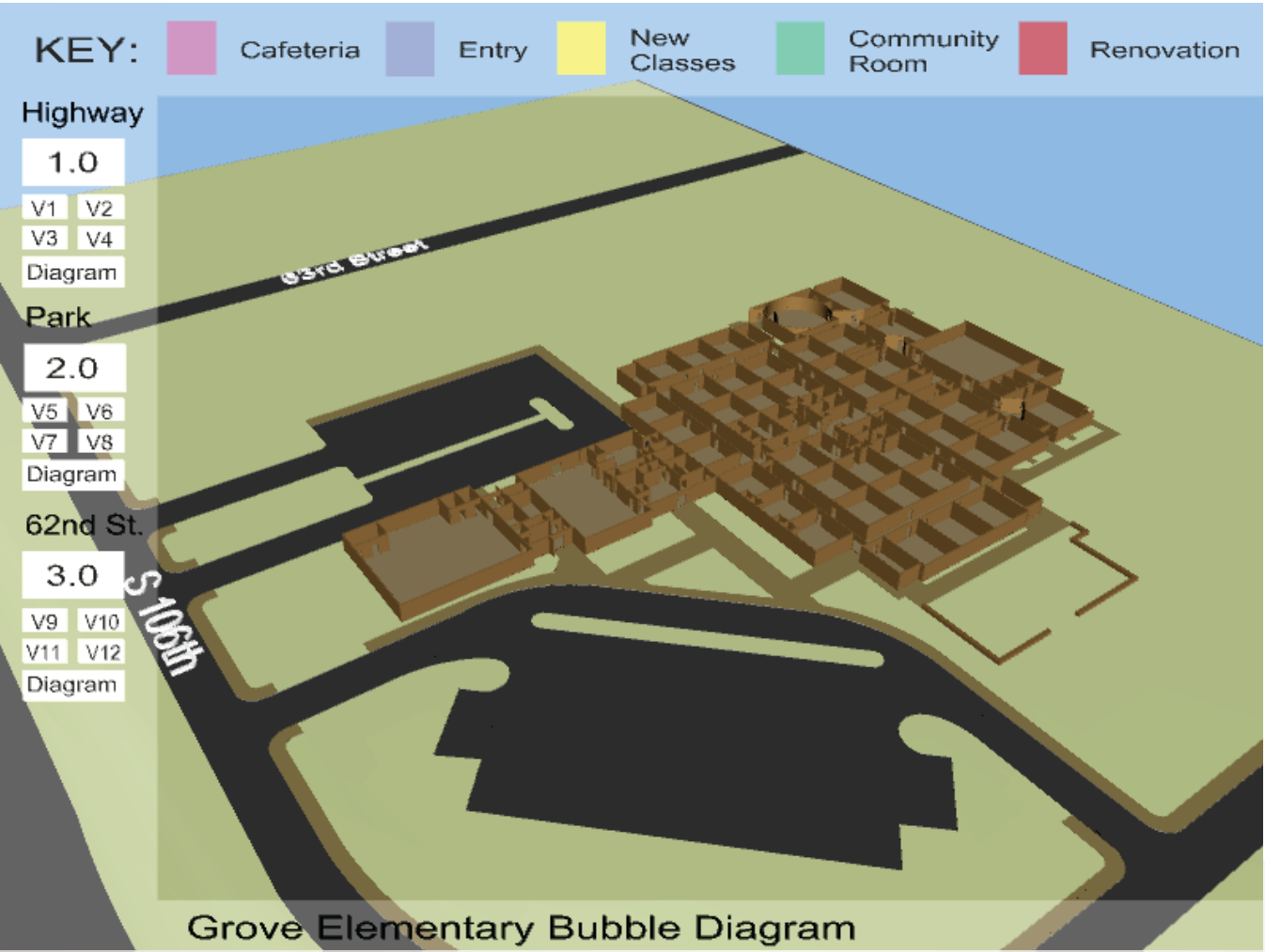
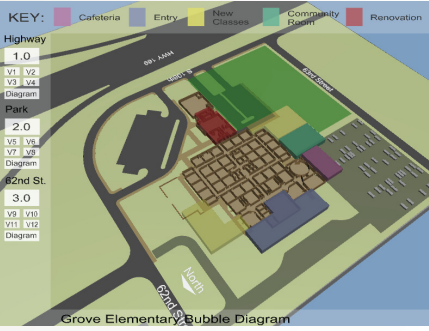
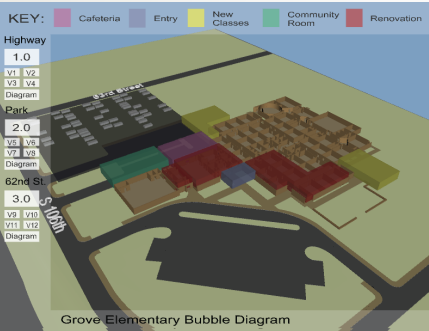


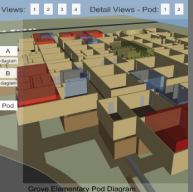
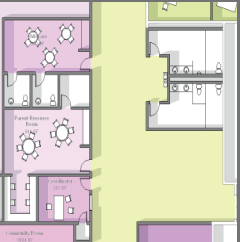
Figure 27d. Bubble Shifting 3d interactive game options.

Case Studies: Grove - Bubble Shifting

The final design game for Grove Elementary was created to analyze the potential of three options for the schools expansion (figure 27a). Early on in the process, there was expressed interest in working the new entry and community school wing along the East, or Highway 169 side of the building. The goal for the expansion to the East was to increase the public awareness of the school, allowing it to address the highway corridor as a marquee for the Union School District. While there is a workable solution to an East expansion, it may not have be the ideal choice:

- The East edge is *literally* adjacent to the highway.
- It is already home to parking and an entry that is too crowded.
- The highway generates an aggressive amount of noise.
- An entry on the East would separate potential existing community functions like the computer, science and art labs.

Because the East edge was not the easy and obvious choice (see the points above), three more design schemes were created. As a designer, it is not impossible to develop three completely different, fully realized floor plans. However, that would mean an enormous time investment, resulting in a major portion of the design budget spent on this preliminary phase of the project. Instead of displaying three full floor plans, which may also be more difficult for a client to discern, it is just as effective to create a volumetric bubble diagram, showing the size, location and configuration of spaces. This allows the client to quickly see the potential of different schemes, without getting wrapped into the specifics of individual spaces. This approach turns into a very efficient and effective means for the design team to present design options. It also became an engaging means of



Bubble shifting.

* Required

Name *

Which design scheme best addresses the idea of Grove becoming a "Community School?" *

- ☐ Highway Scheme (1.0)
- ☐ Central Park Scheme (2.0)
- ☐ 62nd Street Scheme (3.0)

Which scheme that best improves the entry and drop off? *

- ☐ Highway Scheme (1.0)
- ☐ Central Park Scheme (2.0)
- ☐ 62nd Street Scheme (3.0)

Which design best improves the parking situation? *

- ☐ Highway Scheme (1.0)
- ☐ Central Park Scheme (2.0)
- ☐ 62nd Street Scheme (3.0)

Which school best provides the opportunity to expand in the future? *

- ☐ Highway Scheme (1.0)
- ☐ Central Park Scheme (2.0)
- ☐ 62nd Street Scheme (3.0)

If you could combine any elements of the different designs, it would be combining:

Such as: Use the location for the cafeteria in scheme one, in scheme two.

Submit

Figure 27b. Screen capture of the questions asked in the Bubble Shifting interactive.

Such as: Use the location for the cafeteria in scheme one, in scheme two.

If you could combine any elements of the different designs, it would be combining:

- ☐ 62nd Street Scheme (3.0)
- ☐ Central Park Scheme (2.0)
- ☐ Highway Scheme (1.0)

Which school best provides the opportunity to expand in the future?

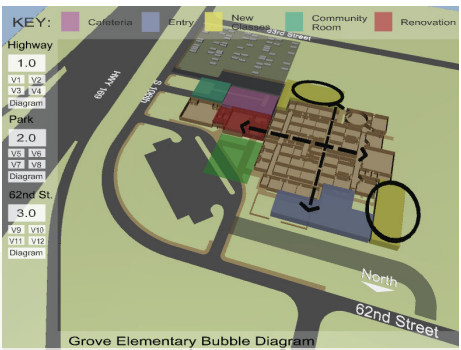
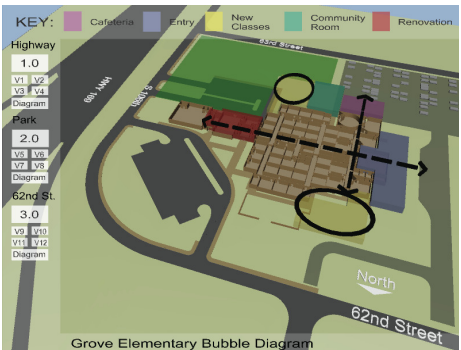
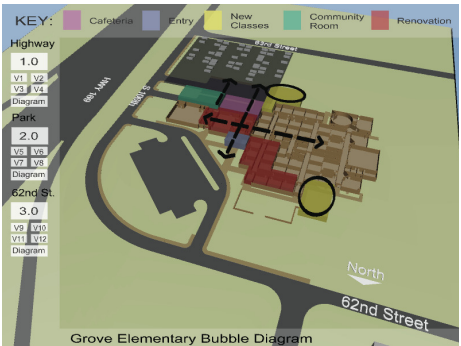


Figure 27c. Screen capture of the Bubble Shifting interactive.



Case Studies: Grove - Bubble Shifting

forming an interactive that the client could navigate and study online, with a series of questions that could provide insight into balancing what the client values: Appearance of the building, connection to the community, ease of development (figure 27b).

The three different plan diagrams were grouped so they would be easy to remember when filling out the survey: Highway Scheme, Central Park Scheme, and 52nd Street Scheme (figure 27c).

The key elements of the Highway Scheme:

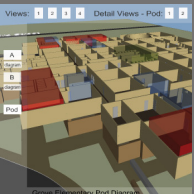
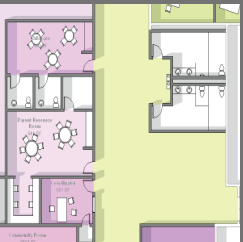
- New entry in the same location as the existing.
- A total renovation of the current administrative offices combining the current cafeteria and offices into one larger space.
- The community wing placed on the South East.
- New parking on the South East.

The key elements of the Central Park Scheme:

- Connects the school directly to the new park adjacent to the West by relocating the front entry.
- Creates a community wing on the West, combining functions with the park.
- Adds parking to the South West.
- New drive for drop-off and pick-up along the North West.

The key elements of the 52nd Street Scheme:

- Relocates entry for ease of drop-off and pick-up.
- Keeps the community wing adjacent to the gym, but separated from the front entry.
- Leaves the playground adjacent to the park, and away from the highway.
- Adds new parking on the East, adjacent to the community wing.



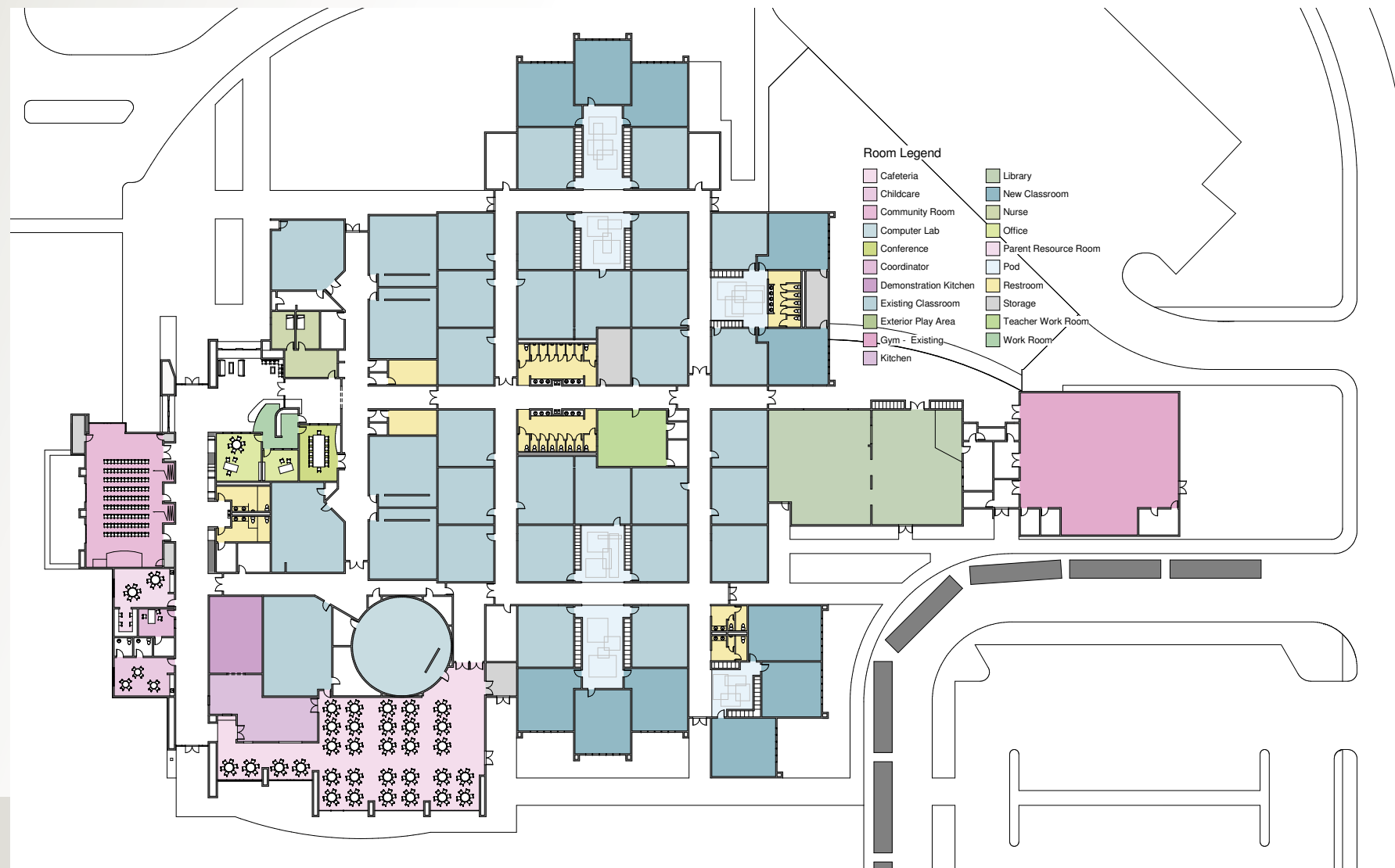


Figure 28. The proposed masterplan for Grove Elementary School.

Case Studies: Grove - Master Plan

The responses to the Bubble Shifting game led directly into a final plan...not as a matter of selecting the most popular answer, but by evaluating the responses, and merging the elements that were the best received from each individual scheme (figure 28).

The resulting master plan kept these key features:

- Addressing the new Central Park developed by the Union School District by orienting the entry and community wing of the school to the west.
- Relocating the bus drop off and the new parking to the South East corner to create a buffer between the highway and the playground.
- Keeping the playground adjacent to Central Park.
- Creating a key security node at the entry with a strong security separation of the community wing and classroom spaces.
- Allowing the art room, science room, and computer lab to remain on the community wing for potential after hours use.
- New entry to act as a hub for the school with room for informal meetings, student waiting space, and a strong visual connection to the drop-off and pick-up drive.
- Relocation of the library with renovated glass curtain wall at the existing entry/office/cafeateria space along the Highway 169 edge.

By allowing the plan to start as generic “bubbles” in an interactive environment, there was nothing lost by culminating each of the schemes into one master plan. The process ideally created a culmination of shared ideas and values that was *inclusive* in its process of creation. The bad ideas were filtered through discussion and surveys, and the stronger components emerged as key pieces of a final master plan.

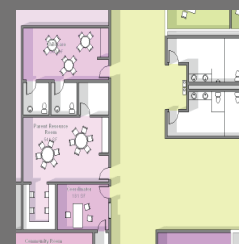
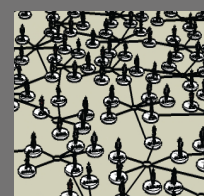




Figure 29a. The Grove Wish Cloud.



Figure 29b. Grove Key Plan.

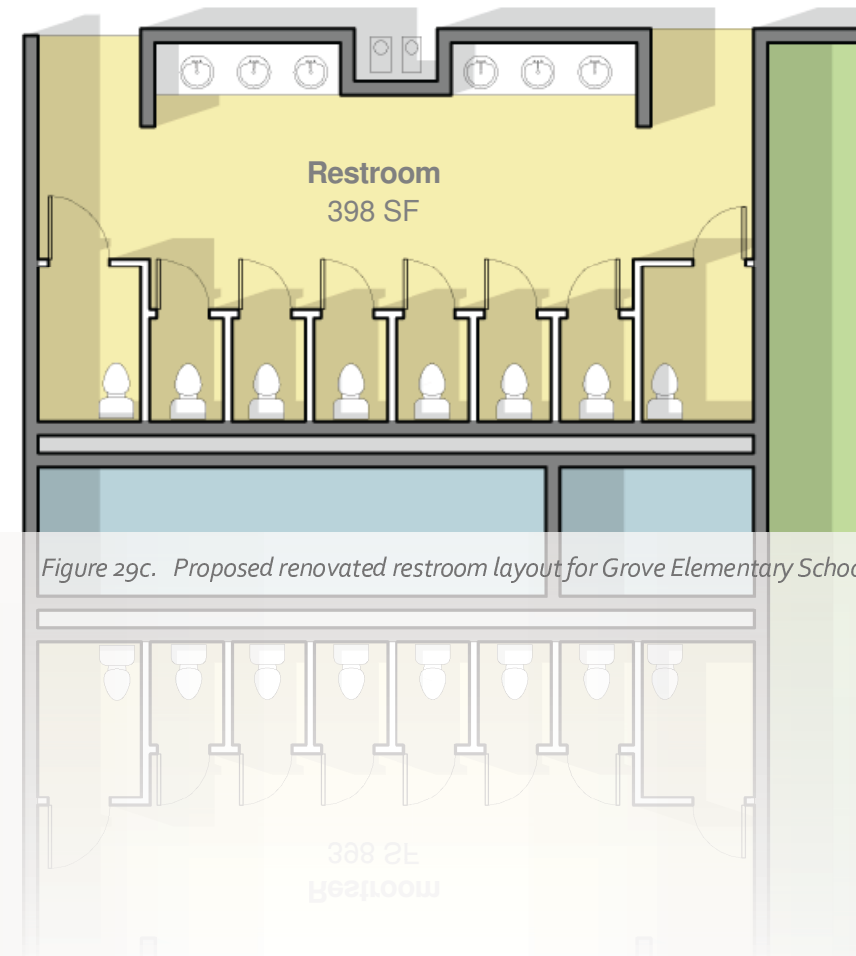
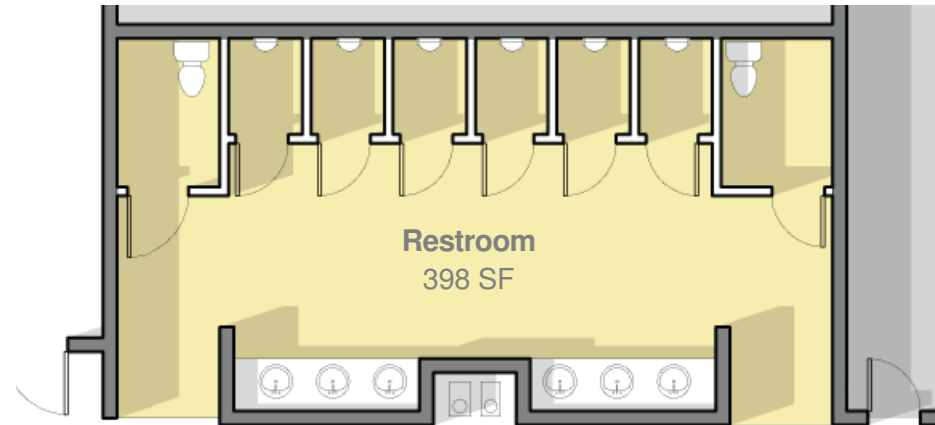


Figure 29c. Proposed renovated restroom layout for Grove Elementary School.

Case Studies: Grove - Plan Details

The design process as made apparent by the surveys needed to start with the restrooms. So the process literally began working from the inside out. The current, and most effective strategy for elementary school restrooms is an open sink design. This design creates privacy at the individual stalls, but uses an open hallway at the sink location. This allows a teacher to stand in proximity to the restroom, and make sure kids are behaving, and using the facility as intended.

The design also opens up the space to hold about four times the existing number of fixtures in the same space. The additional space was salvaged by eliminating the existing entry walls that were designed to ensure visual privacy. While privacy is needed for the toilets, privacy in the sink area is counter productive for elementary school teachers by keeping them from being able to supervise the restroom space.

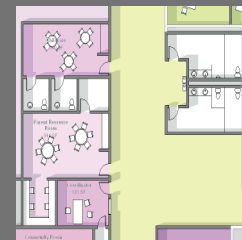
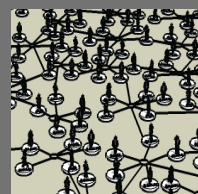




Figure 29d. Proposed new entry - Grove Elementary.



Figure 29e. Grove Key Plan.

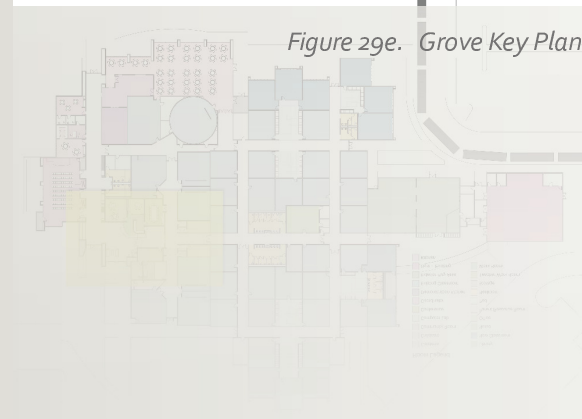


Figure 29f. Proposed new entry for Grove Elementary School.

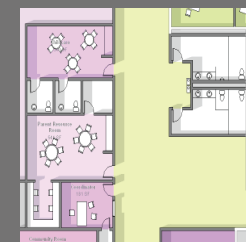
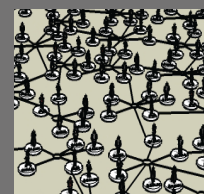
Case Studies: Grove - Plan Details

The primary day time entry to Grove is currently a hallway. This hallway is also the lobby for the entry, and the connective element between the gym, cafeteria, nurse, and classrooms. The presents two problems: First, it is a bit difficult to work your way through the space, and maintain security with all the activity in such a small space. Second, the space does not create a sense of “welcome” to the school, but rather introduces a minor sense of chaos right upon entry to the building.

With the adoption of the community school concept, several key components needed location for direct access to the entry space. By relocating the existing library and cafeteria, the center of the building opens up to be more accommodating, and allows all of the administration functions to become centralized. This will help improve the interaction between parents and teachers by breaking down the formality of office spaces, and creating a more relaxed, less intimidating environment.

The changes to the front entry include:

- Prominent entry, clarifying the pathway into the building.
- Providing a casual meeting place for parents and teachers.
- Direct access to nurses office.
- Improved transparent security checkpoint for the school.
- Consolidation of all administration functions into entry core.
- Work space for faculty.
- Conference room for faculty.
- Student atrium.



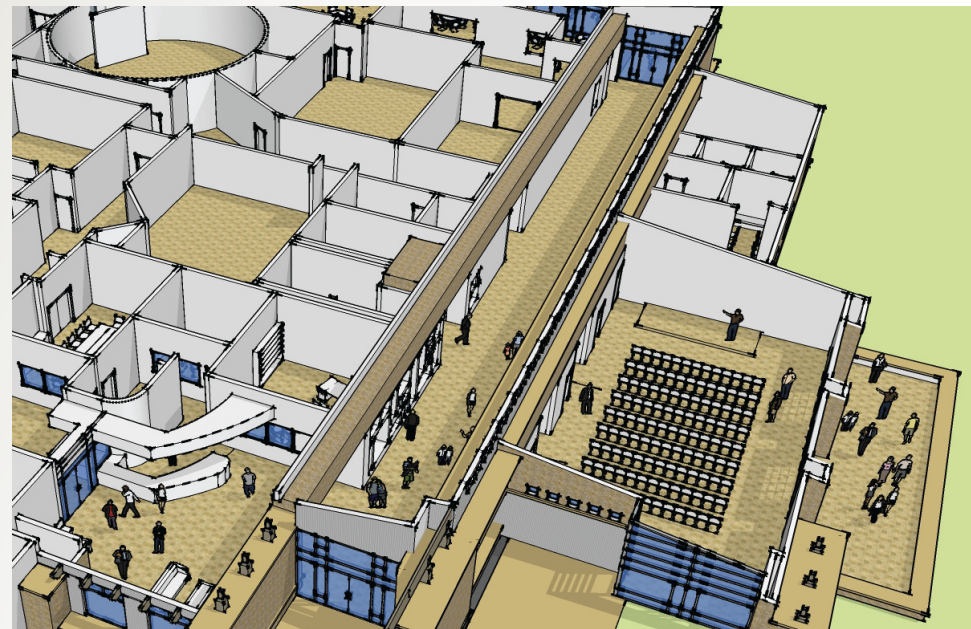


Figure 29f. Grove Community Wing.



Figure 29g. Grove Key Plan.

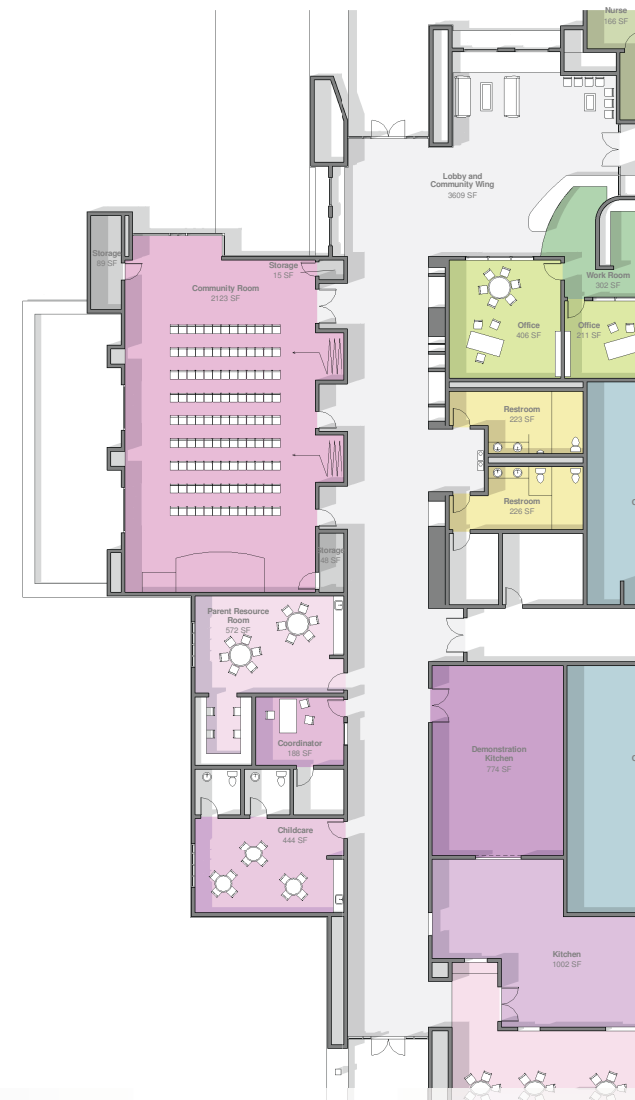


Figure 29h. Community Wing Plan.

Case Studies: Grove - Plan Details

A flex room for community space is a key component of community integration. Locating this space along the west side of Grove creates several opportunities that the school can leverage. First, a corridor isolated from the core of the school allows for evening activities secured from the rest of the facility. This corridor also begins to incorporate additional adjacent spaces that could be integrated into community school programs: Computer lab, science lab, cafeteria and kitchen. Also off of the corridor are several additional restrooms, office space for the community school coordinator, and extended day school program coordinator.

The community school addition at Grove includes:

- New secondary entry and axis connecting key spaces for the community school programs.
- New flex room space with stage, and store front glass facing the public access street to highlight activity within the building.
- Connection of cafeteria, flex room, library, child care and computer lab.
- Restrooms to serve community school functions.
- Office space for community school coordinator, and extended day school coordinator.
- Relocation of the Library to the current front office, cafeteria, and kitchen area.

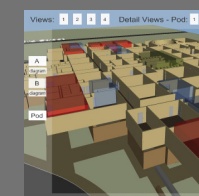
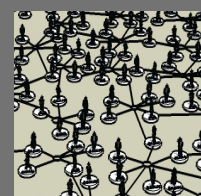




Figure 29j. Pod Precedent Image from Visual Values game, image from Design Share.



Figure 29j. Key Plan - Pod Classes.



Figure 29k. Grove Pod Class concept image.



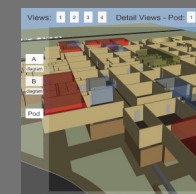
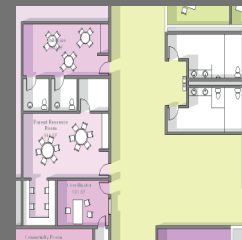
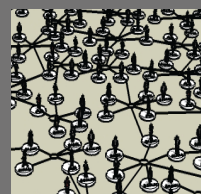
Figure 29l. Grove Elementary Pod Plan.

Case Studies: Grove - Plan Details

This central core of classrooms at Grove had several issues that can be improved upon. The primary issue is lack of storage, and lack of natural daylight in the existing classes. Reworking the classroom spaces and adding additional classrooms on the perimeter can open up several opportunities within the existing classroom spaces:

Changes made to the classroom core are:

- Removal of a central classroom in each major group of classes, renovating that space, and the entries to the existing classrooms to work with the classroom pod concept.
- Addition of daylighting in the pod space by raising the roof and adding a clerestory to allow for natural light into the halls and existing classes.
- Provide storage and lockers for each classroom in the common Pod area.
- Extra study space, cross class learning, shared technologies between classes, and external class meetings for special needs without having to leave their class group.



Case Studies: Grove - Plan Details

By consolidating the pre-elementary classrooms, and moving the entry to the school to the west, you open up the current entry location to act as the new wing for the kindergarten and pre-kindergarten classrooms. These rooms could have direct access to the current North East parking lot for direct child pickup. The current exterior entry path could be demolished and replaced with a new enclosed playground with equipment especially designed for k and pre-k kids.

The redesign kindergarten core includes:

- New consolidated open sink restrooms.
- New shared space.
- New faculty work space.
- New direct entry.



Figure 29m. Grove Elementary Pod Plan.

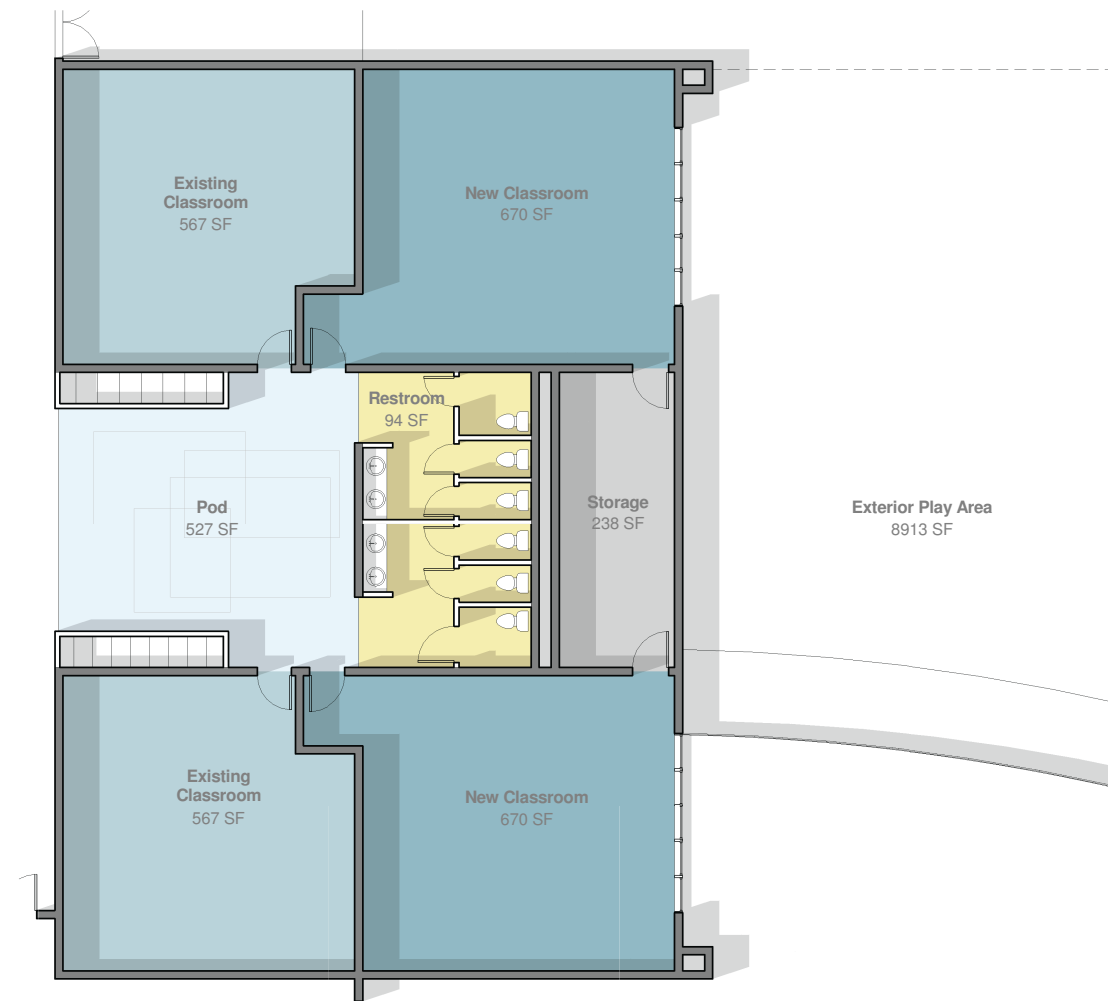
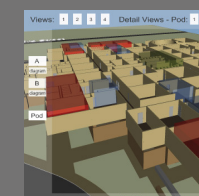
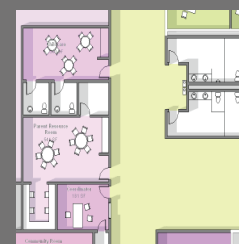
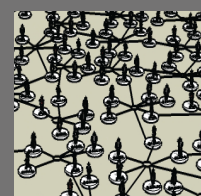


Figure 29n. Grove Elementary Pod Plan.



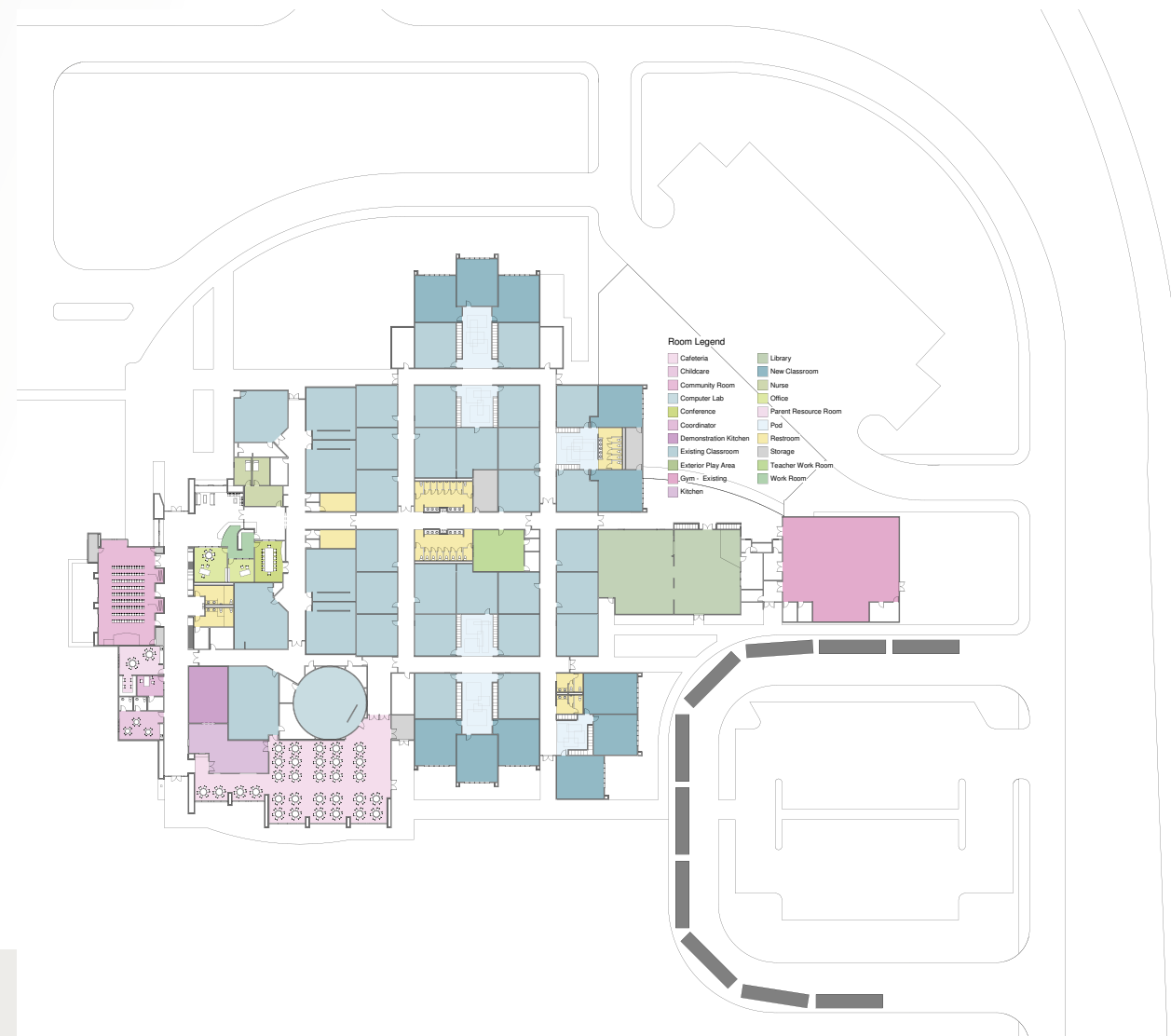


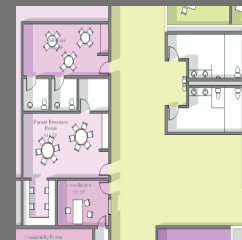
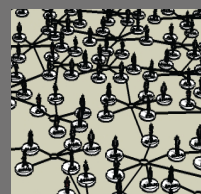
Figure 29p. Grove Elementary Site Plan.

Case Studies: Grove - Plan Details

The site at Grove has two major problems, both relating to kids and cars. Currently, cars que up at drop off and pick up times directly in front of the main entrance. This means that anyone crossing the parking lot (parent, child, or teacher) must cross through moving cars to get to and from the school. Second, the main entry and playground are adjacent to the busiest highway in Tulsa: Highway 169. The on ramp is just over 50 feet off of the Grove property. Despite the fact that there is a chain link fence at the edge of Grove's property, the proximity is too close.

The new site layout for Grove Elementary includes:

- New entry on the West edge, relating the building to the new park developed by the Union School District adjacent to Grove's West.
- Expanded parking to the South East to create a buffer area between the playground and highway, and to fill additional parking needs.
- Expanded bus loop.
- New parent drop off que with parallel parking that runs from the West entry, to the existing parking on the North East.
- Revised parking scheme with cars on the East, and the entry on the West to help separate pedestrian and vehicular traffic.



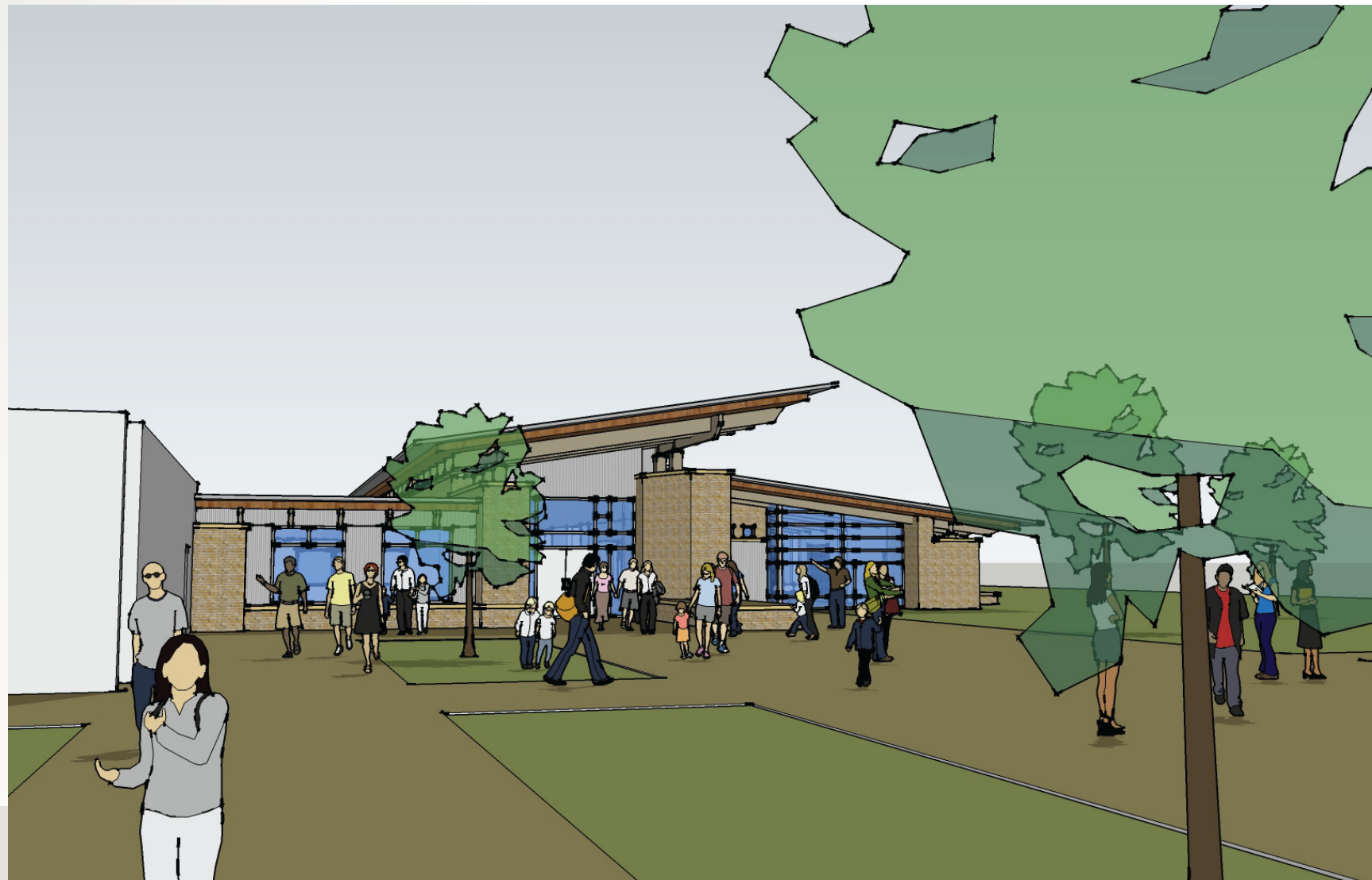


Figure 29q. Grove Elementary proposed entry.

Case Studies: Grove - Form

The new form at Grove responds to several items. First, the design games helped establish location, function, and visual precedents. Each was used to determine how the elements would be arranged and relate to the site. Second, the newly developed park adjacent to the West of Grove Elementary has a very distinct set of materials that coordinate the current image for the Union School District. The forms, and material use (earth tone masonry with metal accents and exposed rafter tails) were something that I felt would help create unity across the property reinforcing the school's connection to the park.

Other major form elements included in the renovation at Grove are:

- Providing a new prominent entry at Grove will help direct visitors to the school to the correct location. By providing a clerestory to the west, the morning sunlight will not come directly into the space, but be filtered by the overhanging form. By consolidating the community wing, cafeteria and new school administration wing all on the West side of the building, the construction can be completed without interrupting the school year.
- The new community wing opens up to the park just West of Grove. The goal is to tie in the community functions of the park, with the community wing of the school. Along the West elevation, several large windows will help with a visual connection, on the site plan, a proposed pathway will help make a physical connection.
- More natural light is a running theme for the entire design. This both helps with energy costs by daylighting, as well as creates a stronger sense of orientation within a building. Currently, Grove is a big box, with little natural light in the center of the

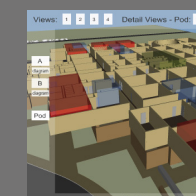
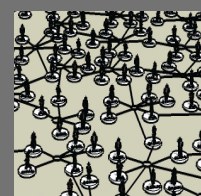




Figure 29r. Grove Elementary site overhead view.

Case Studies: Grove- Architectural Form

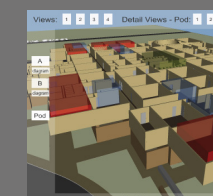
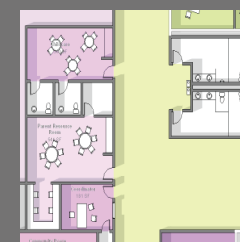
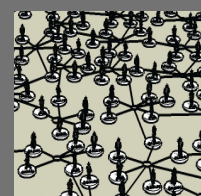
building. New classrooms all have a series of windows, and the pod renovations have a clerestory window system to bring more light into the hallway spaces, and into classrooms with no natural light.

- The new cafeteria is located on the South West end, and opens up with glass to the playground area. Intense natural light in this space will help the space be vibrant in its appearance. Deep overhangs will keep out direct sunlight and solar heat gain.
- New classrooms all have windows with roof and wall extensions to allow a maximum amount of natural light while cutting down on solar heat gain.

(Note: Additions and major renovation areas are shown with a roof, existing portions that are to largely remain “as-built” are shown without a roof).



Figure 29s. Grove Elementary Community Room courtyard.



White River Heritage and Cultural Museum

Home



White River Heritage and Culture Museum

Thank you for visiting our collaborative design web site for the White River Heritage and Culture Museum. On the right side of this page you will find links for four short design surveys: Concept, Space, Form, and Site. Please take a minute to go through each of the pages, answer the questions, and become a part of our design process.

NEXT: Please [visit our Wiki!](#) At the wiki you will find project statements, photographs, and the latest information on the museum project.

Project Team: Lauren Brown, Mary Compton, Kent Fauska, Josh Foland, Micah Gray, Ben Hall, Stephen Harkness, Layne Hunton, Carolyn Kirk, Ian Lee, Taylor Moon, Shelly Pfeifer, Brian Silva, Darrin Teaford, Alex Wiley.

Instructor: David R Beach, AIA

Studio Instructors: Mick McCulloch, Billy Kimmons, David Beach



Figure 31a. Screen capture of the entry page at the White River Heritage and Cultural Museum.



Beach
Studio Instructors: Mick McCulloch, Billy Kimmons, David
Instructor: David R Beach, AIA

Wiley
Moon, Shelly Pfeifer, Brian Silva, Darrin Teaford, Alex
Harkness, Layne Hunton, Carolyn Kirk, Ian Lee, Taylor
Fauska, Josh Foland, Micah Gray, Ben Hall, Stephen

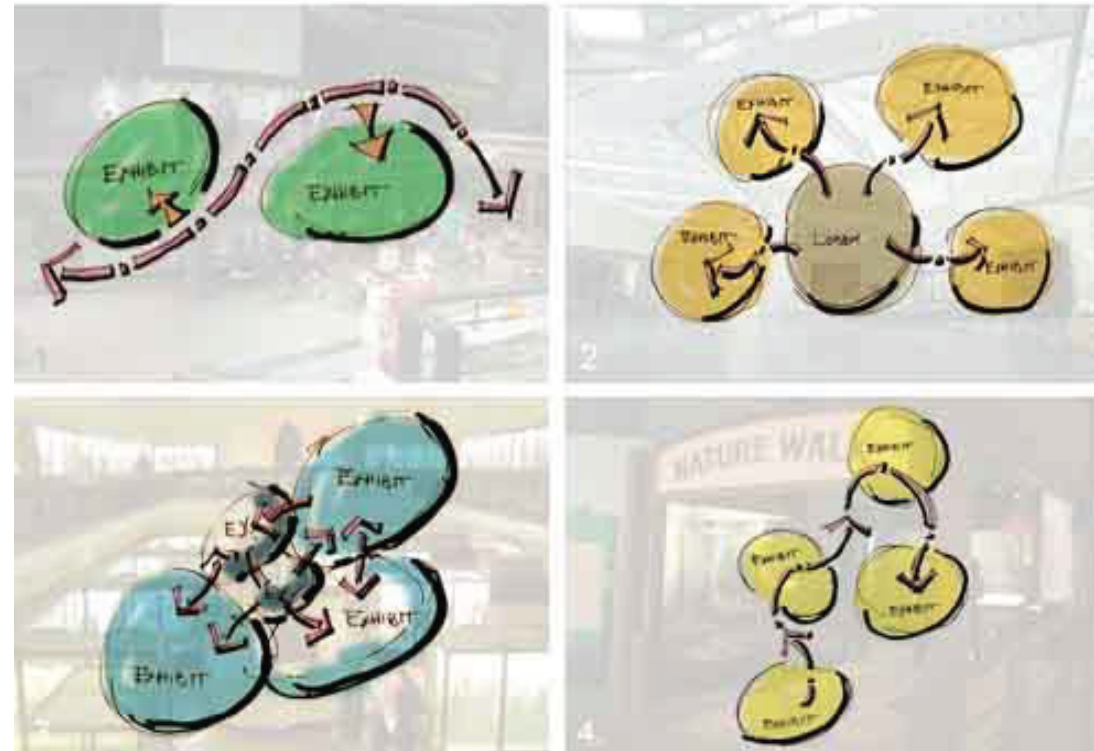


Figure 31b. Museum typology diagrams.

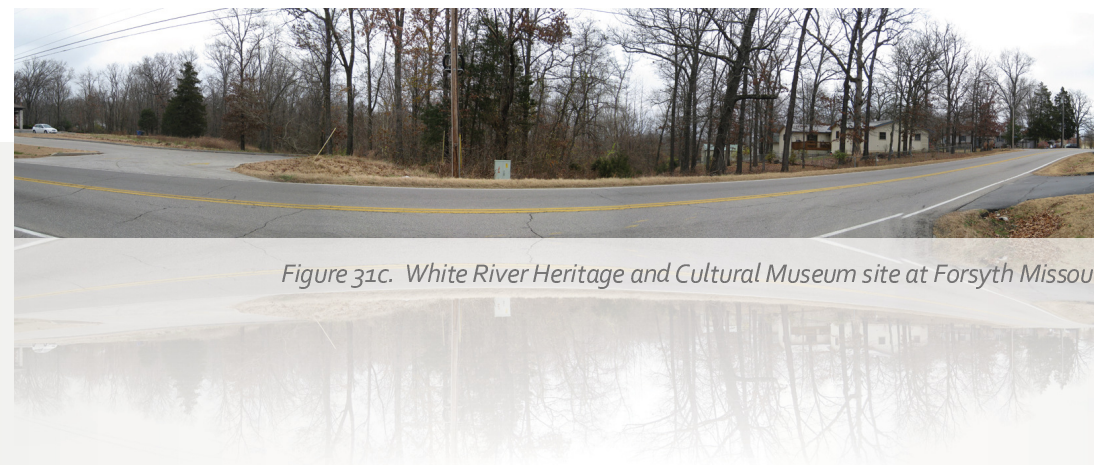


Figure 31c. White River Heritage and Cultural Museum site at Forsyth Missouri.

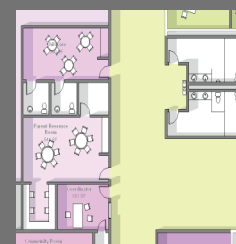
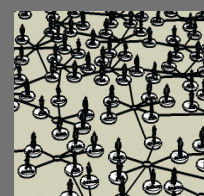
Case Studies: White River

While working through this process with my professional project, I have been privileged with the opportunity to work with a group of 15 students from Drury University on their 2nd year studio project. The core component of the studio curriculum was focused on developing an understanding of building programs. The semester long project was developed to serve a real client, The White River Valley Historical Society, to design a local history and culture museum. The opportunity to work with a real client does two things: First, it creates a set of real needs that our students had to work with. They had to be accountable to the client, the site, and the organization's ideas to help them discern priorities for their museum facility. Second, it gives the client an opportunity to see a wide range of ideas, exhibits, arrangement of spaces, and design concepts from a group of young designers.

The White River Valley Historical Society has a reasonably diverse membership that ranges in participation from 250 to 500 people. The core of the group is located in the Midwest, but there are also members throughout the United States. Early in the semester, I presented my ideas of online collaboration and collectively we decided to launch a site to collect data from the organization.

We created three teams of students whose responsibility was to develop a series of questions. The first two student groups were to develop a design vocabulary with the client, while the third group created a series of questions and images to begin creating a sense of visual vocabulary and form. We also worked on an interactive game to look at options for the building site.

Before the online site, the notion of a museum was simply an abstract idea to the client. By working with the team at Drury, the White River group could begin formation of a building program through the use of the collaborative



Concept

White River Museum Design Concepts

* Required

Name *

Should the building's overall image be... *

12345678910

Historically RelevantModern

Should the exhibits be... *

12345678910

ObservationInteractive

Should the emphasis of the exhibits be... *

12345678910

Natural HistoryCultural History

What is the single most interesting exhibit that we could create for your museum? *

Submit

Figure 32a. Screen capture of design concepts portion of the White River site.

What is the single most interesting exhibit that we could create for your museum? *

12345678910

Natural HistoryCultural History

Should the emphasis of the exhibits be... *

The building's image should be...

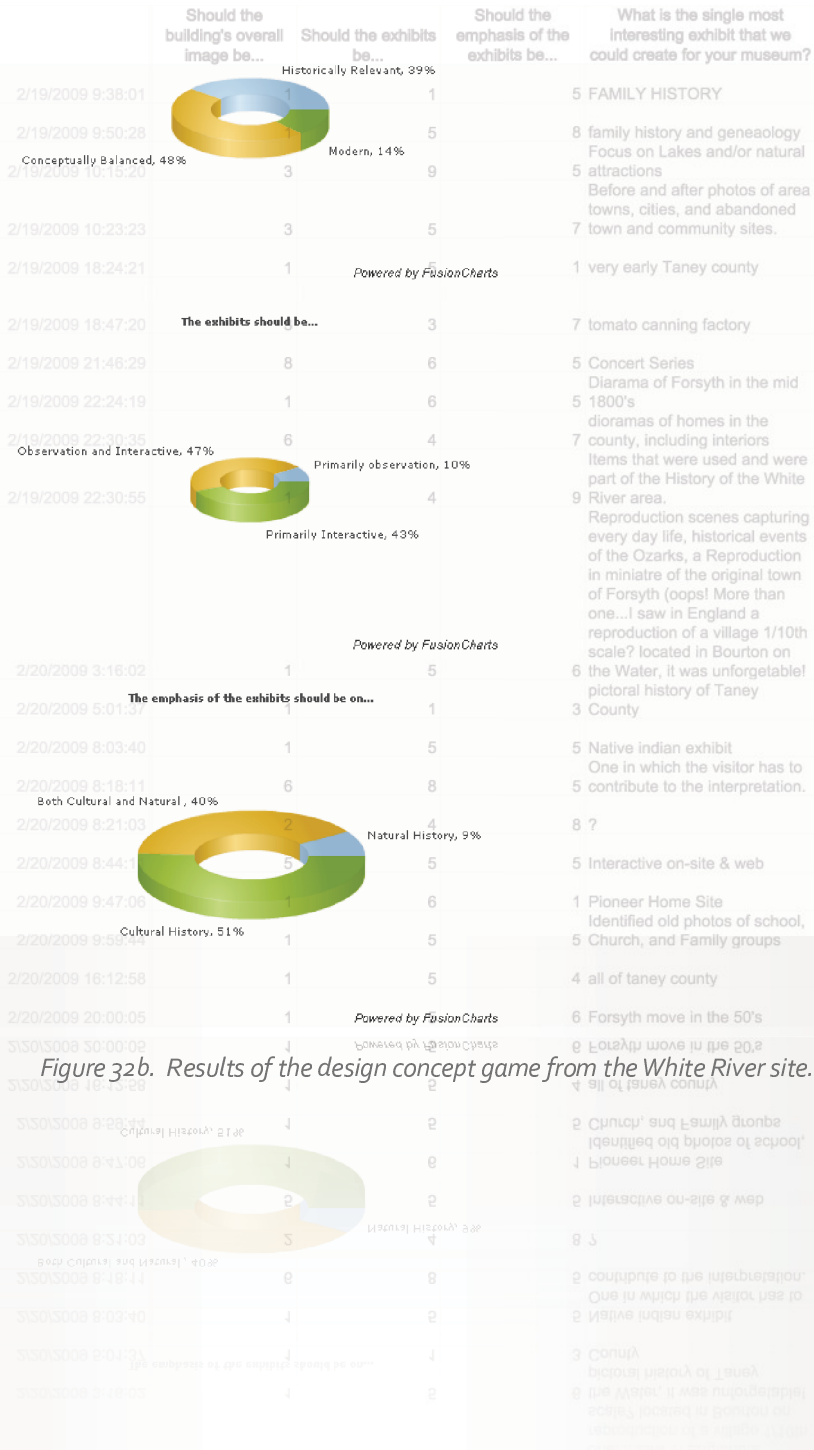


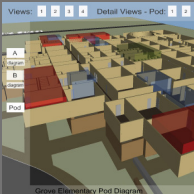
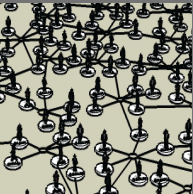
Figure 32b. Results of the design concept game from the White River site.

The Process: White River - Vocabulary

web site. The online pages began to act as an early point of discussion and idea generation. To the student design team, the site became their primary attachment to the client. We had two meetings for student review, but their primary review was to be from the university faculty who were to make sure the University's curriculum was covered. The web site helped organize the building data to allow for access to the larger crowd's (the White River Group's) ideas for the building.

The first game was designed to create a vocabulary connection between building form, action, and typology. The student design team was initially concerned that the client wanted a log cabin in the woods, but felt this would contradict the idea of an immersive and interactive new museum type. The first group of students fine tuned a short series of questions to clarify the type of museum the client wanted to create (figure 32a). Rather than yes or no responses, the team chose a Lycard scale system allowing the user to weigh their response. If the user felt like every single museum display should be interactive, they could answer with an absolute. The Lycard scale also provided a range of responses that began to establish a value and priority system for their facility.

From this group of questions the students were able to discern that the client was very open to a building forms, as long as they stayed relevant to the area. There would need to be a balance of interactive and static exhibits (both for archival materials, and to blur the lines between education and entertainment). Finally, the last response implicitly linked cultural and natural history. In our face to face meetings, we had heard both comments: "It is a cultural history museum" or "It is a natural history museum." The balanced response clarified our design team's initial idea that the two could not be displayed separately, but needed to be linked to communicate the



As the student design team was creating the questions, an interesting point about the design games began moving to the surface: The games were as much about testing and educating the client as it was about gathering information. The team began to realize that certain responses may not mean “do this implicitly,” but rather that the designer needs to spend a particularly focused amount of time discussing certain findings in the data as they relate the building concepts.

Space

White River Spatial Planning

* Required

Name *

Who is your target patron? *

Base your selection off of a "balance." If you are only thinking of kids, select 1. Only research scholars, select 5. Or, select a balance between the numbers.

1 2 3 4 5

Elementary School Kids Research Scholars

What is the most important functional space of the museum? *

Gift Shop/Cafe
Conference and Event Space
Office
Primary/Rotating Exhibits
Library Research Space
Archival Storage
Other:

What is the second most important space? *

Gift Shop/Cafe
Conference and Event Space
Office
Primary/Rotating Exhibits
Library Research Space
Archival Storage
Other:

Your visitors will be most interested in... *

Note: Events could be wedding parties, reunions, museum openings, etc.

1 2 3 4 5

Events Exhibits

Outdoor activities on site related to the museum are... *

1 2 3 4 5

Not Important Extremely Important

What is the importance of an exhibit featuring local events? *

1 2 3 4 5

Not Important Extremely Important

Submit

Figure 32d. Results from the spatial planning design game of the White River site

Figure 32d. Results from the spatial planning design game of the White River site.



Form

White River Visual Form Questions

* Required

Name *

Which space (images A-D on the right) is the most inviting? *

- ☐ A
☐ B
☐ C
☐ D

Which exhibit space (images A-D on the right) has the most flexible lighting arrangement? *

- ☐ A
☐ B
☐ C
☐ D

What was your emotional response to the image you chose in the previous question? *

Which space (images 1-4 on the right) creates the strongest emotional response? *

- ☐ 1
☐ 2
☐ 3
☐ 4

Which arrangement (images 1-4 on the right) allows the most flexibility for exhibits? *

- ☐ 1
☐ 2
☐ 3
☐ 4

Which space arrangement (images 1-4 on the right) is the most engaging? *

- ☐ 1
☐ 2
☐ 3
☐ 4

Which space (images 1-4 on the right) has the clearest path? *

- ☐ 1
☐ 2
☐ 3
☐ 4

Submit

Submit

☐ 1
☐ 3
☐ 5
☐ 7

Which space (images 1-4 on the right) has the clearest path? *

- ☐ 1
☐ 3
☐ 5
☐ 7

Which arrangement (images 1-4 on the right) allows the most flexibility for exhibits? *

- ☐ 1
☐ 3
☐ 5
☐ 7



See larger images below...



Diagrams correspond to the spaces pictured above



Figure 33a. Screen capture from the form design game of the White River site.



Diagrams correspond to the spaces pictured above

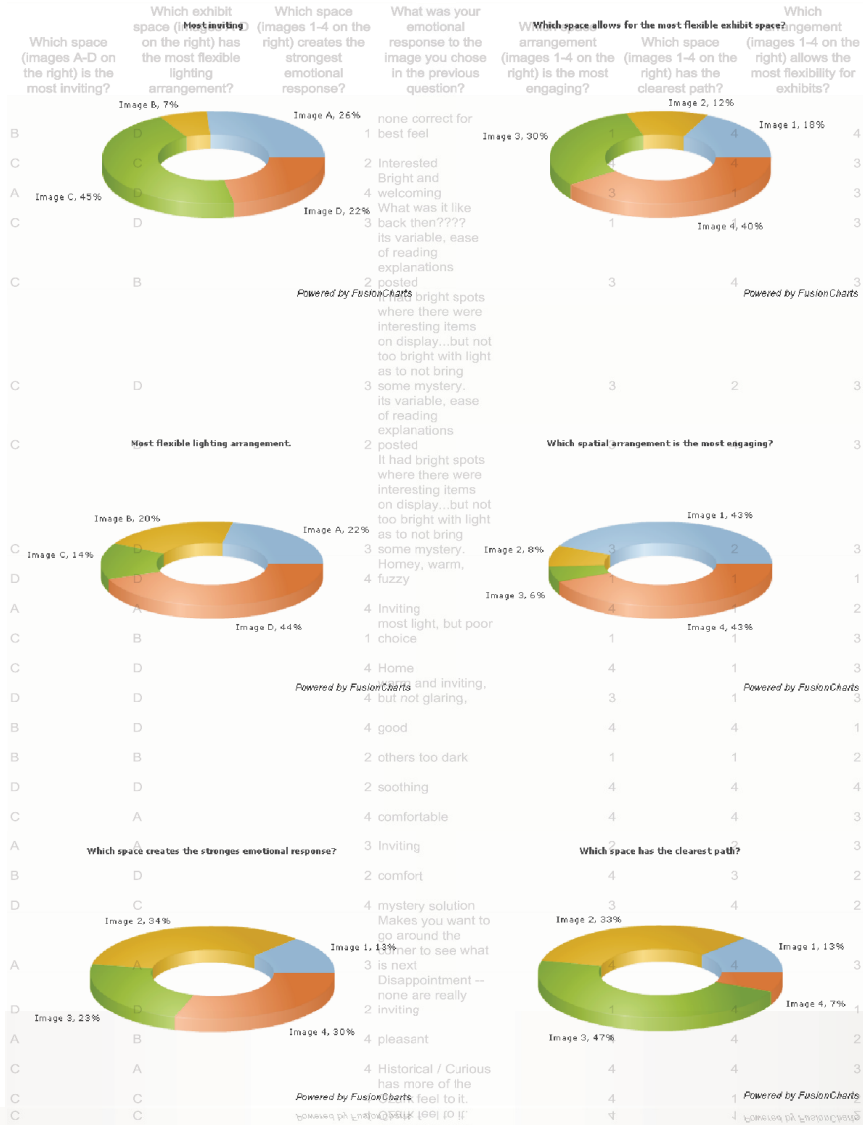


Figure 33b. Results from the form design game of the White River site.

The Process: White River - Visuals

wedding receptions, or a historical craftsmanship seminar. This type of information becomes crucial as the building program versus cost begins to be evaluated and can be revisited late in the process to determine whether the decisions being made are “on mission.”

The third game looked at the qualities of spaces relevant to museums. In particular, the design team wanted to pull information regarding lighting, and flexibility of museum spaces (figure 33a).

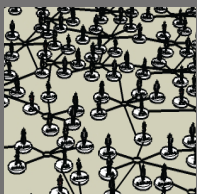
To start with, four images with different lighting qualities were selected, and then paired with questions: Which is the most inviting? The most flexible? The responses across the board were very balanced with one exception. The most inviting space was an image of a front porch in the midwest vernacular with a single light on it. Our interpretation of that response was that of the porch form, not just the lighting. That concept directly effected several of the designs for approach to the entry as well as an understanding of the relevance of “porch” in the culture of the White River Valley. Natural light, despite the client’s earlier comments of “probably no natural light” was largely accepted as part of the museum setting.

As a group, the design team came up with four museum typologies: Direct path with observation (e.g. a zoo and the occasional museum exhibit), open plan without a path, radial organization with a central space and a defined path through the exhibits. To get a feel for the type of organization the client would respond the strongest to, the team posted four images with four diagrams and with the following questions:

- Which arrangement creates the strongest emotional response?
- Has the most flexibility?
- Is the most engaging?



Game One:
Wish



White River Site

The following questions are to help us understand how you want the building to relate to the site. Do not worry about the building's shape or color. Simply evaluate the short list of options by responding to a 10,000 square foot building on site, its size relative to the site, and its potential to meet the needs of the White River Valley Historical Society's desired image.

* Required

Name *

Which building shape and location has the best potential for retaining the site's integrity (keeping the trees and natural habitat as undisturbed as possible, as well as maintaining views to and from the site)? *

- ☐ A
☐ B
☐ C
☐ D
☐ E

Which scheme best blends the building into the site? *

- ☐ A
☐ B
☐ C
☐ D
☐ E
☐ F - The building should not blend into the site.

Which scheme helps the building best stand out from the site? *

- ☐ A
☐ B
☐ C
☐ D
☐ E
☐ F - The building should not stand out from the site.

What would be the most interesting and welcoming building to walk to after parking at the top of the hill? *

- ☐ A
☐ B
☐ C
☐ D
☐ E

Submit

Figure 34a. Screen capture of the White River 3d Building Site interactive game.

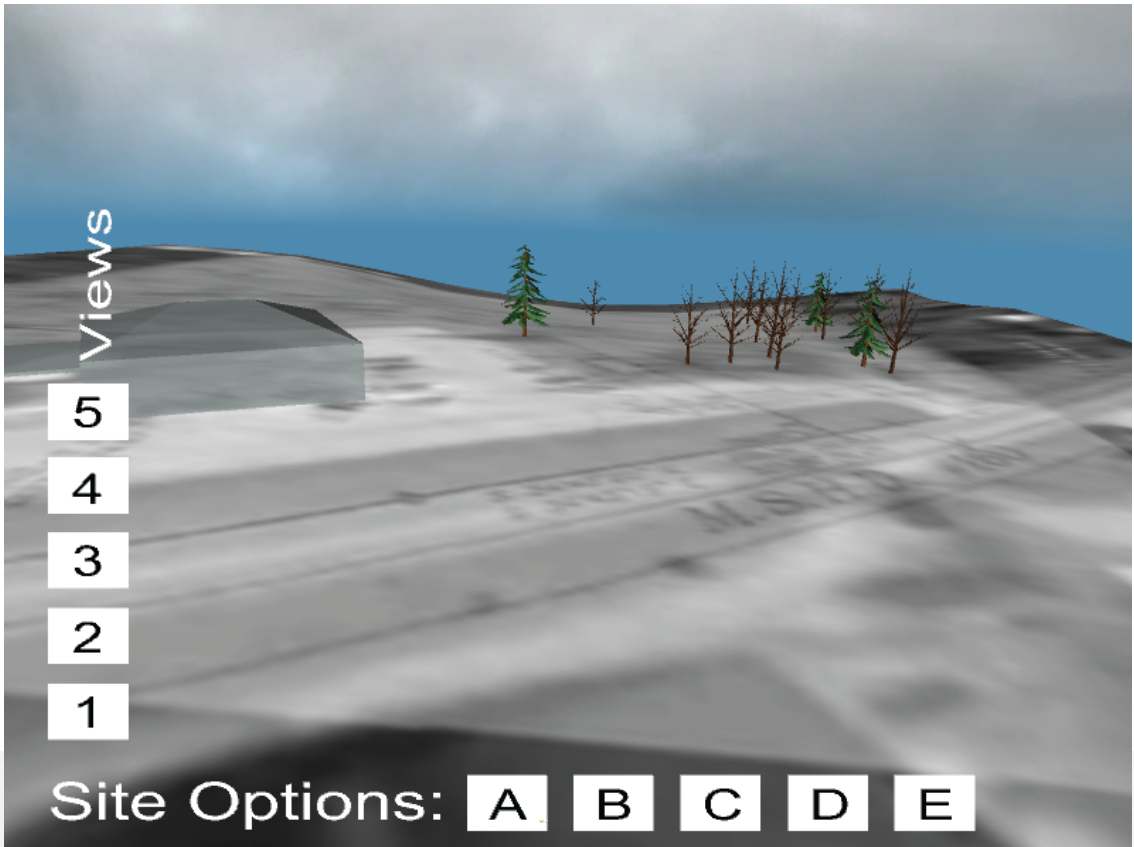


Figure 34b. A screen capture of the site topography for the White River Museum.

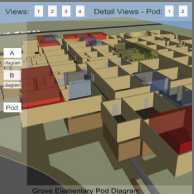
The Process: White River - Interactive

- And finally, has the clearest path?

The responses we received were odd. The most flexible arrangement was the image with the most rigid path, while the path that was the easiest to discern was the image of a space without a path. This could be due to lack of clarity in the images, the questions, or simply a statement that we, as a design team need to back up, and clarify what each typology can do to best serve the client's needs. As a result of the survey, the students really spent time clarifying their explanations on museum circulation. It may have been overreaching to expect the client to be able to discern the advantages and preferences of different arrangements. The game was a success though. The design team created presentations that could meet the client within their experience and comfort level, and accurately explaining how their arrangements would help their museum's function.

The last game engaged the client in an interactive to look specifically at the site (figures 34a and 34b). The site itself is on a densely wooded hilltop which slopes in on itself like a large bowl. The rural community of Forsyth, Missouri, has strong ties to what has become two conflicting elements in the area: Tourism and Nature. Eco-Tourism in the area has not come to front as of yet. Tourism has simply yielded to clearing out large areas for hotels, strip malls, and country music theaters. To work with the client on a better approach to manage the site, I created a game which addressed how to best put a 10,000 square foot building on the 1.5 acre site. Five options were created:

- A 5000 square foot two story building (figure 34c)
- A ten story building with a 1000 square foot base (figure 34e)
- A single 10,000 square foot building (figure 34f)
- Two 5000 square foot buildings buried into the slope of



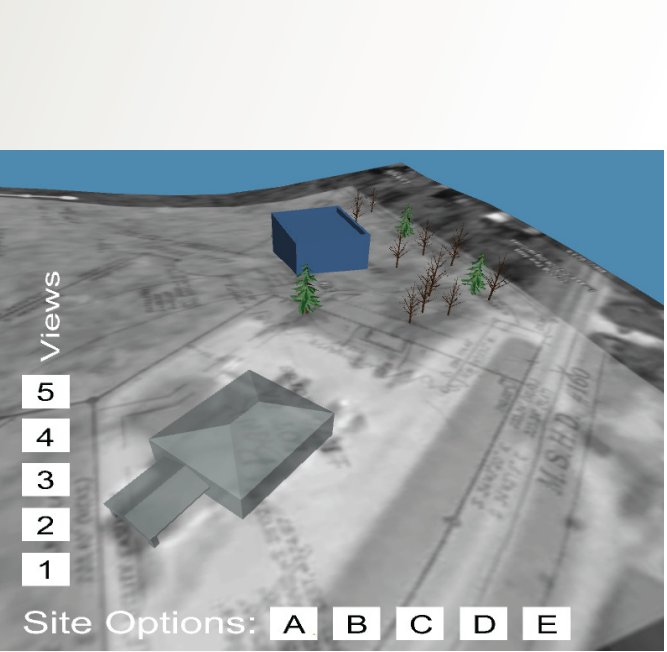


Figure 34c. The 5000 square foot two-story option.

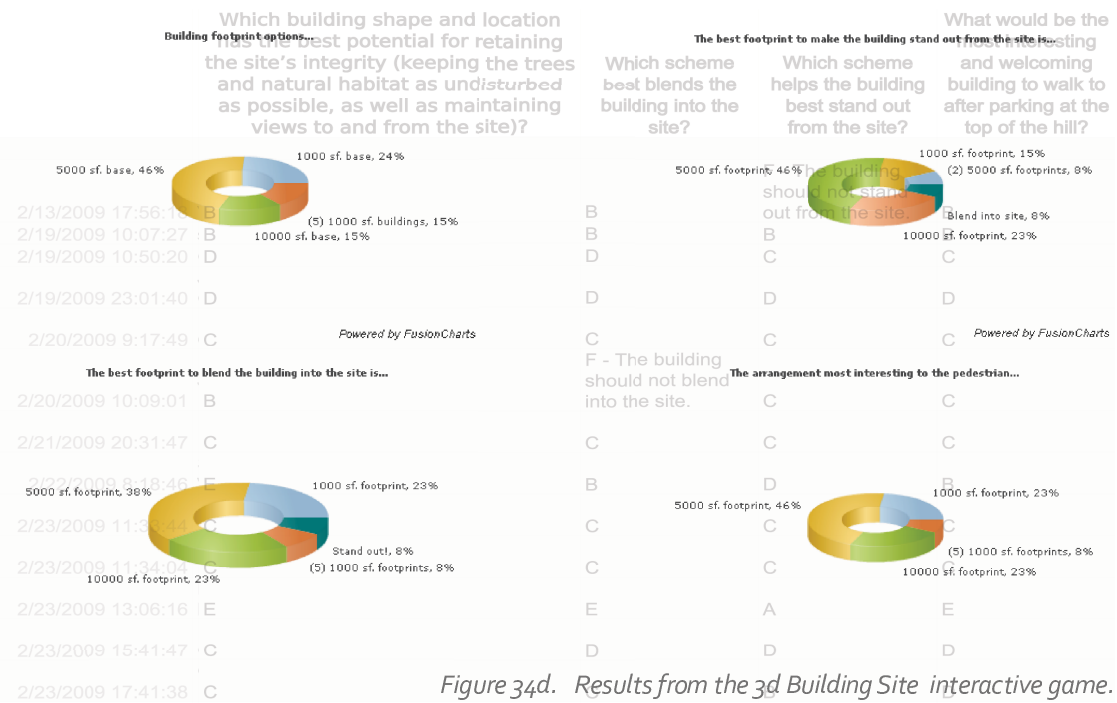


Figure 34d. Results from the 3d Building Site interactive game.

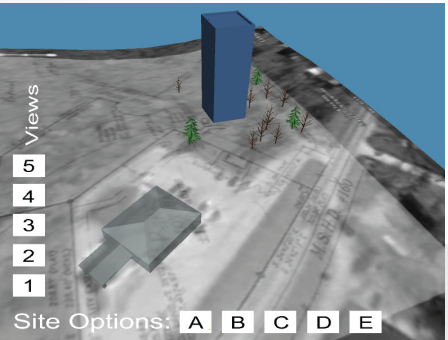


Figure 34e. The ten-story option.

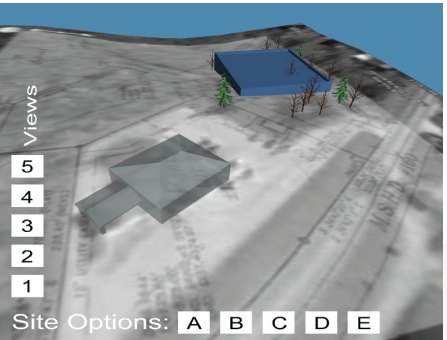


Figure 34f. A single 10,000 square foot base.

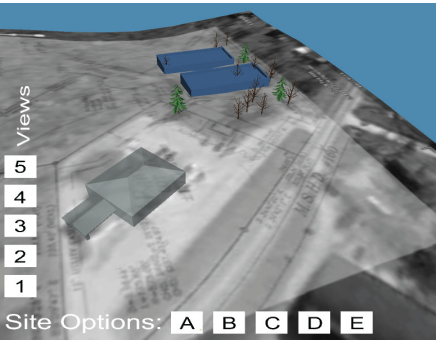


Figure 34g. Two 5000 square foot buildings.

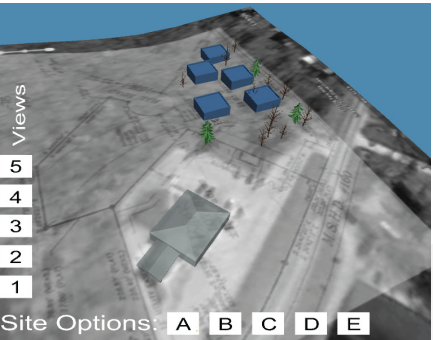


Figure 34h. Five 2000 square foot buildings.

The Process: White River - Interactive

the site (figure 34g)

- Five 2000 square foot buildings. In the interactive, the client can view the site from any angle, see into the site by driving down the adjacent highway, with each of the five different configurations (figure 34h)

The questions then asked were:

- Which scheme best keeps the sites integrity?
- Which scheme best blends the building into the site?
- Which scheme makes the building stand out from the site the most?
- Which scheme would be the most interesting to approach as a pedestrian?

While the best received scheme was the two story split level arrangement with a 5000 square foot base, there were several inconsistencies in the responses. I believe this is linked to a decrease in responses to this game. In the case of blending the building into the site, 3 out of 13 answered in favor of the 1000 square foot ten story addition to blend the building into the site. While the smallest footprint potentially has the least impact on the site, it seems this response would be counter intuitive to the common understanding of blending a building into the site. Since there were only 13 participants involved at this stage (a major decrease from the 70 or more on each of the other games), the authenticity of the results was decreased especially when considering the concept of collective collaboration from a wide range of opinions. I would anticipate the large percentage regarding the ten-story option would decrease with a larger group response.

This particular game for the site became more useful as an internal tool to look at site options than as an interactive with the client. The complexity of the issues in the interactive may have been better resolved in a live meeting, then in an online format.

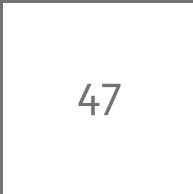
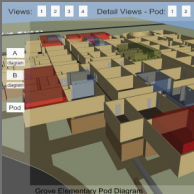
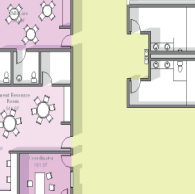




Figure 35.

The Process: White River - Results

Special thanks to my studio: ARCH 214 at Drury University for helping me out with my research into online communication, and producing some incredible results from the process. Another special thanks to the White River Valley Historical Society for being a great partner to work with throughout the course of the semester.

For the my studio, it was interesting to see online collaboration shape the way they approached the design process. I posted a series of questions to my studio, and the common independent thread that came back was in line with the concept of a crowd source design mentality: The whole is greater then the sum of its individual parts.

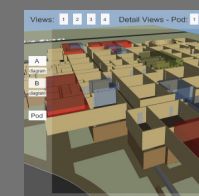
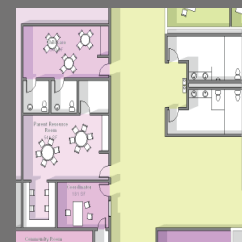
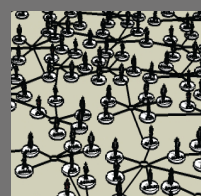
Darrin Teaford mentioned that the online collaboration "helped clarify some of the inconsistencies remaining from the face to face interviews."

In a similar line of thought, Mary Compton commented that what "(our direct contacts) wanted was not necessarily on par with what the remaining members (of the White River Historical Valley) had in mind. I thought this was a BIG surprise..."

Lauren Brown also wrote "The portion of the data I found most intriguing was the enthusiasm of the client to respond and provide data. As a student who knows almost nothing about the logistics and methods of catering to an actual client, I found that the data put our interview with (our direct contacts) into perspective."

My team of students that helped me put together the questions, and the interactive site for White River:

Lauren Brown, Mary Compton, Kent Fauska, Joshua Foland, Micah Gray, Ben Hall, Stephen Harkness, Layne Hunton, Carolyn Kirk, Ian Lee, Taylor Moon, Shelly Pfeifer, Brian Silva, Darrin Teaford and Alex Wiley.



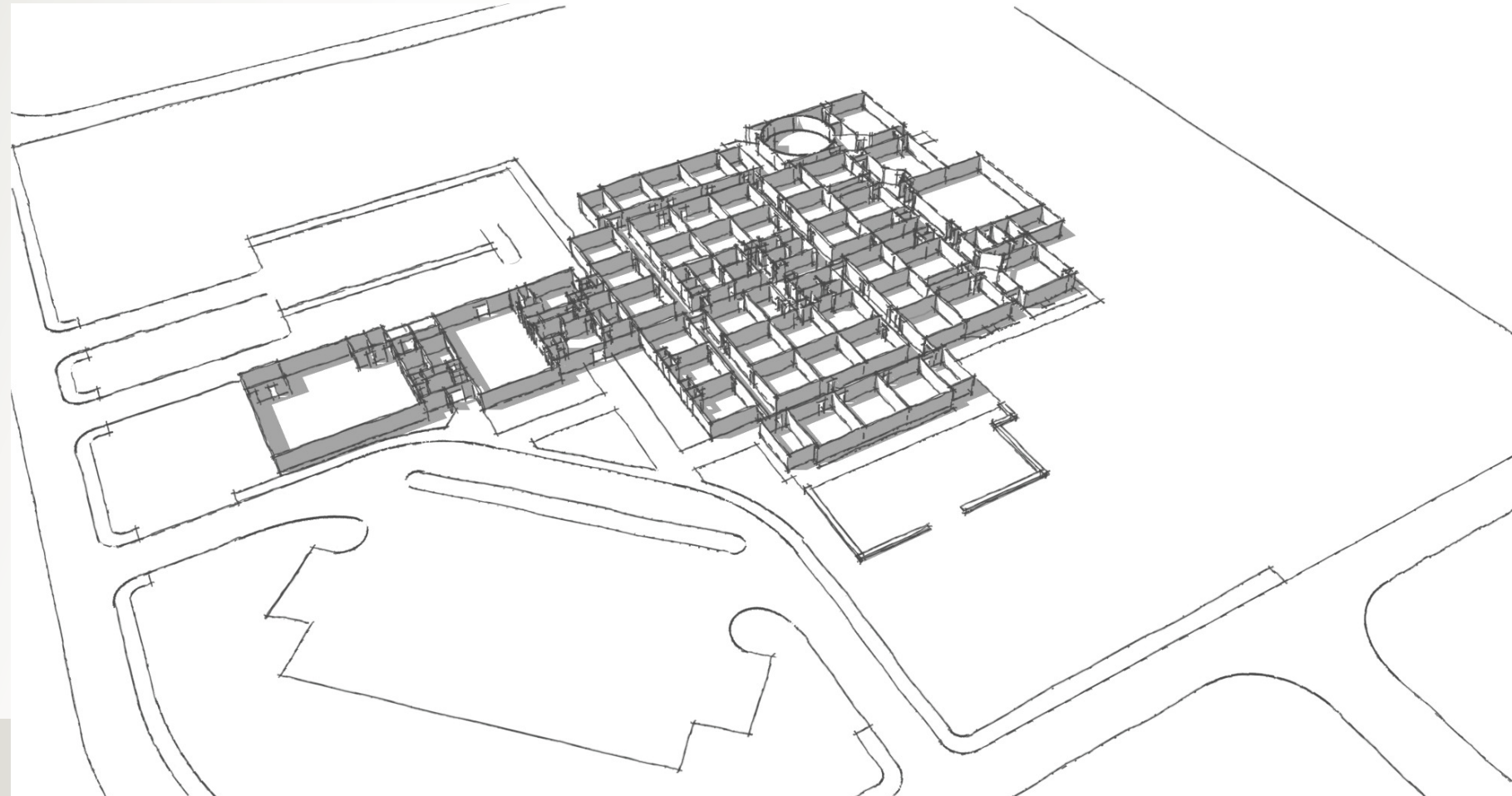


Figure 36. As-Built conditions at Grove Elementary.

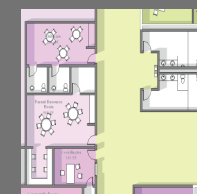
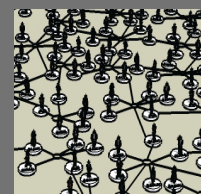
Analysis: The Pre-Questions

When I began the study of online collaboration between the design team and client I had several major concerns:

- Can the technology and web sites with the online collaboration between a client and design team be accessible and easy to use?
- Would the anonymity of the internet affect the outcome or participation in the design games?
- How much additional time would be added to the design team to create the sites and interactive files?
- How would the data assimilate into usable information.
- Would the client, or client group feel as though their time with the online collaborative components added value to the process?
- Would an online environment make the relationship with the client seem less personal?

Can the technology and web sites with the online collaboration between a client and design team be accessible and easy to use?

The web is largely an accepted form of media and information distribution and unlike any other media, it is global in its nature. However, the sheer nature of the internet, the computer, and the requirement for connectivity limits the user base. This restriction is not limited by the capacity of “only online.” If a client base has a need, and the desire to participate in a live meeting, the online games translate perfectly well into an interactive presentation. Something that I did not anticipate when approaching the project was the Union School District’s internet security, which locked down all web sites. Opening up the “internet lock down” in my opinion, was too much to ask of the school district. As a result, the forms were printed and the data was entered online at a later date. For the first two rounds of



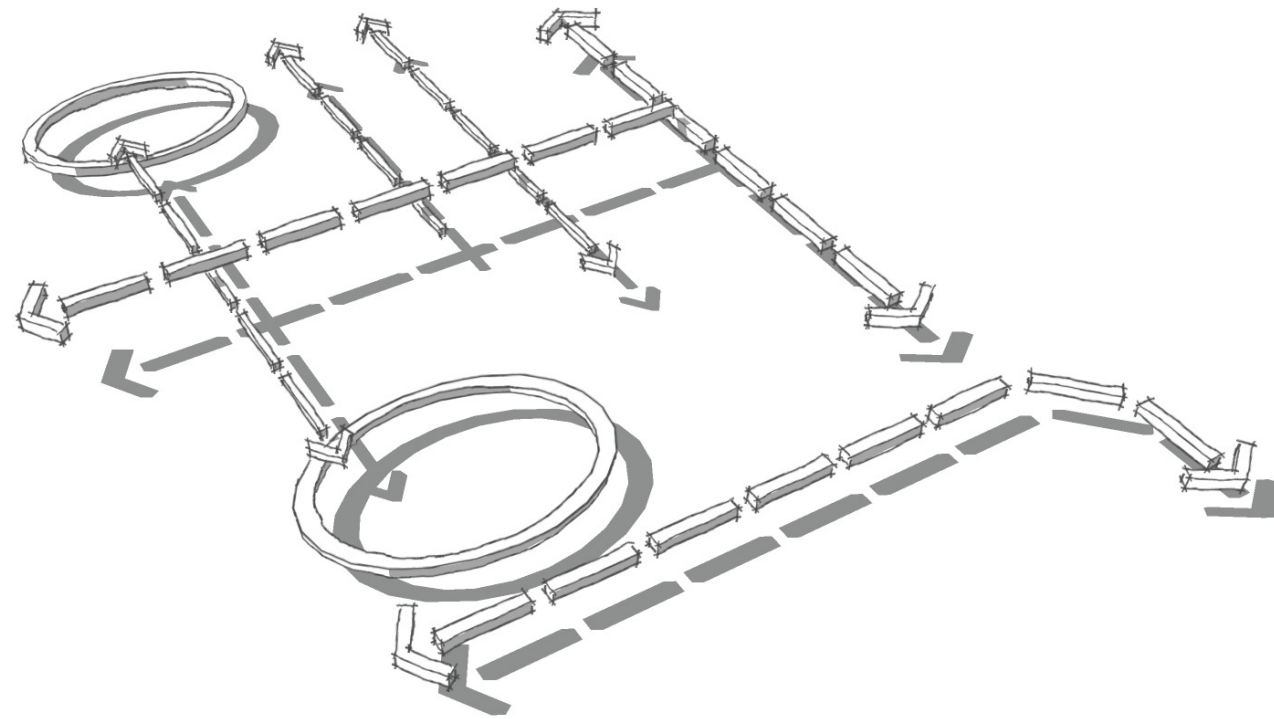


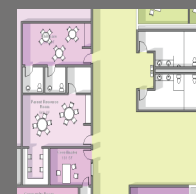
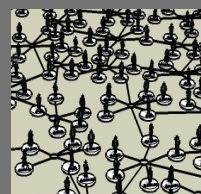
Figure 37. Conceptual Diagram of the addition and renovation for Grove Elementary.

Analysis: The Pre-Questions

design games (everything but the interactive 3d files) the teachers, faculty and staff were able to access the site and had no problem with the forms. The interactive design games though, required a separate piece of software to be installed in Internet Explorer. This requirement kept most of the teachers and administration from being able to view the interactive games. As a result, I packed up my laptop and presented all the 3d interactive files in a client meeting. During the meeting, the forms were both available online and in printed-form. The organization from the online process and format helped prepare me with a series of directed questions. This kept the meeting on topic, relevant, and generated excellent discussions with the participants. It also gave me the chance to review all of the collected data with the client. This provided a base for many of the decisions regarding both the pod layout, and the spatial arrangement (Pod Plans, and Bubble Shifting) on the information from the first two rounds of design games. Accessibility really amounts to the willingness of the design team and the client.

Would the anonymity of the internet affect the outcome or participation in the design games?

In short, no. Unfortunately, the form system used to create the surveys, Google Documents, did not have any system of restricting responses. Several other online survey systems will keep users from filling out multiple forms and increase security. It would certainly help in the process if Google Documents would add this feature. However, other than the occasional problem of someone submitting a form twice, there was nothing overwhelming about the information that would lead me to believe either someone was trying to manipulate the data either out of personal motivations or simple mischief. By looking at the data generated by the forms, it was pretty simple to discern any odd answers, and then evaluate whether or



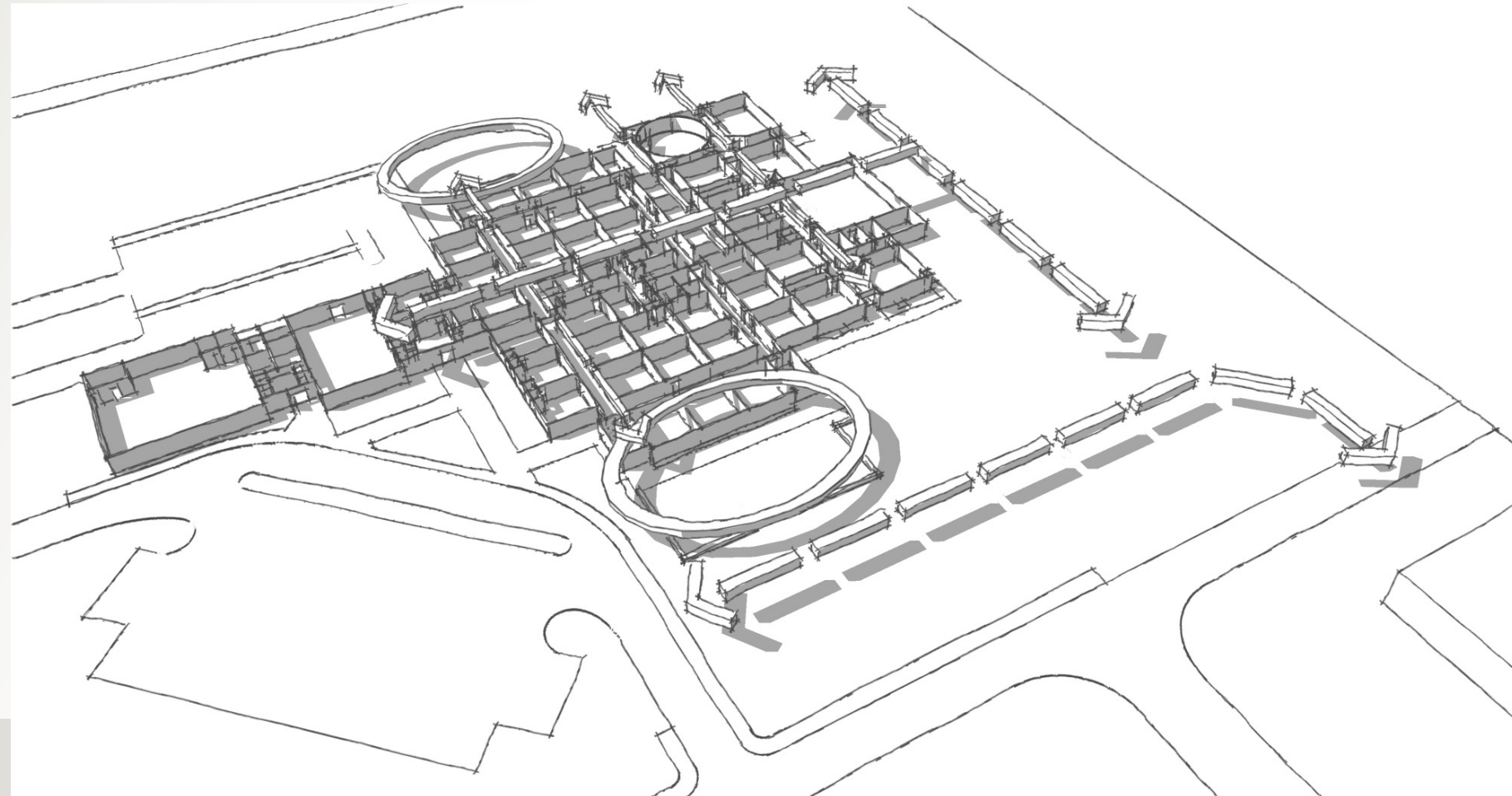


Figure 38. As-Built conditions, and schematic diagram for the new addition and renovation at Grove Elementary.

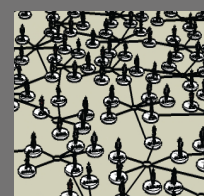
Analysis: The Pre-Questions

not it needed to be removed. There was nothing found in any of the 12 different online games studied that justified removal from the data set other than submitting a set of answers twice.

The issue of anonymity is an interesting aspect of online culture. It allows people to have an internet-flavored alter ego, and is often the cause for belief that the net has no collective moral sensibility. For a design game, anonymity can have a positive effect though. It gives an equally powerful voice to someone who may have wonderful ideas, but difficulty expressing them in a social format. It also provides the opportunity to question the an authoritative decision without being seeming argumentative or overreaching. Both opportunities however, are only aided by the internet. The discussion must be orchestrated by designing the appropriate design game.

How much additional time would be added to the design team to create the sites and interactive files?

In my 12 years of experience as a designer, there was never enough time formulating and organizing the right questions to gather information from the client. Each office runs the process of gathering information in a different way, and there is no precise formula. I do believe however, that the process is typically lacking in its formality to create the right relationship between the design team and the client. The typical process also poses a design enigma to the client. There is not enough time creating a concept, establishing a set of design parameters, or sharing ideas about spaces and their impact. The result is a designer creating a sales pitch about their personal assumptions regarding the client's needs. As a result, I do think the process of creating design games adds time to the process. Technically



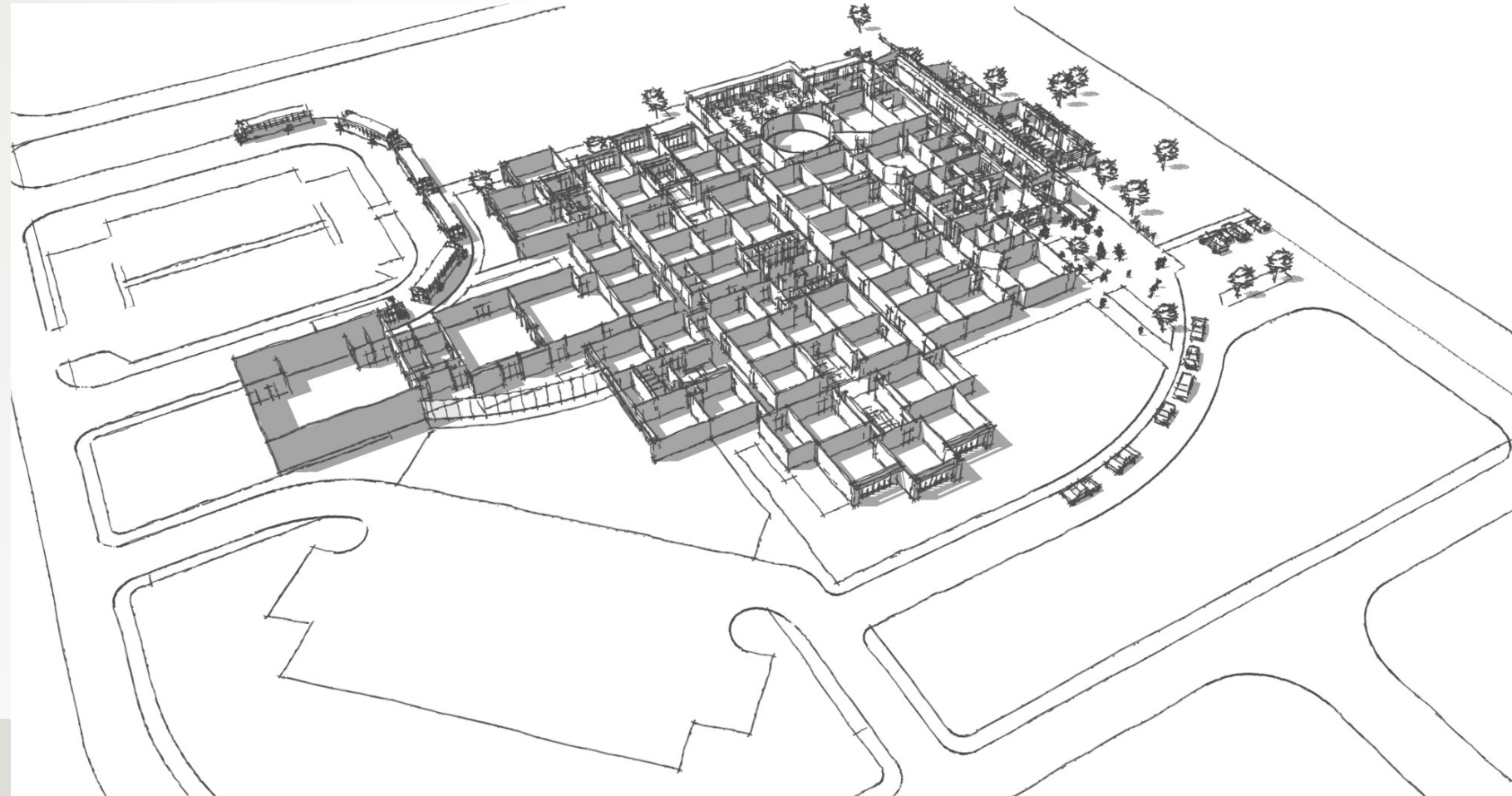


Figure 39. Site View of the proposed additions at Grove Elementary.

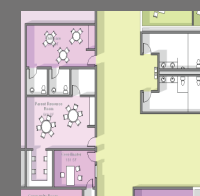
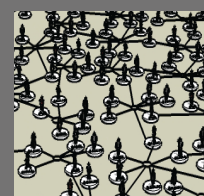
Analysis: The Pre-Questions

speaking, creating the games was no more difficult than using a standard word processor program. Organizing and orchestrating a series of events to create collaboration will take time and additional effort. I would not be so bold as to estimate that the additional time spent will be made up by more efficient or fewer meetings. Or, rather than investing hours in face to face meetings, time and billable hours will be saved by collecting and assimilating design data online. The reality is the process of online collaboration adds the burden of responsibility and expectation to the design team, which I found irrepressibly exciting. If the client has a series of goals for what the design should accomplish (concept, form, service) they now have the ability to internally measure the successes and failures of the work. Where time should be saved by the design team is through a more clear line of communication and understanding for the goals of a project, and less guesswork about the client's values. Those items should translate directly into the design process ideally reducing plan reworks and fewer concept sales pitches. The goal should be for the client to take ownership of the design as opposed to the sense of a need to "buy in" to a process or concept.

Would the client, or client group feel as though their time with the online collaborative components added value to the process?

I spoke with both clients near completion of their projects. Lisa Owen of White River described how it did a great job, in particular by providing anonymity, of collecting members that are located all over the United States. She would have liked more open ended, or branching questions for the opportunity to dig deeper into the issues that were presented.

Would an online environment make the relationship with the client seem less personal?



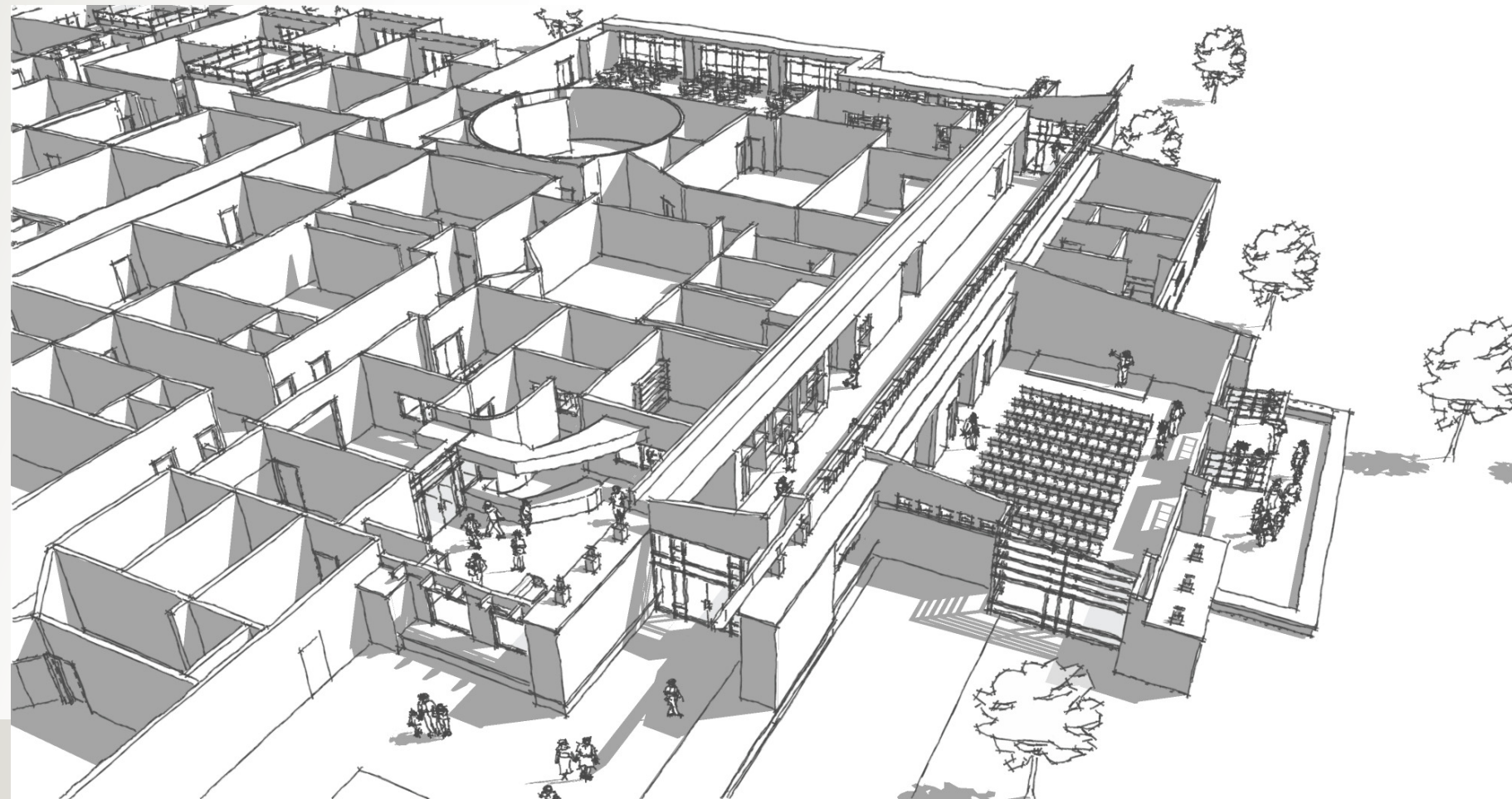


Figure 40. "Open Can" View of the proposed Community Wing at Grove elementary.

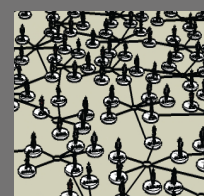
Analysis: The Post-Questions

Kim Bern's response to this question was probably the most poignant of our conversations regarding the conclusion of the online component: "I didn't think working online made the design team less personable at all! For me personally, I spend my days with students, teachers, and parents. I usually don't sit down to this type of a project until later in the evening."

Appropriate for any research project, is the fact that unknown issues have a tendency of surfacing throughout the process. The following issues perhaps should have been noted before each project started, but were realized at some point during the online collaboration process.

Is there a threat to professional structures?

As a result of doing research regarding online collaboration, a common theme is how it changes the typical corporate structure. While that is viewable as a research topic, I actually didn't realize that by creating a collaborative environment as a design process, I would be actively destructing whatever corporate hierarchy I might be working with. In hindsight, *of course* I would be empowering a second grade student with as much input as the director of facilities and management with the Union School District. The question I failed to ask upon entering is: Will the upper management be receptive to the information and change their established hierarchy? This is something that needs to be understood before entering into a collaborative relationship with a client...in particular the "paying client." If there is an understanding at the upper management level that someone will make all the decisions despite any data or input, the opportunities provided by any type of collaboration have already been lost.



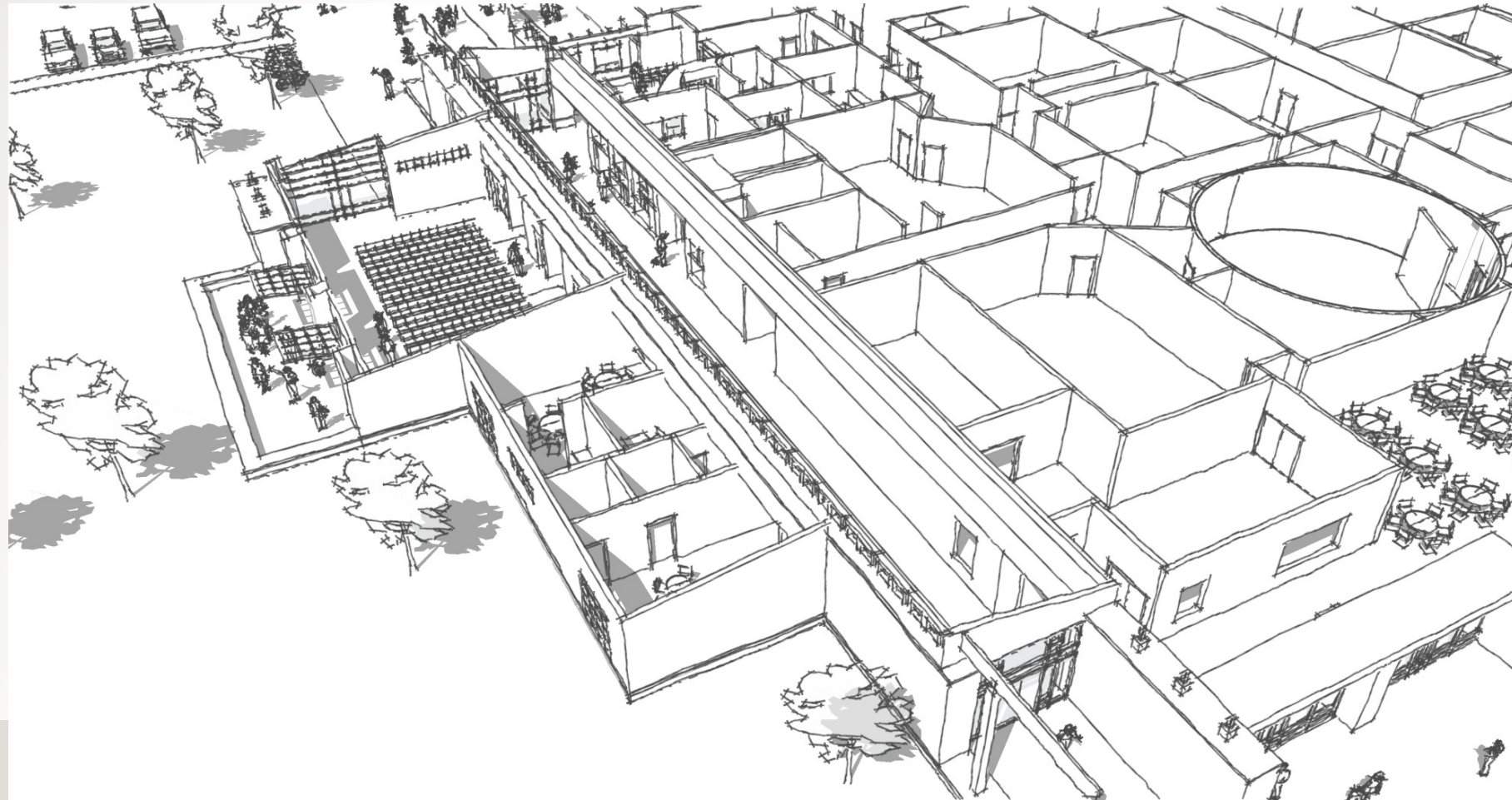


Figure 41. "Open Can" view of the proposed Community Wing addition Grove Elementary.

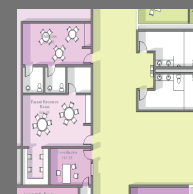
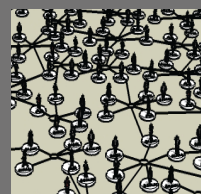
Analysis. The Pre-Questions:

In my opinion, the best companies and organizations are always looking for the opportunity to empower their base. This is true for a community group, church, or school system. Providing the base or crowd of any corporate structure the ability to make changes to improve their potential, creates a sense of energy and ownership. It takes the right kind of group environment and leadership to follow through with the process and allow a truly collaborative approach to design.

How can the limitations of Google and its forms be overcome?

The forms from Google Docs were a great choice, more flexible than Survey Monkey or other free sources (though less restricted) which collect data. Google's ability to tie seamlessly its Google Sites, GMail, and Google Docs' spreadsheet was incredibly valuable and made working and mining the data easy. However, the forms had some annoying limitations:

- On clicking the submit button at the bottom of the a form, the only action available was an on screen message saying "Thanks." Clicking a submit button that would also activate a link or pathway to a different page would add clarity to the process of participating in multiple design games.
- The forms themselves do not have any security measures to ensure individual answers from one single person. Other online surveys offer some level of security, Google needs to do the same.
- While the forms embed in a fairly seamless way, there still needs to be more fluid integration with sizes and images within the form.



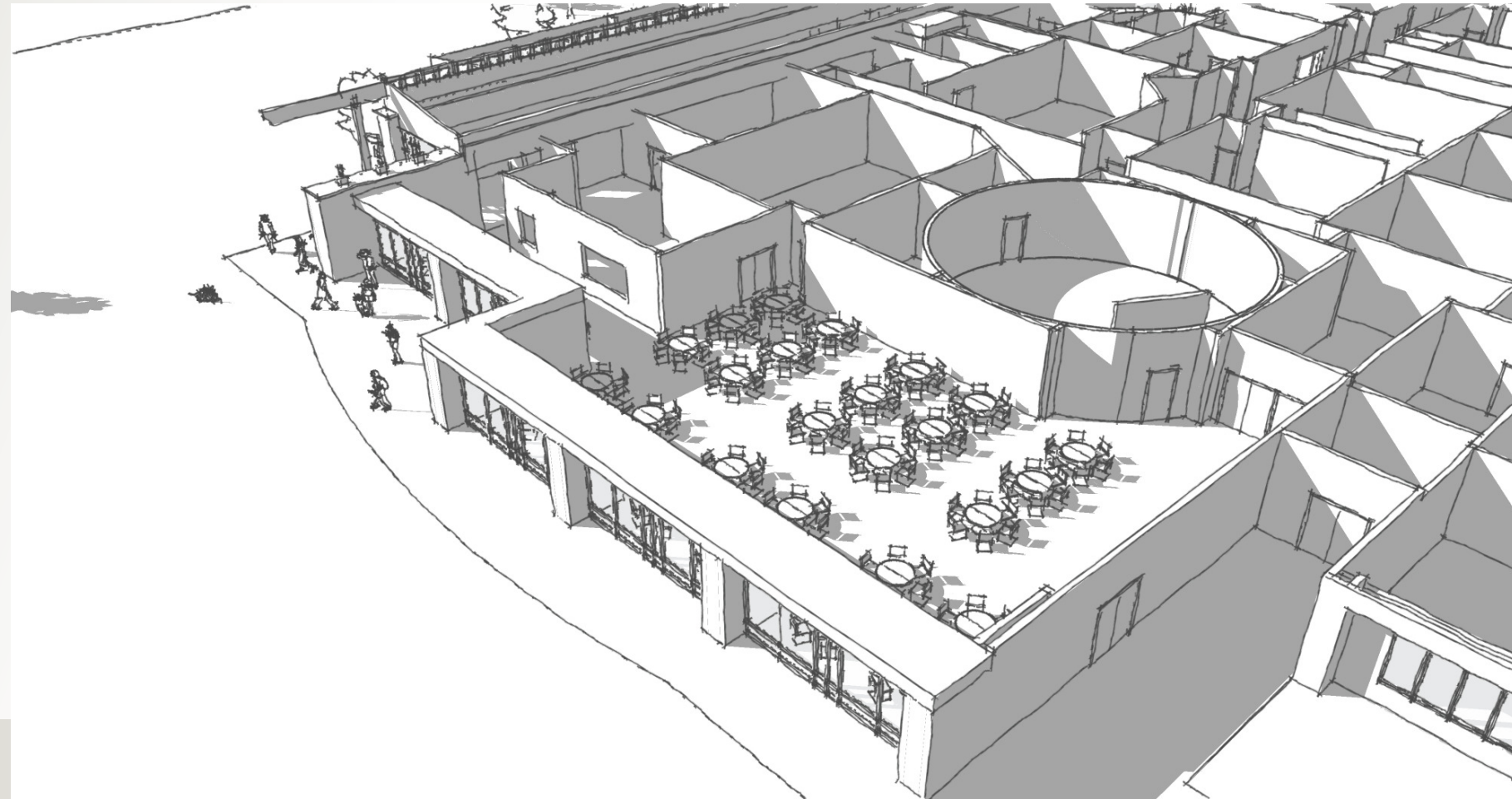


Figure 4.2. "Open Can" view of the proposed Cafeteria at Grove Elementary.

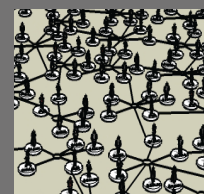
Analysis: The Pre-Questions

What are software costs and limitations?

Entering into the research the goal was to use all free, or pre-existing software that would already be in use in a design office. With this goal in mind the original approach was Google Earth (the base program is free while the pro version has a fee associated with it) and Google Sites. However, Google Earth would not allow the flow of information in two different directions. It only displayed information on screen and would not transmit information back. As a result it was cut early on. Once that happened, I was pretty much left with a requirement to find the right piece of software to create online content. The software I settled on was Esperient Creator, which cost \$500. This is a minor expense in the overall scheme of software costs. I feel it would not inhibit any design office from making the move to online interactive content. The client side viewer is free, though you do have to provide your own web site and server to host the files.

What is the best way to address the major drop off in interactive responses?

Throughout both project examples, there was a major drop off in responses regarding the games for the interactive files. The reason I believe, is actually the process of how internet explorer works. The first time a client visits an interactive site with 3d content from Esperient (or any online 3d application for that matter) the user must install a new piece of software. This is handled automatically by Internet Explorer, and with a reasonable internet connection only takes about two minutes. However, Internet Explorer immediately begins to spout several computer related dooms day warnings regarding software installs, viruses, and trusted sources. While computers are becoming a part of daily (if not hourly) life, the average user is typically content with their



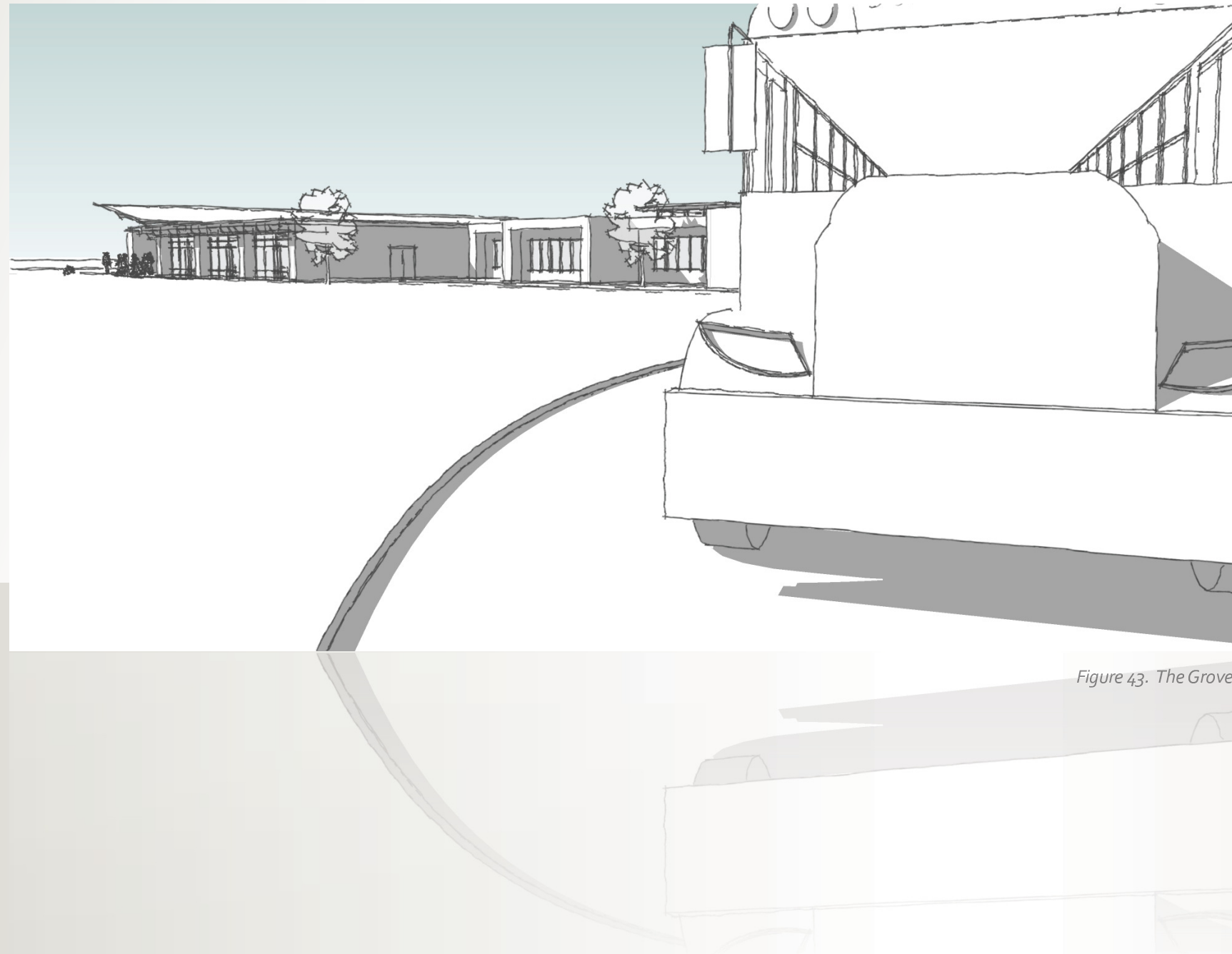


Figure 43. The Grove Bus Loop.

Analysis: The Post-Questions

computer and fears its potential alteration. I believe (and have been informed directly by several users) that when messages popped up on client computers, they exited the site. Beyond this predicament, the staff at Grove had user privileges set to each computer, not allowing them to install software even if they decided to. This is a problem with Internet Explorer, which is too easy to exploit, breach security, and thus creates incredible paranoia by its users. A system of registration and automatic background installation by major application authors (like Esperient) could remedy the problem, much in the same way that media players will automatically grab, install, and update playable video formats.

The possible solution (because Microsoft is not going to change at my suggestion) is a different, more fully integrated piece of software that can exist both offline and online. I have not been able to find such a thing, but there is a developer getting close. Their product, Visibuild, is currently set to act as a host for interactive architectural content. They are prebuilding tools specifically for architects, as well as tools to help with importing and manipulating 3d files from common architectural programs like Revit, SketchUp, and AutoCAD. Their cost will be structured around a monthly fees to host projects. I am hoping they also allow a user to pay a one time cost for software and tools to host projects either offline, or on the design team's own web site. A specific program, instead of something that is merged into an existing piece of software like Internet Explorer, may let people feel more at ease with installing a new program. It would also have far more clarity in terms of the process. This would not fix Grove's problem of user privilege system not allowing a software install. However, adding a single stand alone program should be easier for a computer staff to add through an update across multiple systems from a server or through a rollout process. The other option

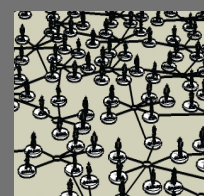




Figure 44. Grove Elementary, South Community Wing Entry.

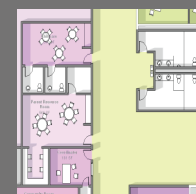
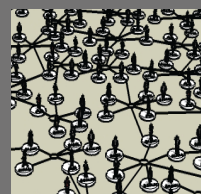
Analysis: The Post-Questions

may be to start from scratch and build an application around a video game engine (which would allow realtime interactive 3d) with a set of tools specific to architecture. That again could also improve the install process. Ultimately, as generations become more comfortable with the computer, the drop off dilemma may resolve itself.

How do we integrate the concept of online design collaboration beyond the conceptual phase? Can we actually create a process that allows the client to push and pull spatial arrangements rather than simply seeing a series of prearranged diagrams? Can we allow for material exploration? Exploration of form? Should the design team limit, or draw a line in the sand regarding an end point of collaboration and the application of the data?

In my imagined world of collaborative design, I would see an opportunity where a client would be given small directed tasks. These tasks would require no more computer skill than navigation and selection with a mouse. The tasks would be carefully orchestrated games created by the design team to resolve issues through a collaborative environment. If a client had complete mastery of 3d computer applications and practiced knowledge of form, space, and order (more than just reading the book on it), then the end user or client could be given significantly more control. This would result in more opportunities to define spaces, forms, and relationships between elements *with* the design team.

A studied sequence of immersion into an interactive 3d space is one of the next elements I am excited to explore. I think a client can be given additional opportunities through options, guided inquiry, and feedback by asking the right questions. By phasing the process, amazing collaboration could begin happening by working with a



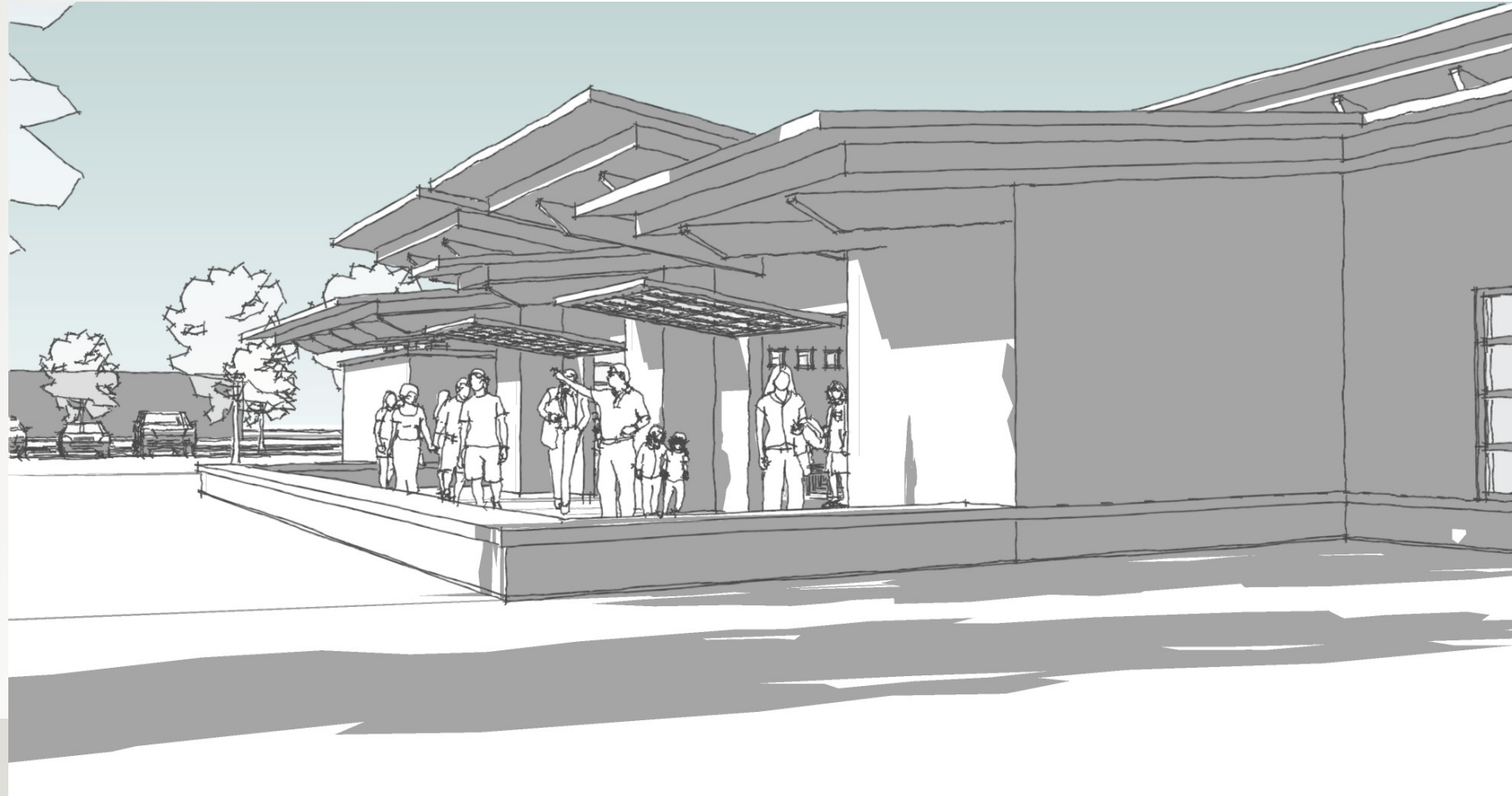


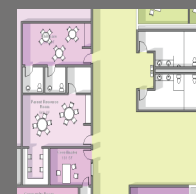
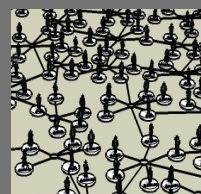
Figure 45. Community Room Courtyard showing overhead doors at Grove Elementary.

Analysis: The Post-Questions

large diverse team which could explore materials, shapes, forms, and finishes. If too much information is requested at one time, it would be difficult to achieve clarity with the results and extrapolate good design data. However, if the design team was able to clearly convey a structured series of interactive 3d games which build in sequence, complexity, or topics, the resulting collaboration could be extremely positive for both the client and design team. The core idea: Imply content and orchestrate action to generate thoughtful discussions and relevant design.

Is it possible to create crowd source design with clients?

This is an achievable concept within the design professions and is already happening through groups like Wikitecture and Architecture for Humanity. Professional to professional crowd source, or mass internet collaboration is achievable by the process of overlaying areas of expertise. I do not think that crowd source design with clients would be successful without direct manipulation, and consolidation of ideas and concepts by a design professional. I do think however, that client crowd source designing *will* happen. This is no different then the paradigm shift currently happening in the corporate structure. If the design industry cannot be acutely responsive to the needs of a client group (the crowd), the group will migrate to another solution. If the design industry would embrace this shift and allow the crowd to design, it would generate more work for design professionals. We could form more innovative solutions by tapping the collective imaginations from diverse backgrounds, and create spaces that are inclusive and multifunctional.



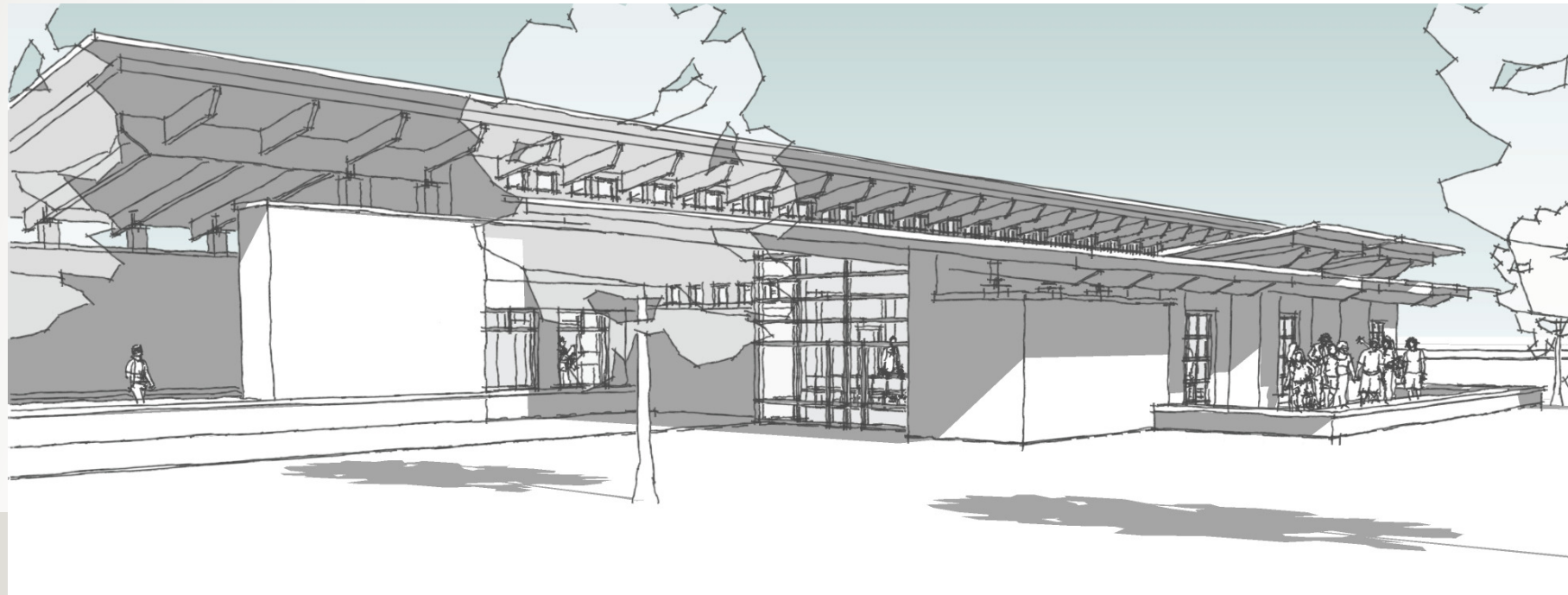


Figure 46. Grove Elementary West (Park Side) Elevation.

The Conclusive Opening of New Steps:

Currently there is a great deal of effort going into the process of creating realtime online 3d web sites. Every major software company with 3d modeling package is trying to figure out how to create leverage in the market. Every Building Information Modeling (BIM) package is looking at online techniques for designers to display their work. However, the discussion of online integration in the design process needs to be deeper than simply a mode of design representation. The opportunity exists to collaborate with a client group, or the client “crowd” to be a source of inspiration and imagination for a project. To accomplish this effectively, the design team must orchestrate action on the site and steer the collaborative process to achieve specific goals, create consensus, and develop client ownership of the design.

The concept of crowd source design has the potential to create truly innovative solutions to complex answers, and generate designs that are responsive on a societal level. I have discovered through this process that I am only skimming the surface of the opportunities to accomplish these tasks. More work needs to be done to modernize the questions, games, and interactions that can be done in an online environment. The web is ready to host anything, but there are serious software limitations for designers without extensive web programming skills to create new strategies. The tools are there, but they need to evolve with the help of designers to help create a process, not a just a product. Interactive online files need to be improved so there are fewer software barriers, and easier immersion into the process.

Innovative leadership and organizations in the future will orchestrate action and provide structure, but will allow their clients to create their own content through collaboration. This will be done by creating an online web of collaboration in an environment of play that evokes learning and imagination to solve problems.

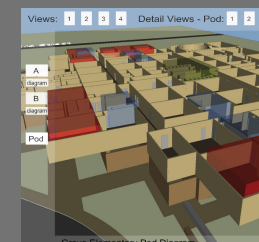
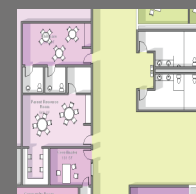
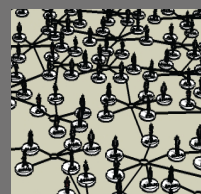




Figure 47. Proposed Grove Elementary Entry.

References:

Al-Kodmany, Kheir. Combining Artistry and Technology in Participatory Community Planning. *Berkley Planning Journal*, Issue 13, 1999. Pages 28-36.

- This planning article covers the concepts of introducing community partners, or non-paying clients, to visual information in an online format: Data, design, analysis, etc.

Al-Kodmany, Kheir. Professor at University of Illinois at Chicago.

- Kheir Al-Kodmany is an Urban Design Studio Professor at the University of Illinois at Chicago. His specialization is teaching visualization of urban spaces, and data in an online format.

Bonebrake, Zack. Programmer and wrangler of impossibly difficult concepts into applications by means of "code."

Brown, Martin C. *Hacking Google Maps and Google Earth*. Wiley Publishing, Inc., Indianapolis, Indiana, 2006.

- This book covers the modifications and overlay of data possible inside of the Google Earth.

Crowder, David A. *Google Earth for Dummies*. Wiley Publishing Inc., Indianapolis, Indiana, 2007.

- Entry level book that covers the basic examples of creating and viewing content inside of Google Earth.

Garrot, Jay. Professor, Drury University – Community Design Studio.

- Jay Garrot has been working with community based design throughout his career as a professor of architecture. He has extensive experience in working with communities on design strategies, presentations, and information gathering.

Google Earth Outreach. <http://earth.google.com/outreach/index.html>

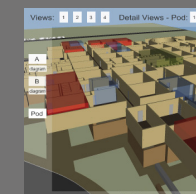
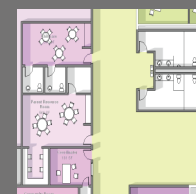
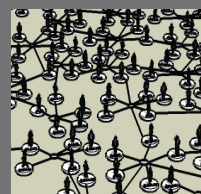
- Web site to promote the use, and education of the tools contained in Google Earth.

Dr. Hudson-Smith, Andrew. Booklet: *Digital Geography - Geographic Visualization for Urban Environments*. 2007.

- Blog booklet reviewing, or as the author calls it cook book of visualization tools.

Dr. Hudson-Smith, Andrew. Centre for Advanced Spatial Analysis, University College London.

- Dr. Hudson-Smith runs the web site "digitalurban" and is a professor at University College in London. His specialty is presenting and researching digital design methods.



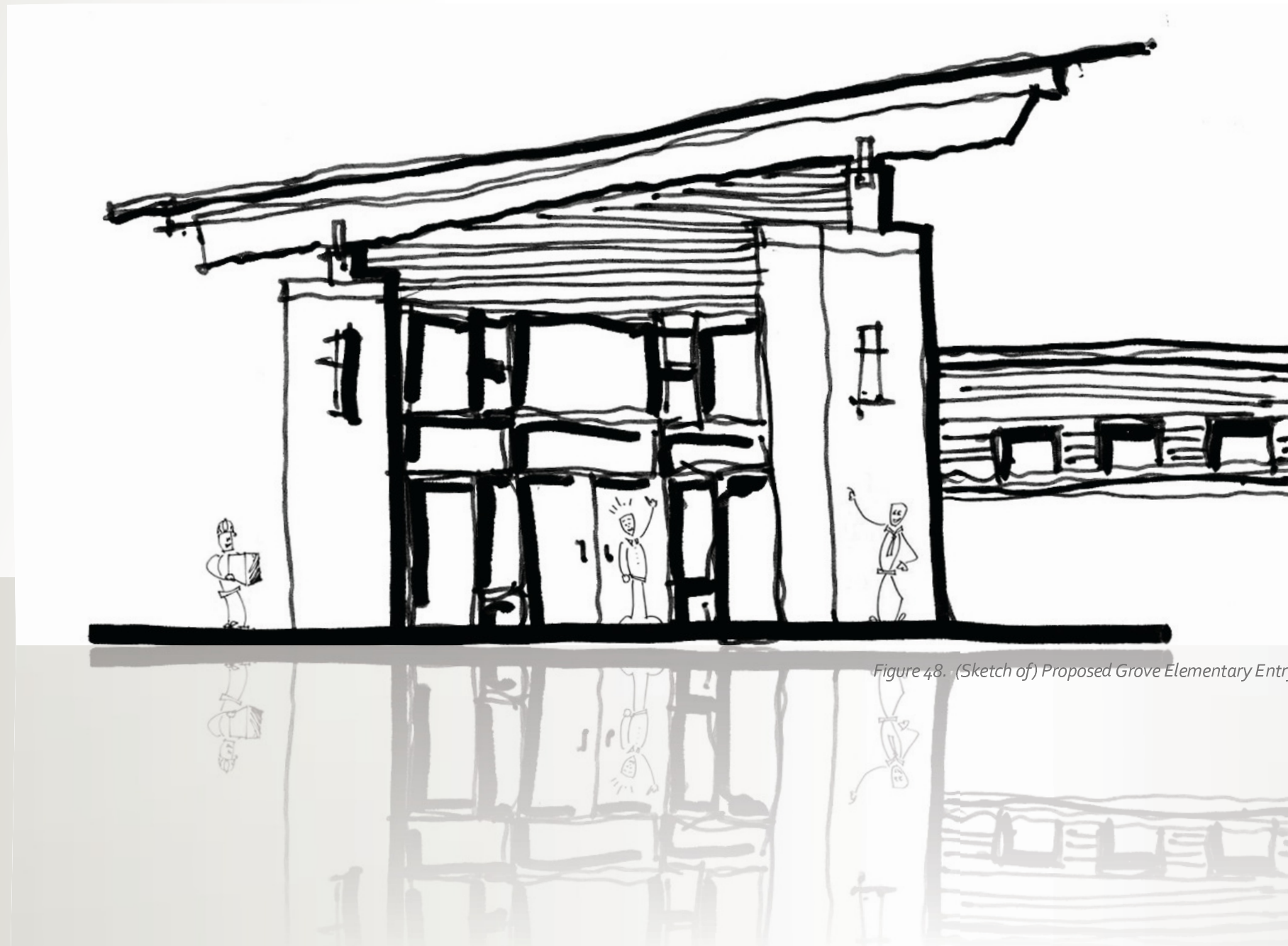


Figure 48. (Sketch of) Proposed Grove Elementary Entry.

References:

Kerner, Matt. Educara – Programmer, software developer (and pastor).
• Matt Kerner is an advanced computer programmer, and co-founder of interactive content company Educara which specializes in creating online tools for education, training, information gathering, etc.

Kelly, Kevin. Wired magazine. Information taken from TED Talks Lecture, 2007.

Sanoff, Henry. Visual Research Methods in Design. Van Nostrand Reinhold, New York, 1991.

- Sanoff, Henry. Schools Designed with Community Participation. In association with The National Clearinghouse for Educational Facilities.

Sanoff, Henry. School Building Assessment Methods.

- In association with The National Clearinghouse for Educational Facilities, this book creates a process of evaluation for educational buildings.

Sanoff, Henry. Design Games. William Kaufmann, Los Altos, California, 1979.

- Outlines the strategy of creating games to evoke client interaction, creativity, and consensus in decision making on planning and design.

Sanoff, Henry. Professor – North Carolina State University – Architectural Programming through client interaction.

- Henry Sanoff is an author and professor of architecture. He has extensive experience in working with communities, and the creation of strategies for the collection, discernment, and integration of community or group based design.

Schaeffer, Shawn. Professor – The University of Oklahoma, Urban Design Studio.

Shirky, Clay. Here Comes Everybody. The Penguin Press, New York, 2008.

- This book is an overview of how the net has empowered groups of individuals to create organizations without the traditional structure of business, place, and hierarchy...as well as the impact of this on business.

Swadley, Gary and Rick Clark. Technology administrators at Drury University, and responsible for helping me learn how to post a file to a the Drury www2 server that the world can see.

Wales, Jimmy. Founder Wikimedia. Notes taken from TED Talks Lecture from 2005. (http://www.ted.com/index.php/talks/jimmy_wales_on_the_birth_of_wikipedia.html)

