Effective Communication of Scenic Design

Assessing the Effectiveness of Digital Scenic Design Techniques Over Traditional Methods.

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Introduction

With the evolution of technology, designers have pushed away from traditional, manual techniques and found new forms to express their design ideas and concepts by using digital applications and programs. As computers have become more proficient at creating virtual worlds, some designers now only use digital programs to convey their designs. This brings to question if the digital medium for communicating design concepts is as effective as the traditional, manual techniques. This study proposes that the most effective way to communicate design ideas to the director is digitally rather than manually.

Virtual models are more effective in communicating theatrical production designs with the amount of visual fidelity that computer programs are capable of delivering, such as how it articulates texture, scale, movement, and lighting. These Software developers have continued to adapt their software and skills, to the desires and needs of the users and to be more effective at creating virtual worlds.

This study asks: How do digital mediums (virtual programs and applications) affect the interpretive process of the scenic design, versus that of manual; does using digital means over manual means affect the overall design of the show—can the computer get in the way of the tactical, organic qualities that come from manual design; which mediums are specifically better suited for the style of a show; are there factors that influence how a design is effectively communicated to the production team; does using only digital

mediums to create scenic concepts hinder the quality of the design; and how much labor and money are used in either circumstance?

The scope of this research will primarily focus on two production designs, influencing factors from a few other previously completed scenic designs, and with work presented from other professional designers—that provides insight into effective communication techniques. This analysis will highlight both the positives and negatives as brought to life through a variety of design experiences.

1

Historical Background of Scenic Design Techniques

The 20th-century designers who created a scenic design style, often referred to as The New Stagecraft, include Robert Edmond Jones, Norma Bel Geddes, and Jo Mielziner, to name a few. The New Stagecraft standards for communicating scenic design concepts were created around the use of hand-drawn sketches, physical three-dimensional scale models, hand drafted designer elevations and hand painted watercolor renderings and paint elevations. Essentially, manual work is typically work done with the designer's hands. Figure 1 is an initial sketch done by Jo Mielziner for *The Innocents* in 1950.

Figure 1: Jo Mielziner's The Innocents Hand Sketch

Jo Mielziner, 1950. Source: New York Public Library for the Performing Arts

With the emergence of computers, digital programs like AutoCAD (C.A.D.-Computer Aided Design) and Vectorworks created a digital platform for the scenic designer to create computerized scale draftings and drawings. Draftings are scaled drawings of individual units that make up the scenic design presented; these draftings present isolated views like top view, side view, isometric, and section. (See Appendix 2, 11, and 12 for examples of C.A.D. draftings) C.A.D. programs started out being able to create two-dimensional drawings but soon developed into programs that could create full-fledged three-dimensional virtual designs. In addition, Adobe Photoshop (a photo editing and manipulation program) and the rest of the Adobe Suite (Illustrator, InDesign, Premier, etc.) have become useful applications for digitally visualizing the design. Figure 2 is an example of a Vectorworks digital rendering from David Arsenault, a New York City-based scenic designer.

Figure 2: David Arsenault's The Foreigner Digital Rendering

David Arsenault, 2018 Source: David Arsenault

Designers typically use Photoshop to create paint elevations (illustrations of paint treatments for units) and renderings. Newer programs have since emerged, such as Google Sketchup, that make it easier to create "rough sketch" versions of a design in 3D without the need for C.A.D. experience. Designers can then import digitally "painted" elevations from Photoshop into the Sketchup file, apply lighting, and export a quality rendering; or, the designer may elect to create the ground plan and three-dimensional virtual model in the Vectorworks application. For the creation of renderings, Figure 3 is an example from David Robertson's (a designer from New York City) work in CAD programs and SketchUp to create a virtual model of *The Newsies.*

Figure 3: David Roberston's Newsie Digital Rendering

David McQuillen Robertson, 2018. Source: David McQuillen Robertson

In scenic design today there is an argument for and against the use of digital methods for communicating design ideas. There is an argument over which method is most effective, manual or digital.

This exploration focuses on the quality and efficiency of effective conversation and deliverance of ideas and not the individual style of designer. Moreover, this thesis specifically focuses on the two forms of communication that scenic designers currently employ- Manual and Digital. The data collected for this study is centered around the design process of *The 25th Annual Putnam County Spelling Bee* and *Rent,* and three previously designed shows shared in Appendices 6, 7, and 8. For the sake of this study, these two shows are being developed differently in order to collect comparative data; *Spelling Bee* is an entirely manually rendered design, while *Rent* is an entirely digital design.

2

Theory and Design

The analysis of the data collected and the effectiveness of either the manual or digital approach will be analyzed using Media Ecology Theory, which tries to discover the specifics of how the *structure* of media, technology, and information makes us feel, act, or respond in human environments (Postman). Ecology refers to the environment in which the medium is used and how it affects the viewers. This theory encompasses how much or how little a medium can help communicate its message to the audience. For this study, we will be looking at how effective each step of the design process for *Spelling Bee* and *Rent* was at delivering scenic design concepts based on the response or actions of the director.

Spelling Bee

The 25th Annual Putnam County Spelling Bee is a contemporary musical where six awkward spellers discover that life is not just about spelling or the "Bee" and that it is more than just about winning or losing. These early teens share charming, humorous, and touching stories from their lives on their journey to winning the Bee. For the design of *Spelling Bee,* I manually created sketches, physical 3D scale models, hand elevations, and storyboards.

Like the design for any play, the process always starts with reading the script, figuring out the through-line of the story and discovering what the director envisions, followed by

numerous meetings with the director. The director for this specific production of *Spelling Bee* expressed that he was interested in seeing:

- How improvisational theatre inspires the show and character development
- The "transformation" in the emotional components of the show.
- Emotional expression in design
- Realities of the gym and transformation of the fantasy scenes
- The magic of the *Bee*
- A school gym, which is likely not in great shape, as the basis of the set,

During this initial design meeting and a side meeting with the director I brought to light my initial inspirations and questions:

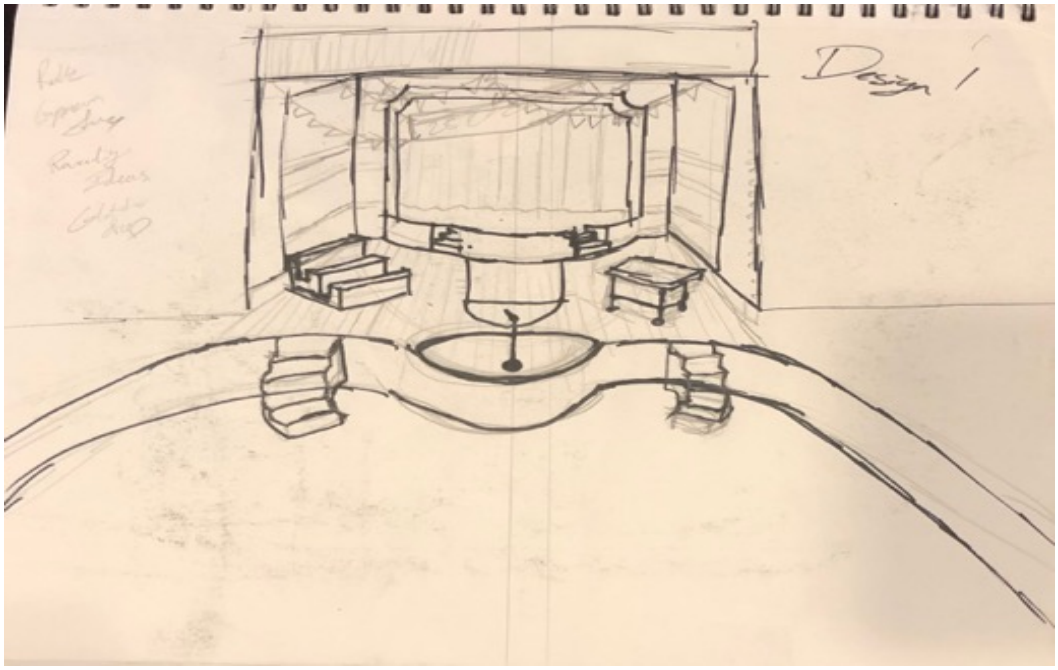
- Inspirations
    - Letting the story and scenes of the play come to life through the progression of the scenes in a graphic novel
    - Inspired by the sun rising over a bay of water
        - where it grows from black of night to white of the rise rising, to flowing golden gradients of the early morning sun to then the turquoise colors of water
    - How the characters are inspired when they reach the mic and how they transform for their experience at the Bee.
- Questions
    - How do we maintain the pacing of the comedy in the script?

- Are we using the volunteer audience members? How do they enter and exit the world of the play?
- How do we want to treat/explore the combination of fantasy sketches present in the following scenes?
  - My Friend the Dictionary
  - I Love You Song
  - Magic Foot
  - Woe Is Me
  - Woe Is Me (Reprise)
  - Pandemonium
  - Six Languages
  - Coneybear Family Scene
  - Schwarzy Dad Scene
- Do we see the play being presented in the present; or are the characters adults reflecting on their time at the Bee and how it got them to the point that they are at now?

By the end of the meeting, the director was able to respond to my questions and inspirations, and I was able to hear from the other designers about their inspirations from reading the show. After I left the meeting, I started to gather some research, explore my inspirations, and start to figure out the direction I saw the show going in. I was able to come up with three quick hand sketches for the *Spelling Bee* design (See Figures 4, 5, and 6) These were done with a pencil, felt pen, and sketch paper. The simplicity of the sketch

allows for flexibility to change the design. An insignificant amount of time was used to create the drawing, so it does not seem as set in stone to the design team..

Figure 4: Spelling Bee Initial Sketch 1



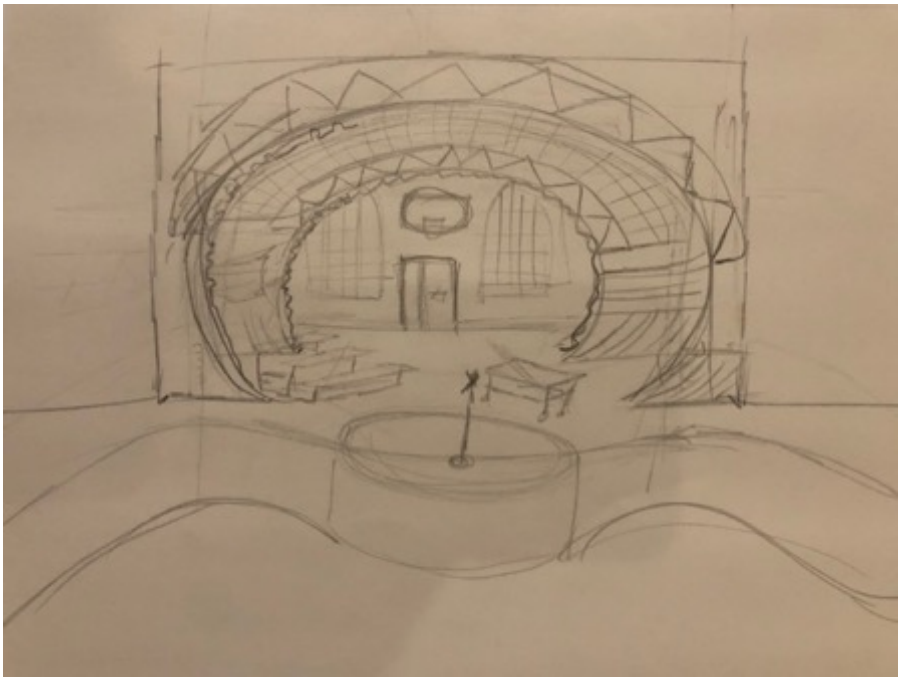
This design of Figure 4 focused on the director's desire for a gymnasium setting. Through my research, I noticed a lot of gymnasiums also double as an auditorium, so I designed a stage to be the focal point to put the fantasy scenes of the show on. The "inner stage" came from our conversations about having a theatrical stage within the gymnasium of the play. I was inspired also by the concept of the "sketches"— this concept would allow the set to be painted like the pages of a child's sketchbook with sketches, notes, and drawings that would eventually create the world of the gym. I tried to convey this design through research images (See Appendix 4) that were related to the design of the angled walls on either side of the stage. I do not think that was successful in how the ideas were delivered. It seemed to confuse the director because I don't think I provided enough detail

within the sketch, so his response to the sketch at hand became clouded. I do think it was successful at setting a base shape for the set and a general direction.

Figure 5: Spelling Bee Initial Sketch 2

Figure 5 was successful at communicating the basic idea of my inspiration for focusing in a specific area of the gym—the bleachers—and supporting the improv theatre inspiration that the director offered. I hoped that the actors would use the bleachers as their acting space— like in improv theatre—the levels of the bleachers could establish new locations and different scenes with the help of lighting and possibly projections on the cyclorama. The director could not find a way to stage action of the gymnasium bleachers.

Figure 6: Spelling Bee Initial Sketch 3



This final rough sketch (Figure 6) tried to encompass a bit of musical comedy. This sketch was successful at delivering the message, but it just was not the direction the director wanted to go with the show. The design was too unrealistic for his desires.

With these three designs (Figure 4, 5, and 6), it was a relatively simple way to start off conversations for *Spelling Bee*. All-in-all, for the three sketches and my initial research it took me about an hour and a half. If I had put extra time into the rough sketches the structure of the media would have significantly changed how the design team and director responded to the images provide. This may have left the impression that the design was more set-in-stone and non-amenable.

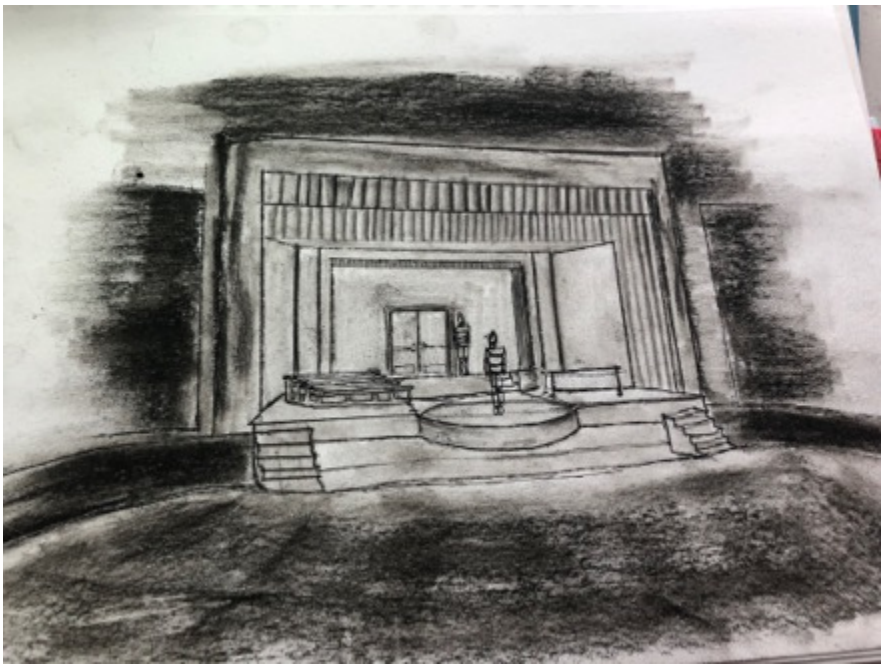
Moving forward, the director wanted to pursue using the concept of an "inner stage" within the gymnasium and using that space to create the fantasy scenes. There are ten "fantasy scenes" that occur in the script:

- My Friend the Dictionary
  - Olive spends her free time reading her dictionary, so she has formed a special bond with it.
- I Love You Song
  - Olive's desperate notion for how she misses the support of her mom and dad and longs for their comfort
- Magic Foot
  - Barfee demonstrates his magical talent of a foot that spells the word out for him before he says it.
- Woe Is Me
  - Schwarzy's haunting dream of how she aims for perfection constantly and wants to please "America"
- Woe Is Me (Reprise)
  - Schwarzy purposefully flunks a word and sings about her decision.
- Pandemonium
  - Leaf Coneybear and the rest of the spellers explain their frustration in how inconsistent the words are in the Bee.
- Six Languages
  - Marcy's explanation of all of her many talents, which includes speaking six languages, playing the piano, dancing, sports, etc.

- Coneybear Family Scene
    - The Coneybear Family reenacts a flashback from Leaf's phone call that he would be in the Bee
- Schwarzy Dad Scene
    - Schwarzy's dads have two scenes where they come on stage as a flashback.

As the manual design process evolved it became important to detail the design of the *Spelling Bee*—specifically the realistic world of "The Bee". With that, I created a more detailed sketch of my original design inspiration found in Figure 4. (Figure 7).

Figure 7: Spelling Bee Detailed Sketch



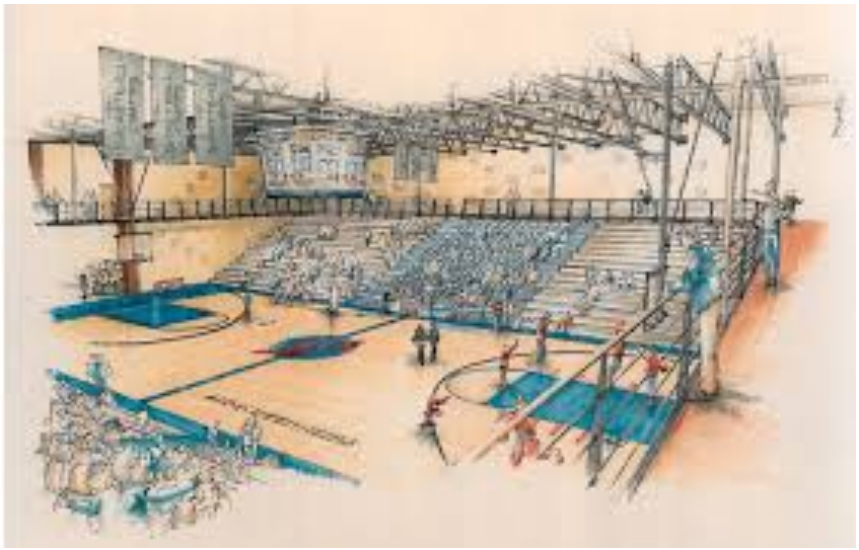
Along with Figure 7, I provided research images to help describe the idea of the comedy in the sketches that comes to life as the characters make the decisions in their lives and grow with the progression of the show; this idea essentially became my concept for

how the fantasy world fits into the realistic world and how they are juxtaposed. The research images below helped to inform the visual appearance of the realistic world in juxtaposition to the fantasy world. The walls of the set would be painted to look like a child drew them (Figure 8 and 9). This sketch book feel would translate to the gymnasium with disproportionate ratios and a watercolor treatment to a muted grey base (Figure 10). The idea of the show being a sketchbook with the characters putting on a series of sketches, that are the fantasy scenes. The walls would look like the paper of the sketchbook (See Figure 9) with the actors and action on stage being the sketches on those pages.

Figure 8: Spelling Bee Sketch Book Research Image 1

Figure 9: Spelling Bee Sketch Book Research Image 2

Figure 10: Spelling Bee Sketch Book Research Image 3



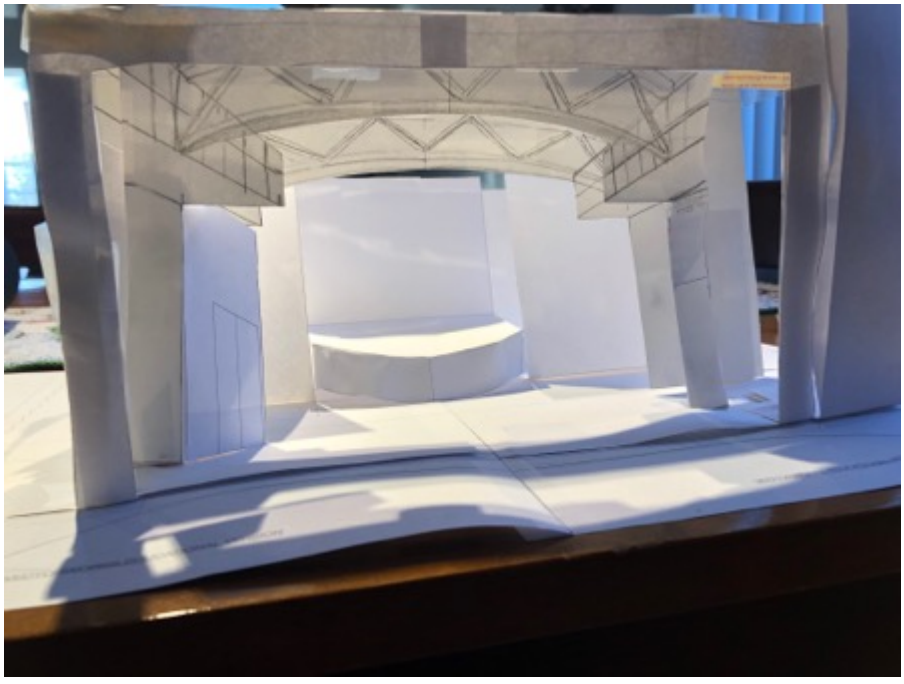
These images were effective at delivering the information I wanted them to because of their specificity—how I envisioned the sketchbook concept in my head.

But the director pushed back against these images; instead, the director asked for the world of the gym to be treated as "realistic" as possible, while the fantasy scenes of the play would be interpretations of the character's mind or sketch book. At this stage, my original concept for the fantasy scenes exploded with new inspiration from the director. The concept grew, with the fantasy world presented in the "inner stage" of the design like the inner-workings of the characters minds. The fantasy scenes now ranged from a Teletubbies (a 1990s children's cartoon named after the multicolored creatures) landscape scene with a seven-foot-tall dancing dictionary to a child-like journey through hell.

With these responses from the director and our conversation, it was important to figure out the specifics of the realistic world, how it ties into the play, and how we get into the fantasy scenes. With the realistic gym in mind, I challenged my original interpretation for the design (Figure 7) by providing additional options since a "realistic" interpretation could come in a variety of different identities. For one of the ideas, I found it important to create a smash model (a model that takes minimal time and effort in creating but helps to build the set in the 3D world to communicate ideas) (See Figure 11 and 12)

Figure 11: Sketch for Smash Model

Figure 12: Smash Model



With the design in Figure 11 and 12, I wanted to play up the musical comedy aspect of the set with theatrically designed perspective legs that recede into the distance with painted three-dimensional details. The perspective legs would give flexibility for:

- how to treat the fantasy scenes
- allow for scenic wagons to bring on scenic elements for the fantasy scenes
- allow for the desk and the risers to be pushed on and off stage
- help to pull some of the action from the "inner stage" downstage.

It was really effective to create the smash model in order to show the available space for the performance on stage. The smash model also helped to communicate directly to the director how the perspective legs would look on stage.

This third iteration of the inner stage focused (Figure 13) on creating the "most realistic" environment. This design is trying to manipulate the walls to show two sides of the gym, giving the opportunity to exit through the doors, still have the inner stage action, and hopefully, pull the action out of the inner stage and onto the gymnasium floor.

Figure 13: Spelling Bee Gym Hand Sketch 3

These images were shared with the director over an email while we were between scheduled Design Meetings. The director responded that he could not grasp the full idea of the images provided. I continued to question what was not being conveyed properly, but I figured the best option was to continue forward and prepare white models for the meeting (Figure 14, 15, and 16). White models are essentially what they sound like, a model without all the detail, simple shapes, and unpainted—typically white. White models are made with scale building material (material purposely created for the purpose of scale model making) are not as simple as smash models. What white models do so well is they effectively communicate how the set fits in the space, how actors will look around it, and how the spacing works for scene changes because they are scale representations of the theatre and the set. This is something that you just do not achieve from virtual models because there is a physical scaled replica of the set-in front of the design team. See the White Models below.

Figure 14: White Model for Figure 7

Figure 15: White Model for Figure 11

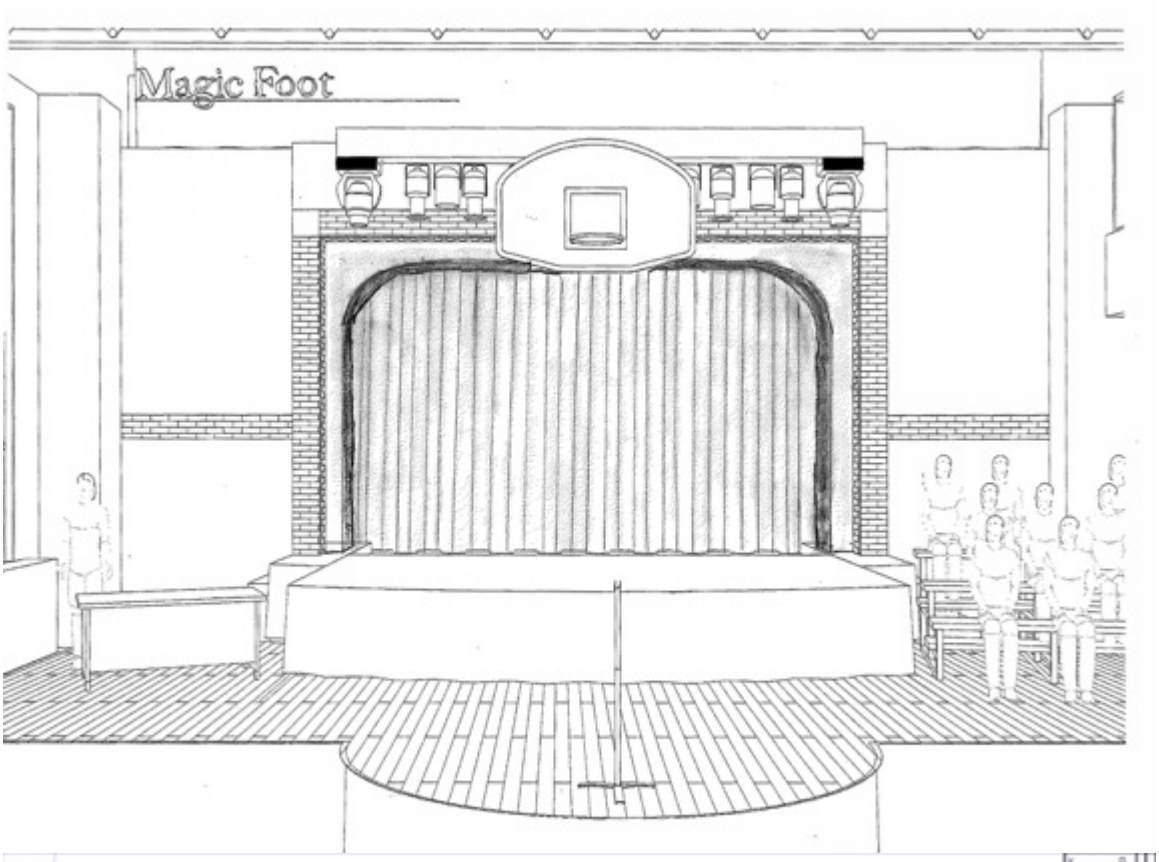
Figure 16: White Model for Figure 13

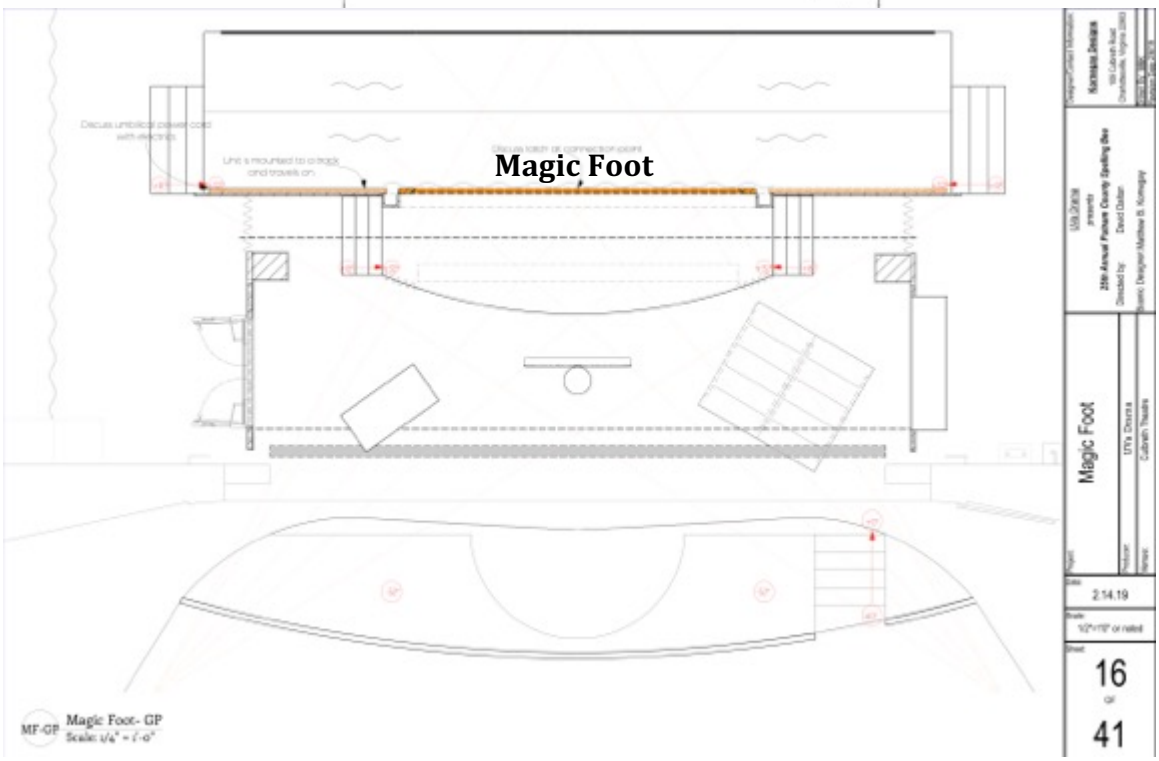
These white models were very effective at directly communicating with the director. It seemed as though he could not imagine the space with the sketches provided, so creating the physical world to be presented in front of him helped to clarify what my intentions were. We were able to see to scale figures, that represented actors in the space, move them around and discuss the movement of specific scenes through the show which helped to solidify that we were going to stick with the initial design—Figure 14. We then began to discuss the treatment of the walls, what they represent, if they transform, and what is on them.

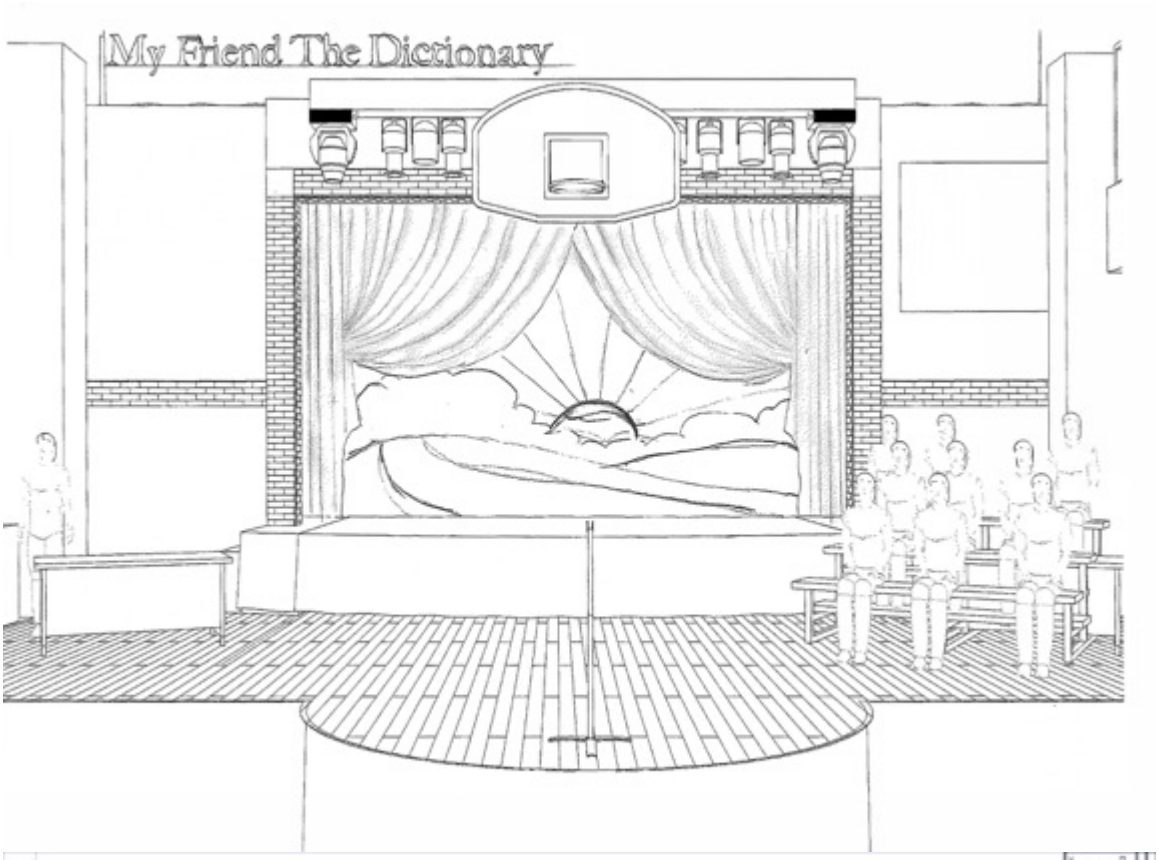
Moving forward, it was time to come up with a more detailed white model that would eventually move into color elevations, as well as the drafting packet (the to-scale Computer Aided Design drawn packet of each unit of the design.)

With the main acting space figured out, it was important to start discussing the fantasy scenes that would occur on the "inner stage" and the complexity of the space they take up. I decided the best way to communicate these was with Story Boards—a scene-by-scene break down with pencil drawn front elevations and a scale ground plan (Created in Vectorworks) to depict the transitions and designs. Below are a couple of important fantasy scenes: (See Figure 15- Story Board Examples) (See Appendix Doc. 1 for additional information on the fantasy scenes)

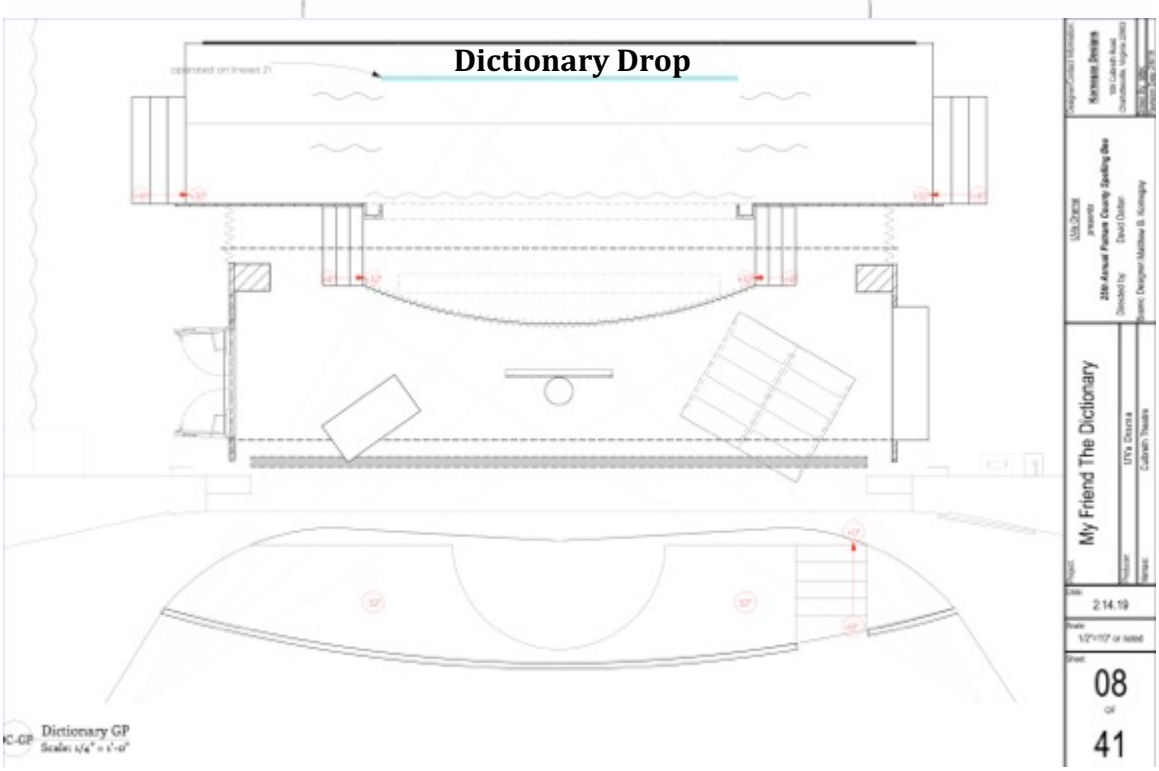
Figure 17: Story Board Examples

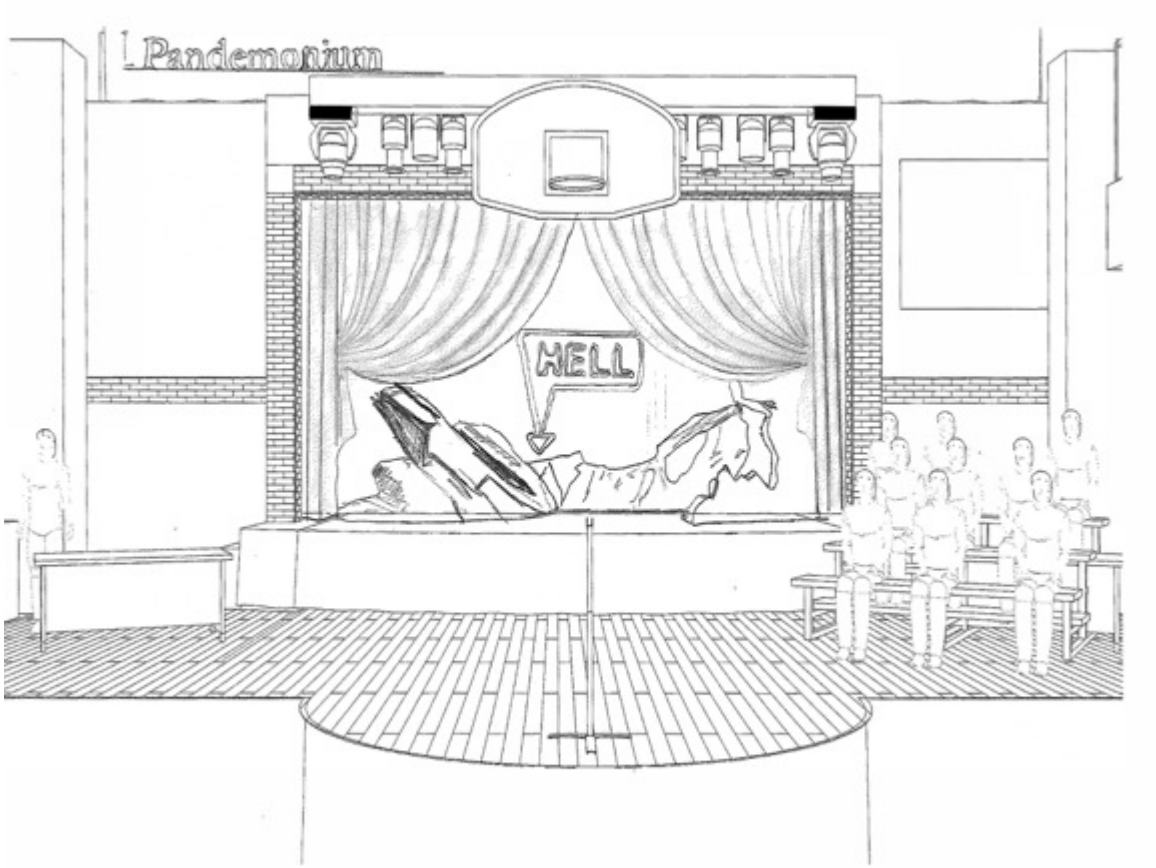


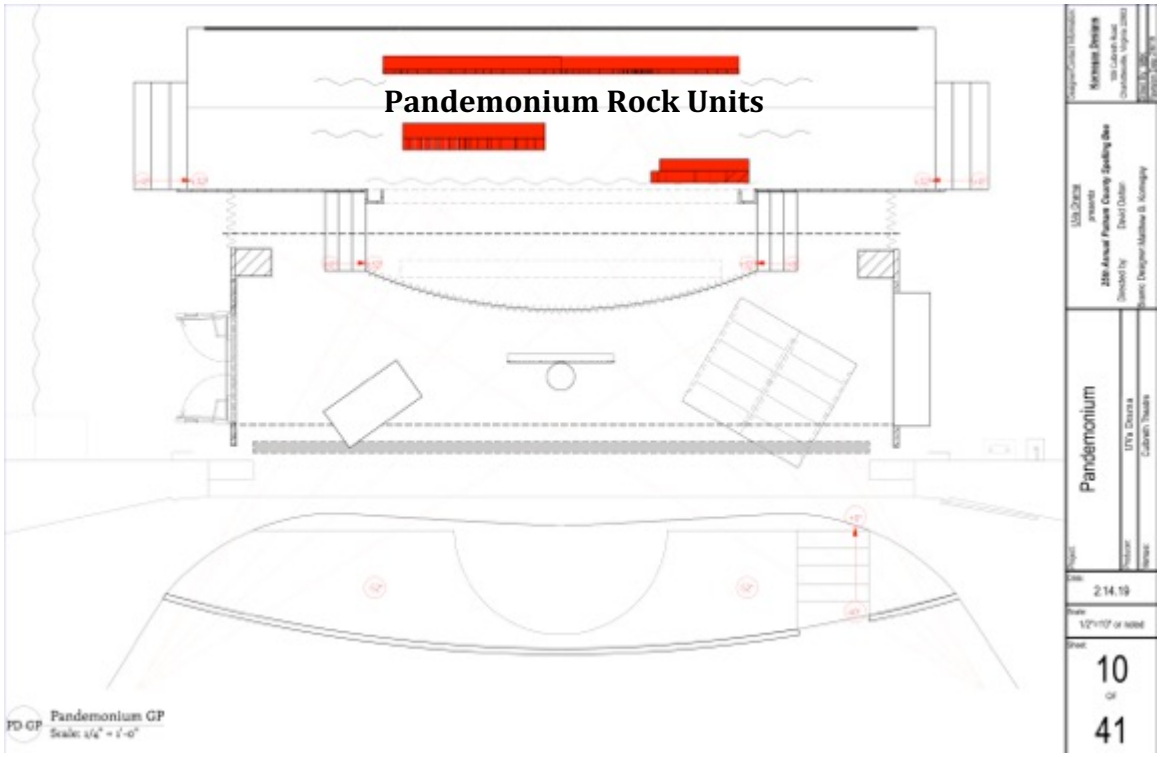




Dictionary Drop




Pandemonium
HELL


Pandemonium Rock Units
Pandemonium
2.14.19
10
OF
41
PD-GP
Pandemonium GP

These Story boards effectively communicate to the director and other designers on the design team how the set units' function in space and how the action can take place around them. This process was very effective for this design because it communicated all the information we needed for the "fantasy scenes"; although, I believe it would have been just as effective if conveyed digitally.

With these storyboards and the approval of the director, it was time to come up with a finalized drafting packet and final paint elevations that then would help to put the finishing touches on the show. The drafting packet contains scaled ground plans (bird's eye view of the set), front elevations (as if viewing the unit straight on), and detail drawings to help communicate to the shop how the show is to be built. The final paint elevations are painted representations of the set that are in at least ½" =1'-0" scale to communicate the colors and paint treatment of those units to the design team and the scenic shop, who are building it. (See Appendix 2 for the complete drafting packet and Appendix 3 for the color elevations.)

Manually designing *Spelling Bee* was an effective way to communicate, but often times lacked enough detail to communicate the design concepts that were intended. For example, as the design process was wrapping up, there was some confusion as to how the curtain would open and specifically how the dinosaur head, that was supposed to "eat" a character would function. For that, I uploaded a 3D model created in Vectorworks into Cinema 4D. I then animated the pieces of the set to create a movie file that depicts the curtain opening, the dinosaur coming in, eating the character, and then dinosaur exiting the stage. See Appendix 13.

On top of that, the sketches presented in design meetings were very useful for creating quick renditions, as well as, using the model for showing the scaled design inside the theatre; however, often times it seemed like the connection between the research images and the sketches lacked enough detail for the director to grasp the concept for the show. The “structure” (in reference to media ecology) often lacked enough specificity. Overall, the manual means is the traditional technique for communicating scenic ideas; it is easy for those who are familiar with it to grasp but often does not convey as much information as what would be ideal.

Another downside of the manual method is the cost in labor and material to create a model. (See the material break down below)

- Black Foam Core- for the model box- $7 per 20”x30” sheet
- Bristol Paper - $20 per pad of 20 19”x24” sheets
- Illustration Board -$8 per 20”x30” sheet
- X-Acto blade replacements- $7 for a pack of 5
- Sobo glue- $3 for a 4oz tube
- Super Glue - $3 for a pack of two
- Turbo Tacky Glue- $5 for a 4oz tube
- Utrecht Basic Acrylic Paint Set-$60
- Golden Gesso - $16 for an 8oz jar.
- Assorted brushes -- $15 for a value pack (more expensive for nicer brushes).

Adding up the cost of these materials, plus some of the standard tools and materials the Scenic Designers have in their tool kit, a rough total for supplies used on this show comes to $400.

Breakdown of Hours Worked on creating Model Pieces:

Date	Hours worked	*	Hourly rate—collected from USA 829 LORT C hourly rate--	=	Total
January 11	8.5	*	$40	=	**$340**
January 12	14	*	$40	=	**$560**
January 23	6	*	$40	=	**$240**
January 24	5	*	$40	=	**$200**
February 5	5	*	$40	=	**$200**
February 6	10	*	$40	=	**$400**
February 10	13	*	$40	=	**$520**

*the time noted here was collected with Life Cycle- an application that tracks location and activity.

** model was cut out using laser cutters. Time would vary with cutting the material by hand.

*** overtime not applied to hourly rate

Total: $2,460

This breakdown is meant to show the hours worked to create the model pieces to help communicate design ideas. This will be used as a comparison when we look at the time used for rendering digital versions of the design for *Rent.*

Rent

Rent is a rock musical set at the cusp of the 1990s that follows a group of young New Yorkers as they skirmish with their love lives, careers, and the effect of the AIDS epidemic on society. The scenic needs for this show vary dependent on the production but oftentimes rely heavily on an industrial warehouse feel. This specific production will be produced at Live Arts Theatre, Charlottesville, Virginia, with young adults. As I approached this project, I decided to communicate all of my design ideas using digital means to be used in juxtaposition to the work done for *Spelling Bee.*

That being said, as computers have become more adept at creating virtual worlds with computer-aided design (CAD) drafting programs, and with computers being as portable as they are, many designers have ventured into the digital realm to create their designs. For comparison to the manual design work for *Spelling Bee*, I elected a digital format of communication for all design concepts of *Rent.* For the creation of that design, I utilized Photoshop, Vectorworks 3D, SketchUp, and the Cinema 4D animation program.

The initial design conversation with the director (who will be referred to with the pronouns They/Them/Their) of *Rent* occurred over a video chat after I had already read the script, created a breakdown of what the script needs and some preliminary research. Through our conversation the director was pretty explicit with their needs:

- A variety of levels to play the scenes on and have isolations
- Enough areas for the ensemble to be involved in the storytelling throughout the show
- Entrances at different heights

- Something industrial as the base for the set and using light to define the spaces for scenes in addition to using a rolling staircase unit.
- Back wall or something for location and cyclorama abilities.

Since we were both on the same page, it was simple to quickly move forward. What I did first was jump directly into a 3D virtual model in Vectorworks. I built up a general structure of platforming to help shape the space and communicate to the director, my ideas for the design of the show. Then, I created a quick front elevation of a "backwall" with Photoshop that then I imported to the model. With this model, I exported renderings that captured a high-quality image of the model to share with the director (Figure 18). These really quick and rough, "smash," renderings provided so much information in comparison to the quick sketches of *Spelling Bee.* (see Figure 4, 5, and 6)

Figure 15: Rent Research Image 1

Figure 16: Rent Research Image 2

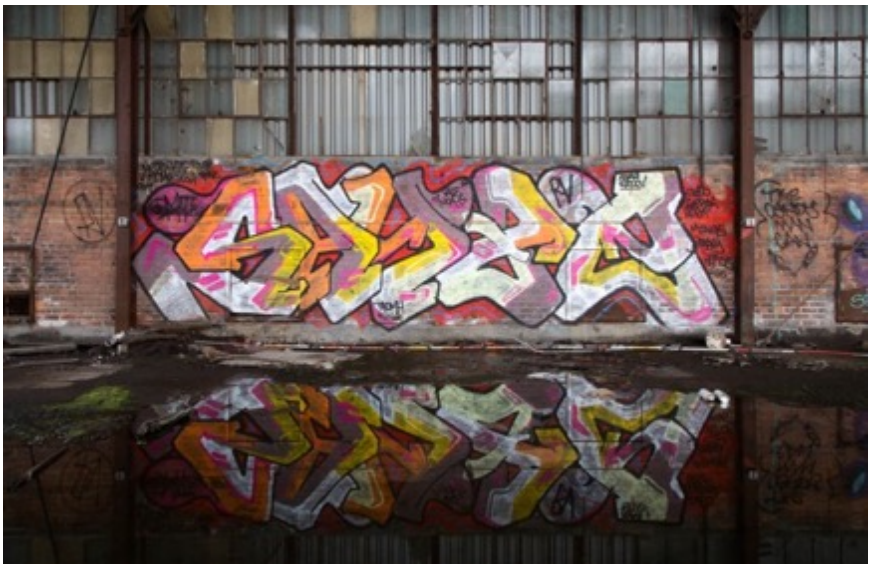


Figure 17: Rent Initial Model

This virtual 3D model (Figure 17) was very effective at communicating the concepts of the design. Using this 3D model, the director was able to understand the exact direction that the design was going in.

I continued my work by further exploring design possibilities for this show through my mentored study class in musical theatre scenic design. That process consisted of collaboration with the other designer in the class. As a class, we agreed that the back wall was too specific, so we worked towards new design ideas—through Photoshop.

In creating the new designs to be shared with the director, I gathered research images and started to use layers in Photoshop to build up the design for the backdrop. The first design (Figure 19) was inspired by Figure 19 and the graphic quality in Figure 20. I still used the New York City apartment block photo (Figure 16) for inspiration—but since we felt that the original design of the backdrop was too realistic and would be hard to produce at -this specific theatre, a more graphic representation like what is behind the bed in Figure 19 would work better for this circumstance.

Figure 18: Rent Research Image 3

Figure 20: Rent Research Image 4

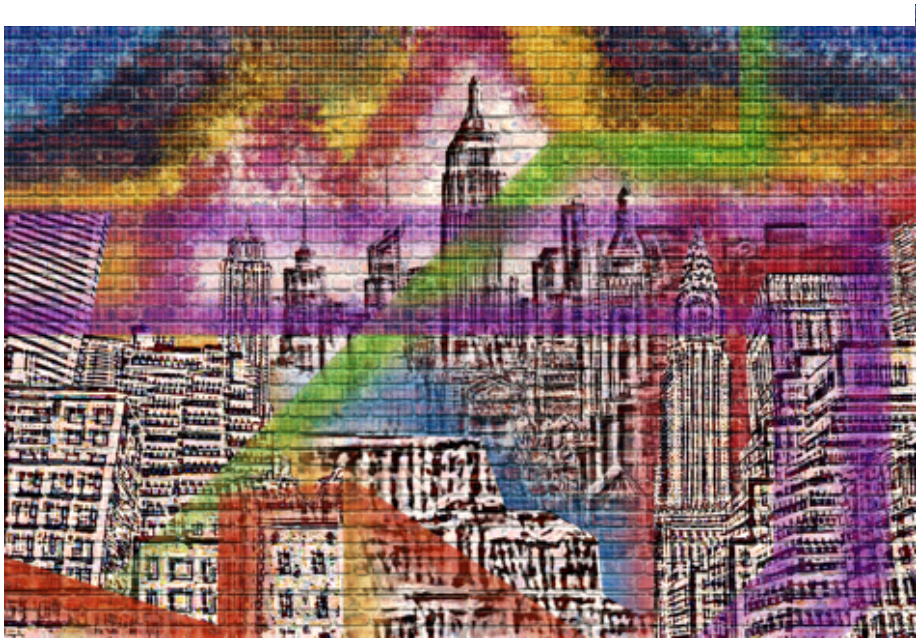
Figure 19: Rent Backdrop 1

For the second iteration of the new design, the design was inspired by Figure 22 and 23 that helped to give a very graphic design to the backdrop for the show and leans into a street art inspiration for the design of the show. I came up with the design in Figure 24 which offered a lot of bright quality of color and value to the show—which in the end would not fit the design for the production.

Figure 21: Rent Research Image 5

Figure 22: Rent Research Image 6

Figure 23: Rent Backdrop 2



For the final redesigned backdrop (Figure 25), I was really inspired by the layers created in the foreground, middle ground, and background of Figure 26 and the glass panes in the doors of Figure 25. I combined that with my original design to come up with this redesign.

Figure 24: Rent Research Image 8

Figure 26: Rent Research Image 7

Figure 25: Rent Backdrop 3

The other designer in the mentored study was also charged with creating three new design options (Figure 28, 29, and 30). We shared a lot of the same inspirations including texture, New York City apartment blocks, and graphic qualities of color or line. As a class, we favorably responded to the neon colors of the other designer's third design (Figure 29), the texture in my first design (Figure 19), and the scenic idea of my third design (Figure 27)—which mimics the original design. With these new collaborative inspirations in mind, I was able to work towards one more iteration of the backdrop which combined our inspirations and thoughts into one design (See Figure 31).

Figure 27: Rent Poruban Backdrop 1

Figure 29: Rent Poruban Backdrop 2

Figure 28: Rent Poruban Backdrop 3

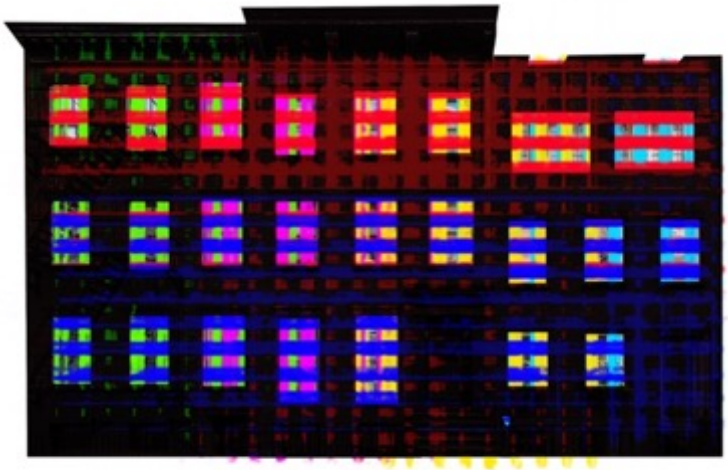
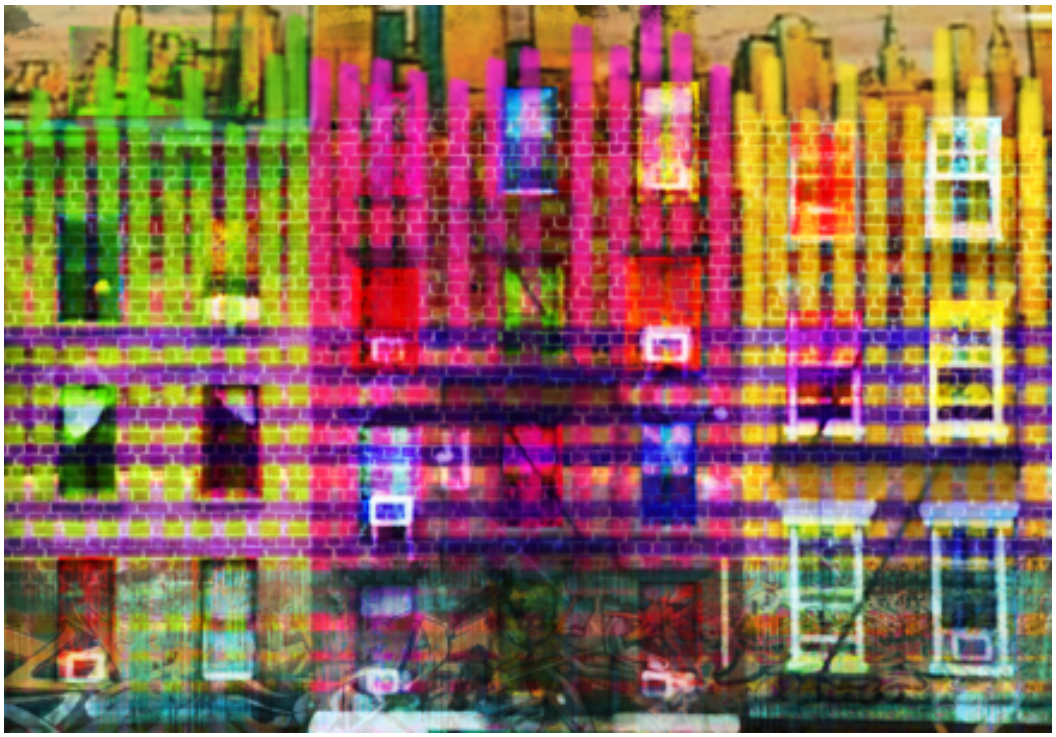


Figure 30: Rent Merged Backdrop Design



As a part of my reevaluation process for the show, I was looking at how the scenes could be staged on my current design and making alterations as needed. By going through the script, I found that the "fire escape" platforms I had, with rolling staircases, would clog up the design of the show, so I looked at my research and was inspired by the idea of using scaffolding for the show. Sharing the new concept with the director was achievable by using the "walk through" function provided in Vectorworks 3D which allows for the user to "walk through" their 3D virtual model as if they were a person walking in that environment (Figure 32). Other programs offer the same effect, some of which can render the entire design out into a quick "video game" allowing for the user to use a game controller or their keyboard to experience the virtual world. This visualizer helped me realize how

claustrophobic the set would feel and be with the need of the rolling staircases. It also made it clear how impossible it would be to achieve the scenic transitions from scene to scene.

Figure 31: Rent Rendering

With the new use of construction scaffolding I also remembered that the director wanted to have moments where the entire ensemble was present on stage, so I came up with using the balcony space as an acting area instead of audience seating. The actors would be able to enter the space by using the balcony. This allowed the balcony to be used for ensemble moments to surround the audience in the action. With these new ideas, I combined them all and updated the Vectorworks 3D model and shared some images with the director (Figure 33, 34, and 35). It was very simple to make adjustments to the design, process colored renderings, and directly communicate the design concepts by using Vectorworks and Photoshop to put the concepts together for the director. With 3D

modeling, you do not necessarily have to start all over like you would with a sketch. Typically, I would just open up the same document and make the changes necessary.

Figure 32: Render Final Render 1

Figure 33: Render Final Render 2

Figure 34: Render Final Render 3

After meeting with the director, they were really intrigued with the use of the space, the variety of areas they had available for blocking the show, and the textures of the backdrop. The only concern they had was the quality of the neon color and if it would overtake the space—they wanted to keep the color but bring down the value/intensity a bit. Other than that, the director enjoyed what I had to offer, and we were ready to move forward. The digital model was effective at communicating the design concepts for this show, being direct with where the production design was going, and with communicating the use of space. In comparison to the model work of *Spelling* Bee, this simple color elevation provides quality of texture, a color palette, and helps to let the director see directly into the space. The director was able to respond directly to the design elements, and there was never a question about how all the elements would come together in the theatre.

Digital applications cost money. The major programs used for the design of *Rent* were Vectorworks and Photoshop.

- Vectorworks
  - Student Membership- Free
  - New Licenses for 2019 - $3,045
  - Year-to-year upgrade- $1,066
- Photoshop
  - Creative Cloud Suite
    - Student Pricing - $21/ month
    - General Pricing - $54/month
  - Photoshop Only
    - Student Pricing- $10/month
    - General Pricing - $21/month
- Cinema 4D
  - Student Pricing - Free
  - General - $3,695
  - Year-to-year upgrade- $995
- Google Sketchup Pro
  - Student - $55/ year
  - General - $299/year
  - Podium Rendering Plug-In-
    - Student- $95
    - General - $198
    - Year-to-year upgrade- $59

While those numbers seem pretty steep, once you buy a license for Cinema 4D and Vectorworks you are not required to upgrade every year; a designer might not upgrade for a couple of years and design a plethora of shows on the one subscription. On top of that, Vectorworks is becoming more attune with the needs of the theatrical designers

who are using the software and who are making changes to their product to be as versatile as possible. Still, the cost almost balances out.

Breakdown of Hours Worked on creating Virtual Model Pieces

Date	Hours worked	+	Hourly rate— collected from USA 829 LORT C hourly rate--	=	Total
January 13	7	+	$40	=	$280
January 26	5	+	$40	=	$200
January 30	3	+	$40	=	$120
February 3	5	+	$40	=	$200
February 4	5	+	$40	=	$200
February 13	4	+	$40	=	$160
February 14	3	+	$40	=	$120

*the time noted here was collected with Life Cycle- an application that tracks location and activity.

**overtime not applied to hourly rate

*** does not include time use for creating the drafting packet.

Total: $1280

3

Additional Designers' Methods

Scenic designers are artists and have their own individual process for creating their designs and how they communicate. I extended this investigation by consulting my peers to discover what mediums other designers-were using to communicate their design ideas as an effort to look at how effective their vehicle for delivering design information is.

Sasha Schwartz- Comedy Of Errors

Sasha Schwartz is a fourth-year undergraduate at Carnegie Melon University concentrating in Scenic Design. She designs for theatrical productions mostly but dabbles in opera and production design for film projects. When designing, Sasha starts her process after reading the script and talking with the director. She does not like to get too much research or design ideas before talking with the director. After Sasha's meeting with the director, she starts to gather as much research to fit into her concept—which can be digital or physical research. For this, Sasha creates a research board to combine her thoughts in one space (See Figure 35).

Figure 35: Comedy Of Errors Research Board 1

Once she gathers her research, she begins to sketch out rough ideas of each scene to bring back to the director and design team. Sasha finds that by using her hands to create these sketches she is more in touch with the design and is not limited by her abilities of using digital methods. For her sketches, she uses a black pen and Prismacolor Brand markers to get a quick and rough idea out. See Figure 36.

Figure 36: Comedy Of Errors Initial Sketches

After her conversations with the director where she presented these quick sketches and research images, she adjusts the designs per their discussion and then creates smash models (quick and rough scale models) to give the director an idea of what the design would look like scene-to-scene in the space. Physical models are Sasha's main medium for communicating to directors and other designers. For her smash models, she uses paper cutouts, magazine pieces, illustration board, and anything else she needs or works for the

design. She finds that the smash “creative juices flowing but inspires her colleagues who are also designing with her. See Figure 37, 38, and 39.

Figure 37: Comedy Of Errors Smash Model 1

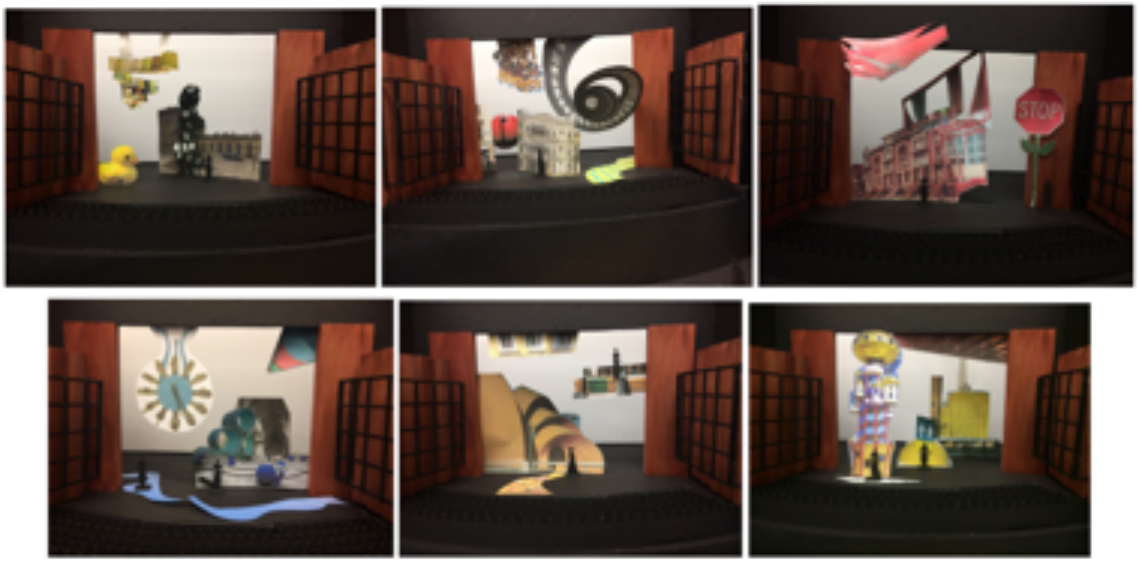


Figure 38: Comedy Of Errors Smash Model 2

Figure 39: Comedy Of Errors Smash Model 3

Because research boards and physical models are Sasha's main form of communication, she will often revisit both over and over again. For her work on *Comedy of Errors*, produced at Carnegie Melon University, Sasha continued to build on her research that then would lead to new iterations of her smash models. Figure 40 is Sasha's next research board followed by the smash models (Figure 41 and 42) she created from that research.

Figure 40: Comedy Of Errors Research Board 2

Figure 41: Comedy Of Errors Smash Model 4

Figure 42: Comedy Of Errors Smash Model 5

After the design becomes a bit more concrete, Sasha starts to put the finishing touches on a completed color model and then moves into creating her drafting packet in Vectorworks (Appendix 9), hand-rendered paint elevations (Appendix 10), and a props packet with Vectorworks and Photoshop (Appendix 11) She finds that her work in the model boxes—as opposed to digital models-- helps to communicate best with the director

because they can see the physical scaled pieces in the theatre and get an immediate image of the show in their head. She also believes that computer programs can sometimes be limiting for the design process. She believes that there is a direct correlation between how and artist thinks and how its translated down through the hand. She finds that a computer can sometimes get in the way of letting those artistic inspirations truly come to life. Figure 43 is Sasha's final research board followed by her finished color model. (Figure 43, 44, 45, 46 and 47).

Figure 43: Comedy Of Errors Research Board 3

Figure 45: Comedy Of Errors Model 1

Figure 44: Comedy Of Errors Model 2

Figure 47: Comedy Of Errors Model 3

Figure 46: Comedy Of Errors Model 4

Figure 48: Comedy Of Errors Final Model

Tyler Gabbard- Swing

Another young designer I connected with was Tyler Gabbard, a designer based in Southern California who graduated from SUNY New Paltz in 2013. Tyler primarily works on plays and musicals with the occasional fringe opera. Tyler starts his design process by reading the script and discussing the show with the director before doing any research or sketching. During their meeting, Tyler brings his iPad to pull up inspirational images (Figure 49, 50, and 51) and then will sketch and provide ideas through Procreate (a digital sketching iPad application). Tyler has discovered that Procreate and other digital means of communication allow him to be more responsive to the changes in the design, while also providing enough insight into his and the director's concepts.

Figure 49: Swing Research Image 1

Figure 50: Swing Research Image 2

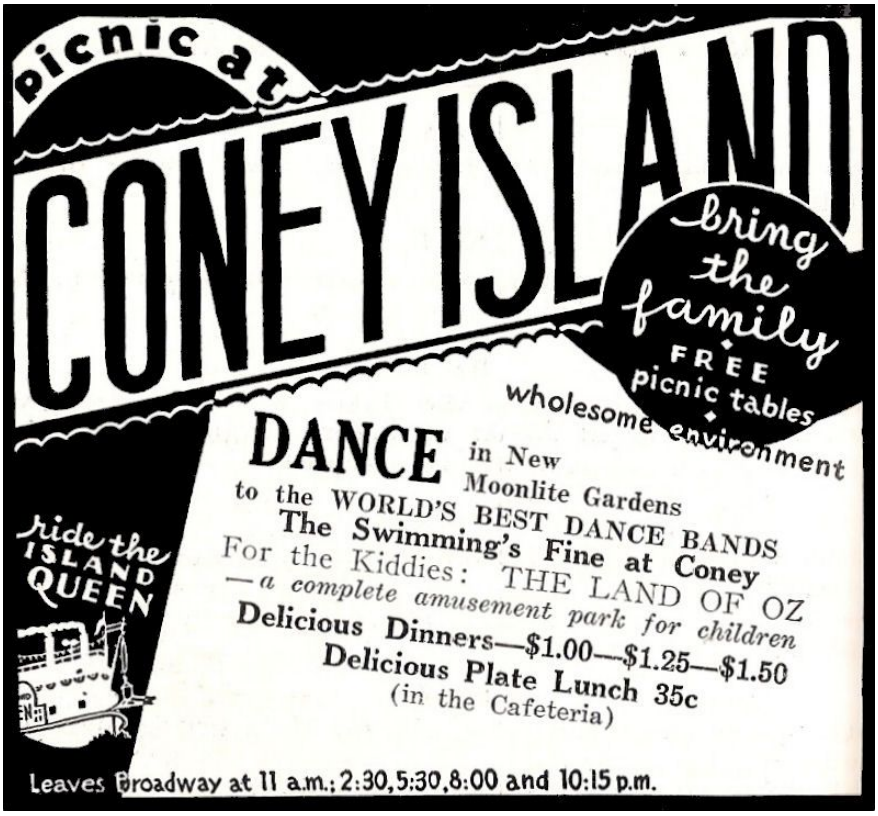


Figure 51: Swing Research Image 3

Once he and the director have fleshed out a basic structure to the design, he then moves into Vectorworks to start to build up a 3D model and draft the show. (Figure 52, 53, and 54) He believes that working in Vectorworks at this point helps him stay on schedule for having a completed packet in time while still allowing for flexibility in the creative process of the design for the show. Eventually, he will export a white model version of the design and import it into Photoshop to add his paint treatments and lighting to make a rendering for the show (Figure 55).

Figure 52: White Model 1

Figure 53: Swing White Model 2

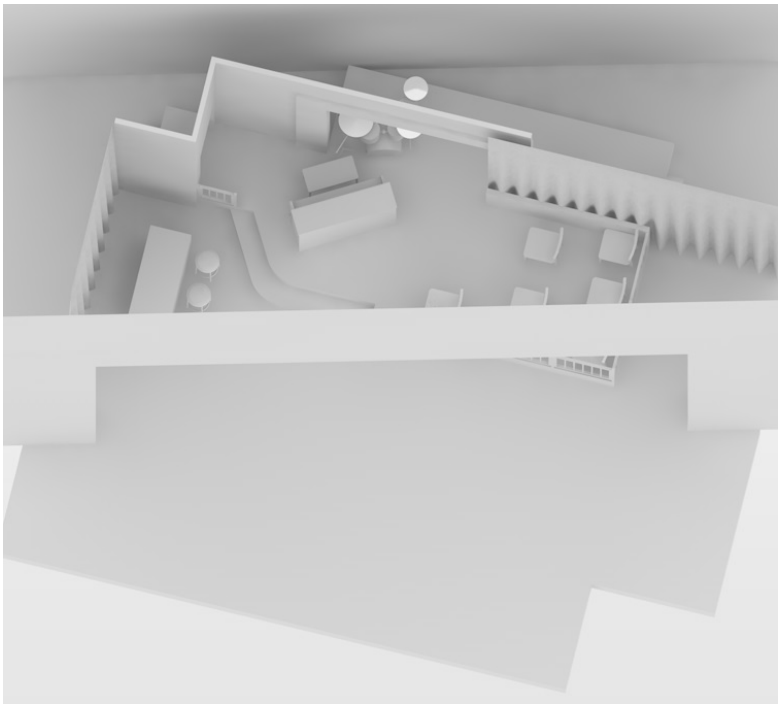


Figure 54: Swing White Model 3

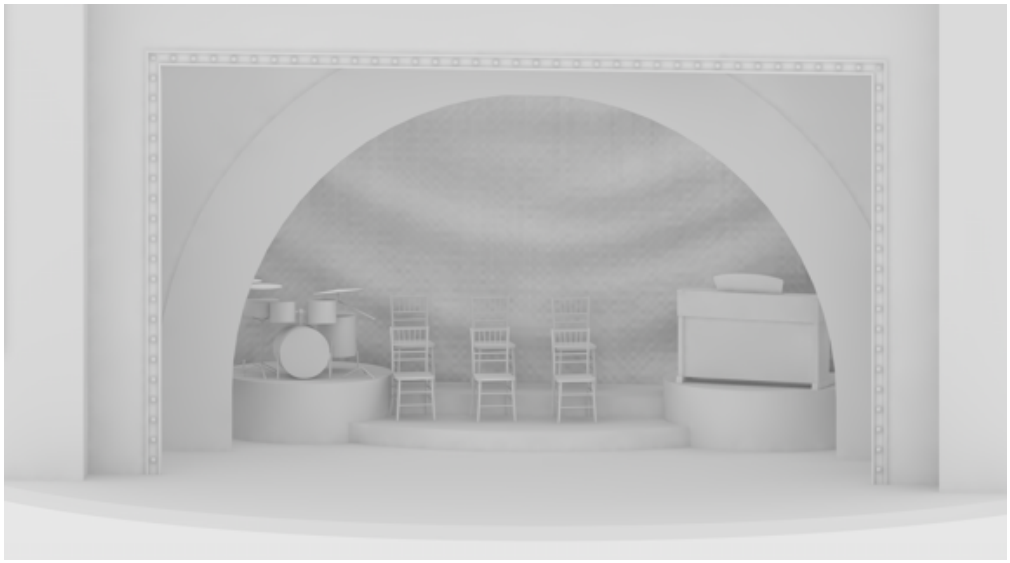


Figure 55: Swing Final Rendering

If Tyler finds it important to make a physical model for the show, he will often still create his elevations digitally and then print them out on adhesive backed paper to then apply them to foam-core pieces. He found that this process saves so much time compared to painting individual scale pieces for the model—since he has the digital rendering already created. He also finds himself buying scale furniture pieces online because of the variety of styles and how much time and energy it saves. With that, he says that he only would build physical models about thirty percent of the time.

Bill Clarke- Skin of Our Teeth

Another designer I connected with, is a New York-based Scenic Designer, Bill Clarke. Bill starts his process by reading the script and then meets with the director before doing his research. Once he has collected his research, he will meet with the director again before doing his sketching. The process repeats for the subsequent steps of his design process. Bill traditionally works with manual methods (See Figure 57), but, of late, has been using a hybrid of digital and manual methods to help communicate his design ideas (Figure 58). Figure 57 and 58 were from Bills work on *Stick Fly* for the University of Virginia.

Figure 57: Stick Fly Hand Sketch

Figure 58: Sticky Fly Hand Sketch with Photoshop

For his design of *Skin of Our Teeth* produced at the Berkshire Theatre Festival, Bill found that his process was more of the hybrid than he has been working in. He started with a quick sketch just using a pencil and then scanned that document into his computer, and over-laid images using Photoshop. (See Figure 59, 60, and 61)

Figure 59: The Skin of Our Teeth Initial Sketch 1

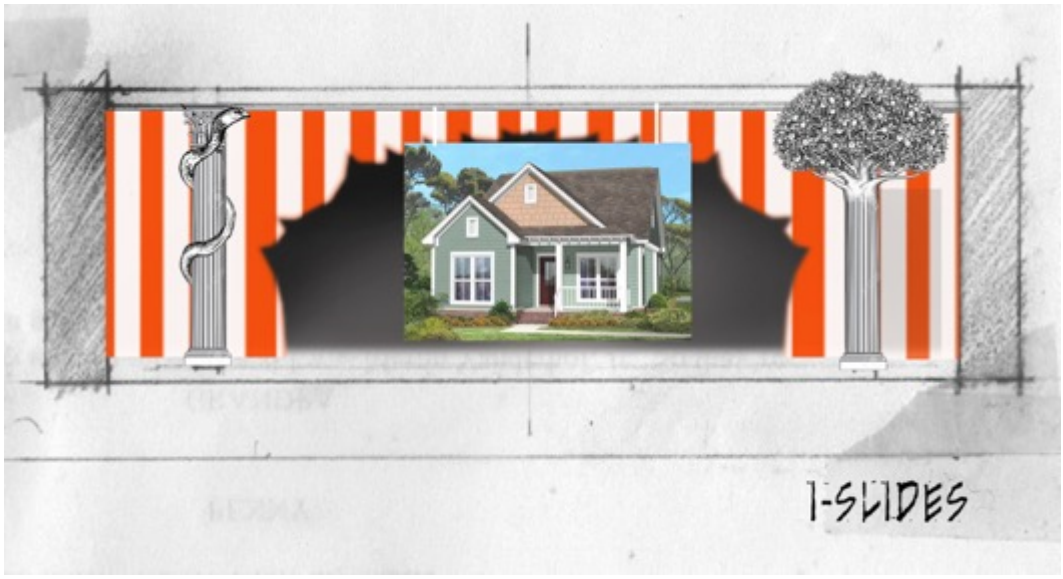


Figure 60: The Skin of Our Teeth Initial Sketch 2

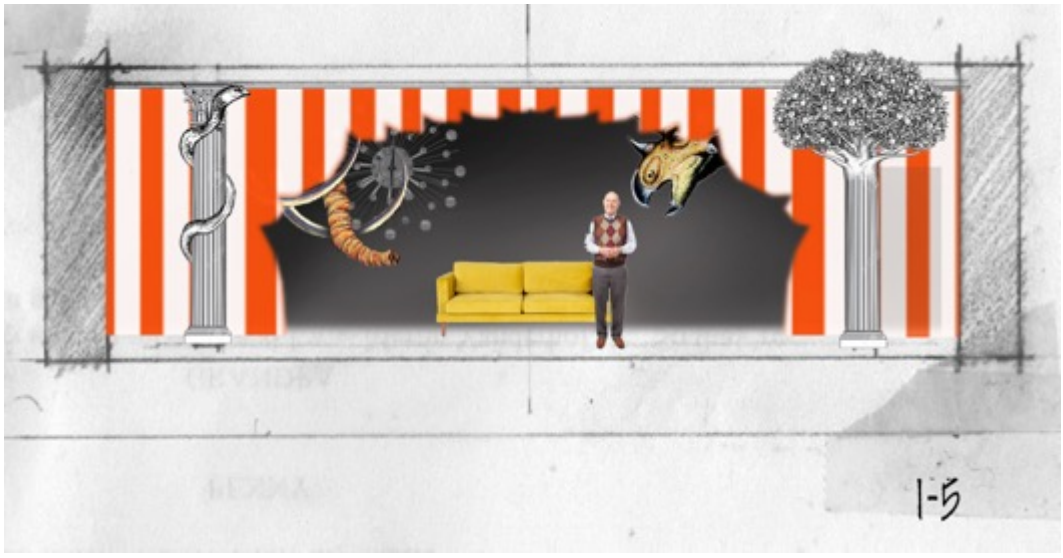
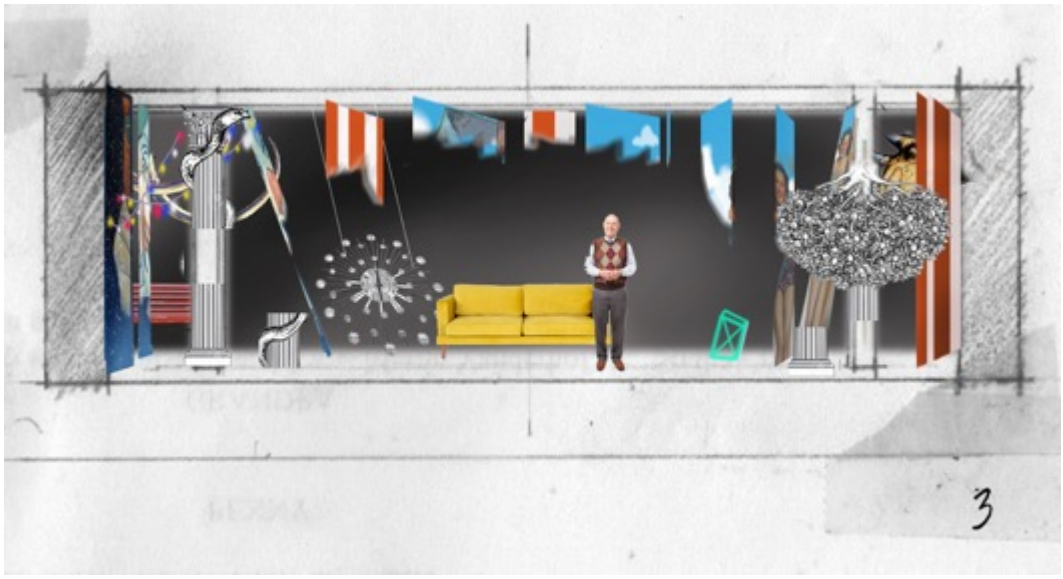


Figure 61: The Skin of Our Teeth Initial Sketch 3



Bill brought these initial sketches back to the director and then continued to make adjustments from their conversations. He mentioned how helpful it was to have the Photoshop files to refer back to when making the adjustments needed for the coming iterations of the design. This sped up the time it took to design the show and make the changes to the design. Figure 62, 63, and 64 are the second iteration of his design for *Skin of Our Teeth.* You can see, he is still using the same original sketch but is updating the Photoshop layers on top of the sketch to make his new designs and scene transitions.

Figure 62: The Skin of Our Teeth Second Sketch 1

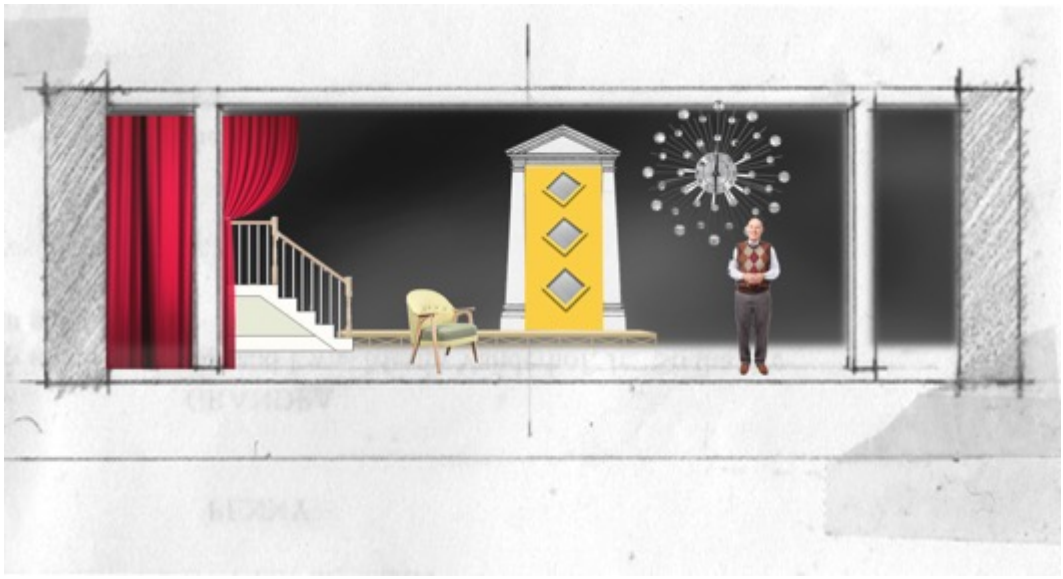


Figure 63: The Skin of Our Teeth Second Sketch 2

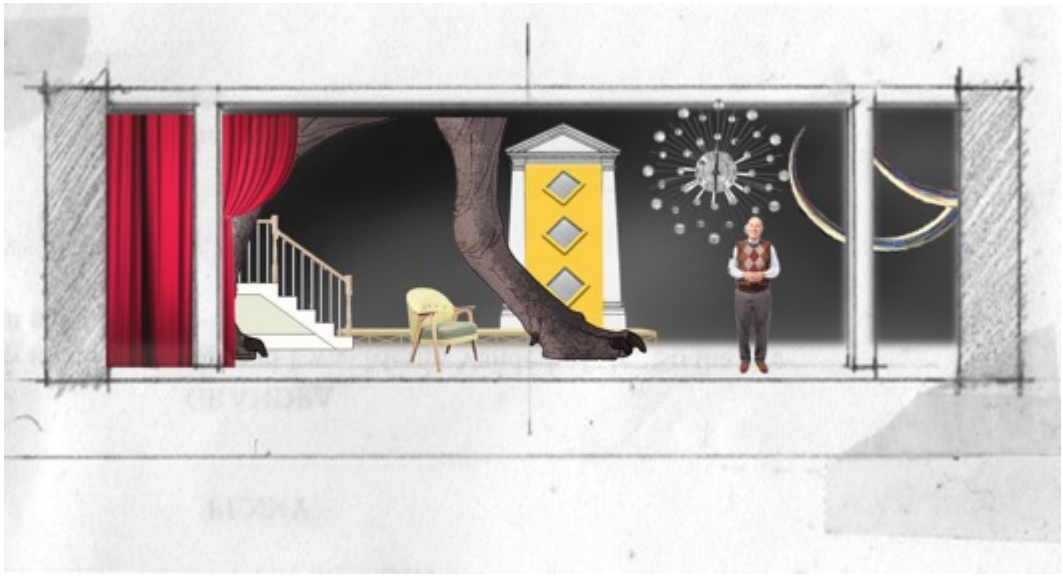
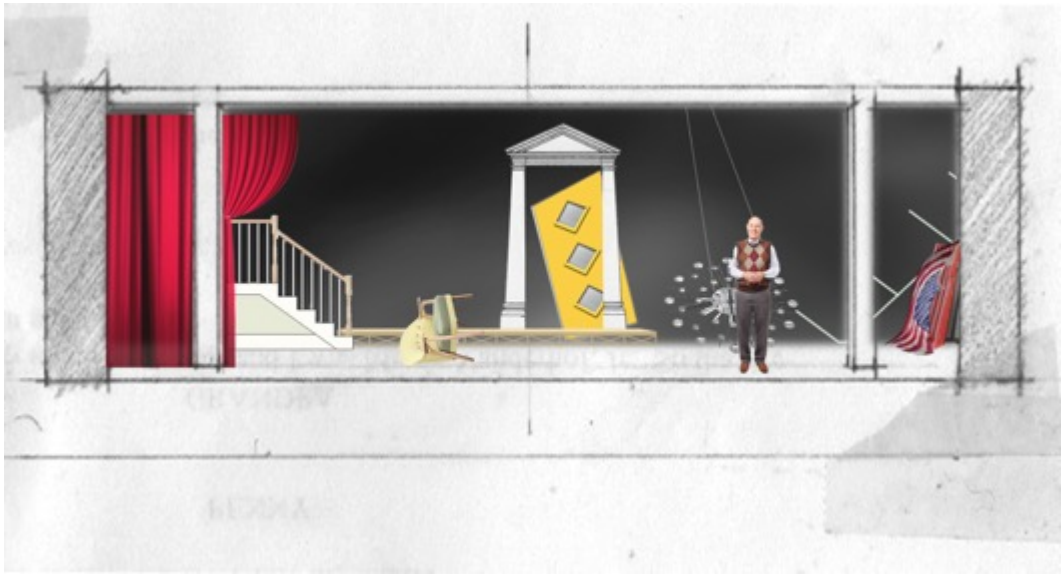


Figure 64: The Skin of Our Teeth Second Sketch 3



Bill met with the director again using these sketches (Figure 62, 63 and 64), and then returned to his designs to come up with the latest iteration of the design (Figure 65, 66, and 67). He continued to use his Photoshop file to make the changes to the set design seeing that it was a faster way to communicate his concept. The meeting that Bill presented the latest design iterations was an in-person meeting with the director. For this meeting, Bill created a physical prototype for the dinosaur legs (Figure 66) that help to convey their function to the director, where, as Bill says, the director grew confident in the idea and so excited that the director contacted the production manager to convey his hopes and enthusiasm.

Figure 65: The Skin of Our Teeth Third Sketch 1

Figure 248: The Skin of Our Teeth Third Sketch 2

Figure 67: The Skin of Our Teeth Third Sketch 3

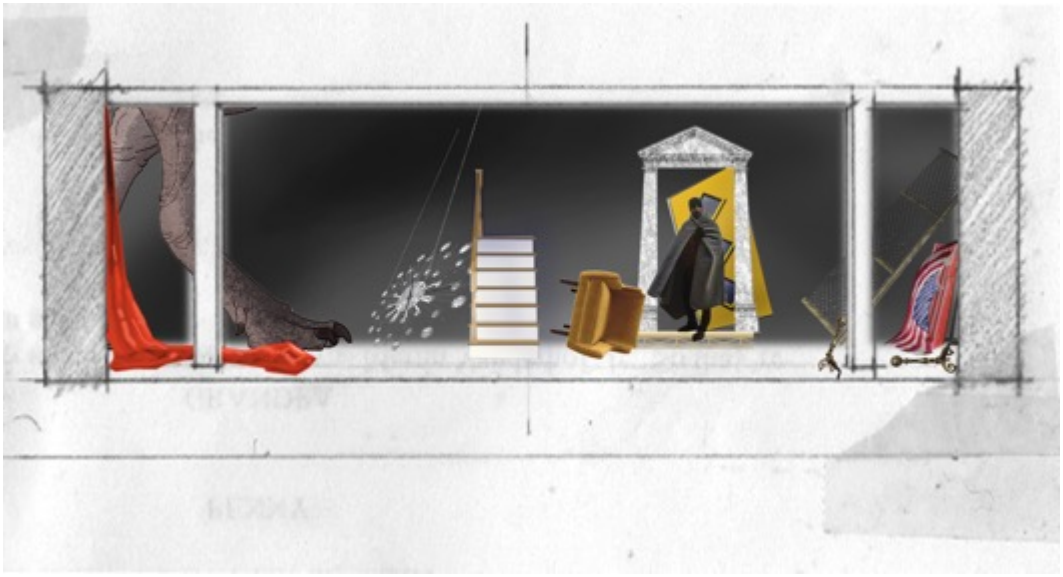


Figure 68: The Skin of Our Teeth Dinosaur Prototype

Overall, Bill found that while he prefers his traditionally manual methods for design, for this particular design of *Skin of Our Teeth*, his use of Photoshop to create the designs for the individual scenes helped to communicate the "cut-and-paste" design style for the show, speed up the sketches for the number of scenes needed to be presented, and for the

flexibility of changing the design. He still feels that the use of manual means—like creating his dinosaur leg prototype—can be very helpful in communicating the function of elements of the design. Bill also mentioned that a computer-generated version of the Dinosaur legs might have communicated even more information that could include the lighting and sound designers as well.

4

Digital versus Manual Conclusion

With reviewing the work of my colleagues and the work I did for *Rent* and *Spelling Bee*, a couple of things have become clear: Monetarily, manual and digital methods seem to balance out. Manual design methods have a list of supplies needed per iteration of the design and the programs to create virtual designs can be an expensive upfront cost. On top of that, the time used to create either manual or virtual products depends on the artist creating them. With practice in any medium, the artist becomes more skilled at creating products. With that, they also become faster at turning out products in the specific medium they are more experienced in. A designer that is more skilled in manual methods can generate a sketch rendering or a smash model much faster than a designer more adept at digital methods—and vice versa.

I also discovered that there is a bit of a barrier that is created when a designer jumps directly into digital applications to produce design concepts ideas. I found through my own work and others, that a design achieved only on a computer seems to lack a lot of the organic quality that a manual start can give to the design. With the manual design process the designer is able to work out a lot of ideas with their hands and create shapes that are not as “perfect” and uniform as what the computer might create.

The larger question is which form was most effective at communicating scenic design concepts. In my opinion, my data collected clearly indicates that the digital means of communicating scenic design concepts is most effective. Digital images can contain texture,

color, scale figures, lighting, animation, etc. The director is immediately able to grasp a lot more information rather than the need for painted elevations, sketches, models, and more. The digital rendering typically includes all of these things, plus more. For example, with the work I did for *Rent,* the initial rendering provided how the shape of the platform units would look in the theatre itself, that the director was happy with. It communicates a direct intention of how the concept and design function together and then work in the theatre itself. In comparison to *Spelling Bee*, the information was sometimes lost in the manually designed sketches that I feel would have been explicit in digital renderings. Another example is my work done on *We Are Pussy Riot, Love's A Bitch,* and *Top Girls*, where I used digital methods to communicate how the show would look. The renderings I created expressed a very realistic image of the design that then came to fruition when the show was produced. (Appendix 6, 7, 8) I believe that forcing the director to make the connections between the research images and manual designer sketch can convolute the information being presented. With digital communication designers put their research directly into the rendering to be presented.

In conclusion, every design is contingent upon a lot of variables. It is up to the designer to pick which one works best for the situation they find themselves in, or what their skills can allow. The amount of information that can be conveyed through the concept renderings for the scenic design is up to the artist's hand that is creating the product. For my personal style, the amount of information I can include in a single digital rendering and the speed at which I can produce them by far surpasses what is achievable if I work only manually. Ultimately, the most e*ffective* way to communicate design ideas to the director is with the use of a digital medium due to its ability to directly convey the combination of

three-dimensional units and research images; but the *best* way of communicating design ideas is up to the designer and what their talents can do.

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Appendix Document List: