# Emerging Practices: Digital vs. Physical Theatrical Models

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## Introduction

With advances in computer technology, I purpose to analyze how directors are responding to digital computerized scenic models. The purpose of this study is to examine the preference, efficiency and effectiveness of those models that serve as communication tools between scenic designers and directors.

My hypothesis is that digital models are the preferred mode of artistic communication between designers and directors (above that of the more traditional three dimensional physical model). This study examines a couple of key benefits including, but not limited to: the effectiveness of communication, speed of creation, transportability and dissemination within a production team. My sample study focuses on directors who have worked with the University of Virginia Department of Drama. The directors surveyed were: Chair and Associate Professor Colleen Kelly, Associate Professor Doug Grissom, Associate Professor Kate Burke, Retired Assistant Professor Betsy Tucker, Associate Professor Marianne Kubik, Lecturer Dave Dalton, Live Arts Theatre Artistic Director Julie Hamberg, and freelance Director Charlie Otte.

Scenic designers face the issue of how to best communicate design ideas. In theatre, time is of the essence and poor communication becomes wasted time and time is money. Digital models used in the design processes are a faster, more effective way of communication.

Effectiveness of design models, whether digital or physical, is crucial with limited design and/or build time frame(s). It may be possible to avoid particular pitfalls that would hinder the design process and the loss of valuable time if a digital model utilized. These pitfalls may include: miscommunication between the director, designer and the production team and under/over exaggeration of the feasibility of design elements. If a more successful approach is found through the use of a digital model, then it may expedite the design process.

## Preface

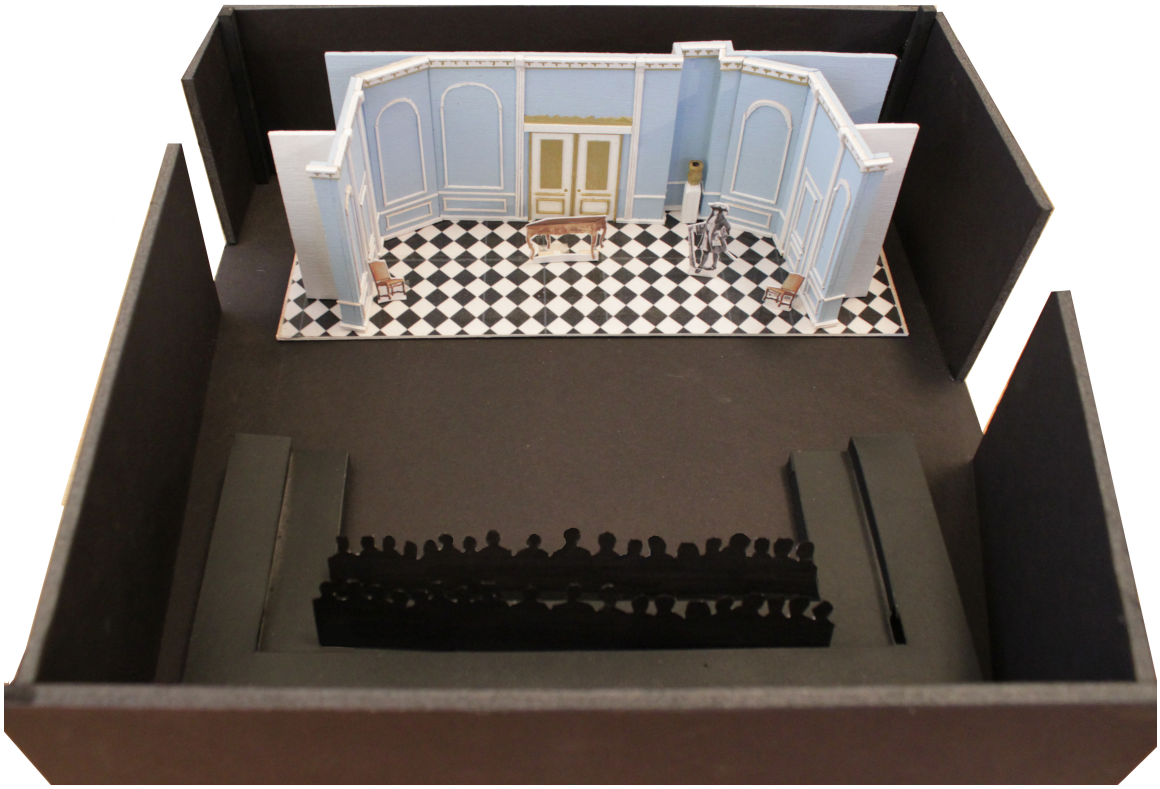
A questionnaire was distributed via email and these responses were received in written and verbal format, [see Appendix 1]. The questionnaire inquired about experiences and opinions directors had working with either physical and/or digital models.

The questionnaire distributed to the directors was uniform. Prompts within the questionnaire were purposefully broad and provided sub-questions for elaboration or clarification. The purpose of general questions, followed by specific questions, allowed flexibility in responses because the experience of the subjects ranged greatly.

The original subjects in the research pool were the four directors I had worked with during my three-year tenure at the University of Virginia. Preliminary research was limited because some subjects had limited exposure with the research topic, therefore the pool of respondents was expanded to obtain additional data. The expanded pool included an additional four directors.

## Chapter 1: Physical Models

Within this study, a three-dimensional tactile object, will be referred to as a physical model. Physical models are built in a miniature scale representing a full sized creation. The most common scale is a ¼"=1'-0". That scale accommodates inclusion of the actual theatrical space, audience seating and the scenery, while still maintaining a workable size and details.

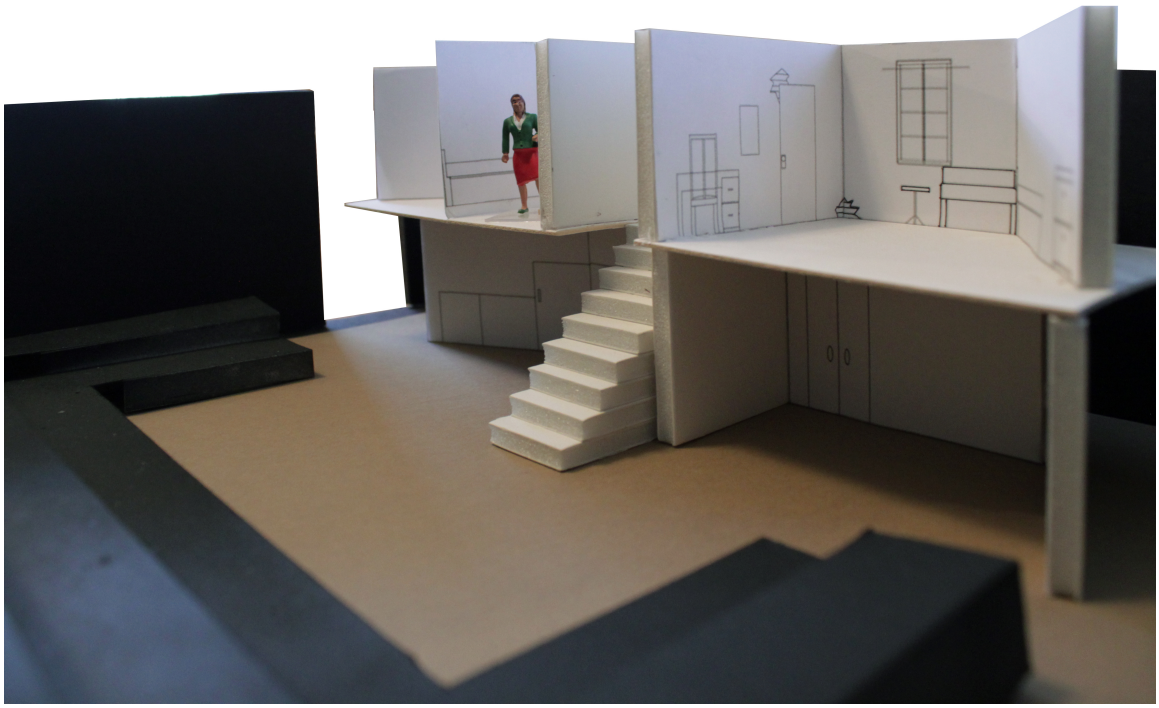


[Figure 1] *¼"* Scale model of unrealized *Tartuffe* design. 2014; University of Virginia. Scenic design by Hilary Landowski.

Usually, a physical model is the complete representation of a production's scenery. Although a model may represent only a few specific architectural

details, this study defines a physical model as an entire representation of the theatrical space including audience seating and the scenery for the production.

A physical model may be monochromatic, often white, in order to illustrate initial ideas and shapes. [See Figure 2].



[Figure 2] ¼" Scale Basic White Model. *Vieux Carré* by Tennessee Williams. 2014; University of Virginia. Unrealized scenic design by Hilary Landowski.

Models of this sort are often simplistic representations of the early stages of the design and help set the stage for further design development. These physical models are typically used in the beginning stages of the design process after consulting with the production director. Designers may also choose to create more detailed models that are colored and/or

textured, and contain key props and furniture. These more detailed models are often used during or after key design decisions have been made by the designer and in conjunction with the director.

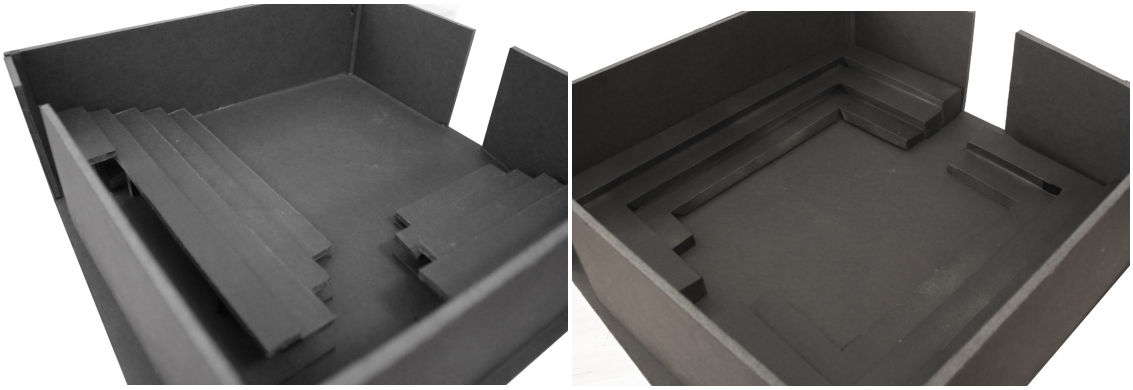
Physical models are assets to the design process because they are a tactile representation of the designer and production team's ideas. Designer and author of the book, "Modeling Messages," Karen Moon explains:

> We can view, and move around, the model, much as we view and move around the objects of everyday life. Because models are closer to reality than other media, they are understood more easily by the eye, and are more accessible to a wider range of people (Moon, 11).

As Moon describes, physical models fill a unique gap in the design process---the need for having a preliminary physical representation of the scenic design. Physical models also are able to bring the designer's perceptions of the space and inspiration to physical form, allowing other members of the design team to contribute and more readily understand the scenic designer's vision. Director Colleen Kelly believes that physical models help the design team gain information and perspective on the design.

> When I look around and I see the lighting designer or someone else going [yes], then I think well good, they're getting a lot of good information from this…that's good for me and that's good for the show. (Kelly, 2/25/16)

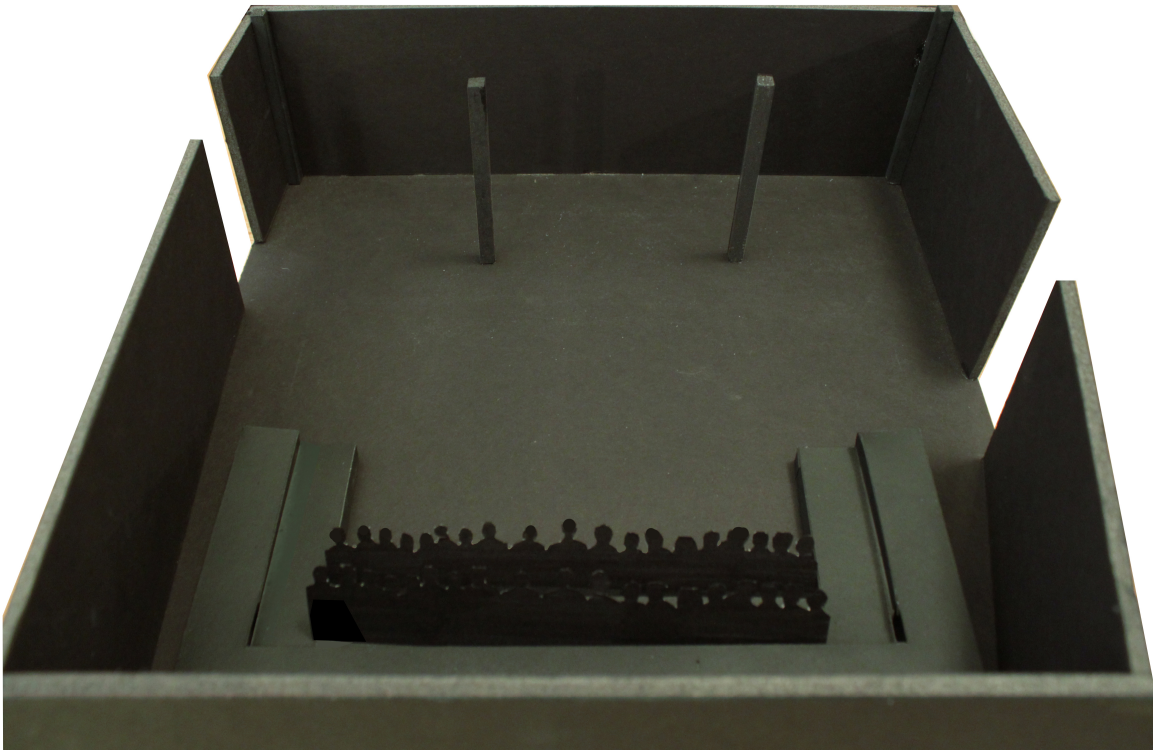
Early on in the design process, designers create a replication of the intended location of the scenery. This is a 'model box' or the empty architectural space of the theatre.



[Figure 3] ¼" Model Boxes. A corner thrust configuration on left and arena configuration on right.

When theatrical spaces include unusual architectural features, a physical model is beneficial to help incorporate these features so that the design team can visualize the space accurately. Director Dave Dalton has found it is helpful to have a physical model representation since the designer and the director "would need to sit and think through how to either mask or integrate these [atypical] architectural elements with the design ideas." He further explains that, "In my experience those elements [such as pillars or

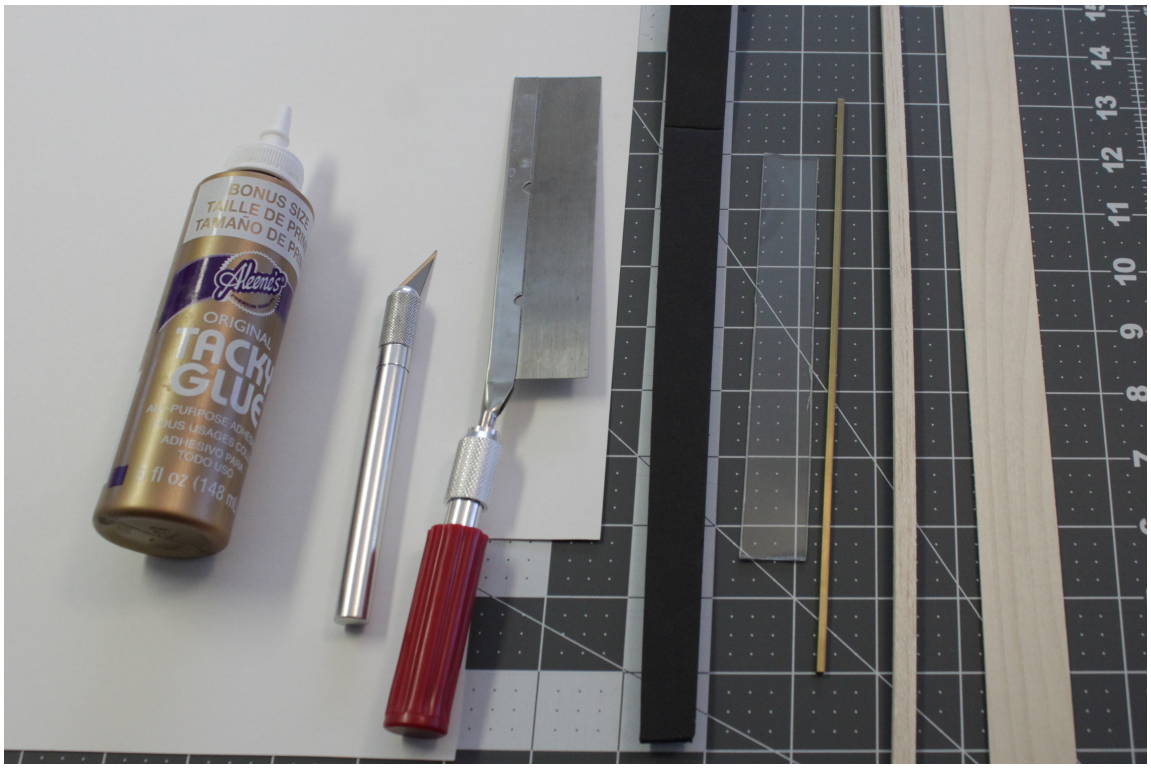
architectural features] have made physical models [or model boxes] more necessary” [See Figure 4]. (Dalton, 3/10/16) It is helpful for directors to see the three dimensionality of the theatrical space in a physical model in order to solve challenges brought on by architectural anomalies, for example, a sloped or low ceiling, supporting columns, windows or other unchangeable features in the existing theatre architecture.



[Figure 4] ¼” Scale Model Box depicting permanent supporting pillars.

Physical models are not limited to, but often consist of wood, paper, metal and plastic. They can also be constructed out of the same materials as may be used in the actual set. Elements of the model are cut, molded,

soldered, and constructed into the representation; they can even be printed with a 3-D printer.




[Figure 5] Common model materials: bristol board, foam core, plastic acetate, metal, wood. Cutting tools such as: a long handled razorblade, wood saw and cutting board. Glue for paper, wood and plastic.

Often they are constructed in the same manner as their full size counterparts. This gives a first opportunity for the designer to see what they like or do not like about the purposed set. Moon states,

> The model is the only physical, three-dimensional realization of the architect's idea--which, after all, is ultimately intended to be a physical, three-dimensional thing. (Moon, 11)

When working with the intended medium that the finished product will use, possible limitations or advantages of the materials or particular construction methods may be explored before the actual set is built. In a way, a physical model can be an experiment in structural engineering.

Similar to home building, a physical model is like a speculation house for directors to try out before selecting. Sometimes they even wish to “play house” with the set. (Kelly, 2/25/16) When considering staging, having a tactile representation of the scenery to work with appeals to directors such as Doug Grissom. He believes,

> I can easily manipulate this and see it from different angles; and the physical model gives me a better feel for the actual stage. I need to have a real sense of the space and acting areas before I can even think about staging. (Grissom, 2/29/16)

Mr. Grissom brings up a major benefit of physical models; easy manipulation. Perhaps it is necessary for directors be able to move things around in order to understand space. Julie Hamberg, Artistic Director of Live Arts Theatre, attests to that benefit by saying this, “Working with a physical model is pretty great. It’s like ‘getting your hands dirty’. [I can]...play with the furniture/set items.” (Hamberg, 3/7/16) With the ability to easily manipulate set pieces/furniture in a model, directors may also

choose to explore the possible use of additional pieces, substitution pieces or the entire elimination of a set component.

When making choices for what will be included in the design the script is studied for the movement of the storyline and entrances, exits, staircases and rooms must all be considered. In addition, there must be appropriate space for the actor's movement or blocking. Actors may also individually study the physical model to prepare and imagine their movements on stage. "I ask the actors to study the model so they can establish their own initial blocking in the world they'll inhabit." (Kubik, 3/9/16) All of this is taken into consideration by the team when making design decisions.

Many directors like to use tokens that represent actors on the physical model to plan possible blocking scenarios. This is true for Colleen Kelly, who relies heavily on physical movement in her shows. During her blocking planning she states "I have to have the physical model in my process." This may be because for her productions she often has large casts on stage and needs to work out the logistics of entrances and exits. She finds that planning can most easily be facilitated by moving objects around on a model.

> For me, the kind of shows I do are big movement things with lots of people on stage, kind of like a marching band and

> people moving in and out whether it's a [large] musical or a [straight play like] *A Flea in Her Ear*. (Kelly, 2/25/16)

This advantage for blocking on the physical models is echoed by Director and Associate Professor at UVA, Kate Burke. She states,

> The [physical] model is extremely important. Its three-dimensionality allows a seeing of actor and set piece placement and relationship, as well as movement patterns, entrances and exits. (Burke, 2/29/16)

Since both cast members and directors explore possible blocking, then consult the stage space of the model to check for accuracy, Kate Burke goes as far as saying, "It [the model] is the additional cast member." A tool that can be considered as important as a cast member is high praise. Her statement demonstrates how relied upon a model is for some directors.

Not only is a physical model relied on by directors and actors in preparation for blocking decisions, but it also has benefits for the other designers on a production. Production team members such as the costume or lighting designer, props people, stage manager, and choreographer may also use the model to experiment with in order to further their own work. As Ms. Hamberg said, "Everyone has access to it. We can pass it around, look in every nook and cranny." A lighting designer may use the model to test lighting, or a costume designer might use fabric

swatches to match colors and patterns that exist in the physical model. A stage manager may trouble shoot any issues with backstage areas. A lighting designer may want to coordinate on stage lighting such as a lamp or light colors or patterns. Additionally a costume designer may be concerned about safety with footwear or adequate room for costume changes. A physical model can help the design team troubleshoot their choices within the practical world of the stage.

Having the ability to see the model, all designers may troubleshoot any possible coordination problems with the other designers' choices.

> I've observed that, when the creative team can have a physical model, issues about placement of furniture, size and height of platforms, off-stage exits, traffic problems, and available space for blocking...have arisen early in the process, before rehearsals begin. (Kubik, 3/9/16)

The team's advance troubleshooting can be invaluable to a production when time is limited and pre-planning for staging has occurred in advance on the miniature set.

Beyond the use as a tool, "Models are often objects of beauty and charm." (Moon, 6) and as such can provide inspiration within the team.
The model as a "piece of art" (Moon) can imbue inspiration within a production company,

> There is a ‘curio’ kind of feeling that I observe in the room when a physical model is first presented to a design team or acting company, as if the world of the play has just arrived to us in miniature. (Kubik, 3/9/16)

Having a unifying experience can draw a team into a better artistic collaboration.

So, with all their benefits, physical models do have disadvantages, too. Items such as props, furniture, textures, graphics, and architectural details shrink in a small, scaled physical model. A reduced size can create an issue of clarity or present communication challenges in regards to specific details, which may not be seen clearly in miniature form. It is a fair statement that Moon makes,

> A model’s typically reduced scale can cause restrictions...in most cases a model...is not a convenient way to communicate specifications. (Moon, p.16)

When details are too small to be fully viewed, separate supplementary design information might need to be provided to illustrate specific design details, such as fabric swatches, wood stain finishes, or photographic images. These samples may be more difficult to imagine when not fully

incorporated into the actual model. These materials could also be lost or separated from the model.

As details begin to take shape, changes occur. These changes must be illustrated in the model for the model to be of the most benefit to the production team and company members. Adding changes and updating the physical model can be a laborious and time-consuming process. Director Hamberg has found that for her, "Rarely is a physical model updated at all." (Hamberg, 3/7/16)


[Figure 6] Image on left: model. Image on right: realized set. Model façade was not updated to reflect changes. *Taming of the Shrew.* 2011; University of Wisconsin-Stevens Point. Jenkins Theatre. Scenic design by Hilary Landowski. Directed by Matthew Crider.

An out of date, inaccurate model can cause a lack of communication while the production is developing.

## Chapter 2: Digital Models

Digital models are defined as computer rendered images. These images, which often include digital walkthroughs or animations, are created by computer programs such as Photoshop, Vectorworks, and Sketchup.

These programs have tools that create the illusion of space through the use of light and shade to create the appearance of depth, width and height. As with physical models, digital models may be either monochromatic or colored.

[Figure 7.1] *Bedroom* digital white monochromatic model created in Vectorworks. 2016. Hilary Landowski


[Figure 7.2] *Bedroom* digital colored model with photographic Earth Day poster created in Vectorworks and Photoshop. 2016. Hilary Landowski

Photographic images may be added within these models to help create colors and/or textures. These photographic images can be added or eliminated quickly to show a variety of choices to the design team.

Digital models easily lend themselves to other revisions or edits as well. The color or size of an object may be changed or new elements created with a few computer commands. This ease of element adjustment can be an asset during design planning. Ms. Hamberg acknowledges that,

> The great thing about digital models is that they can show changes very quickly. That can be invaluable. Ideas can be

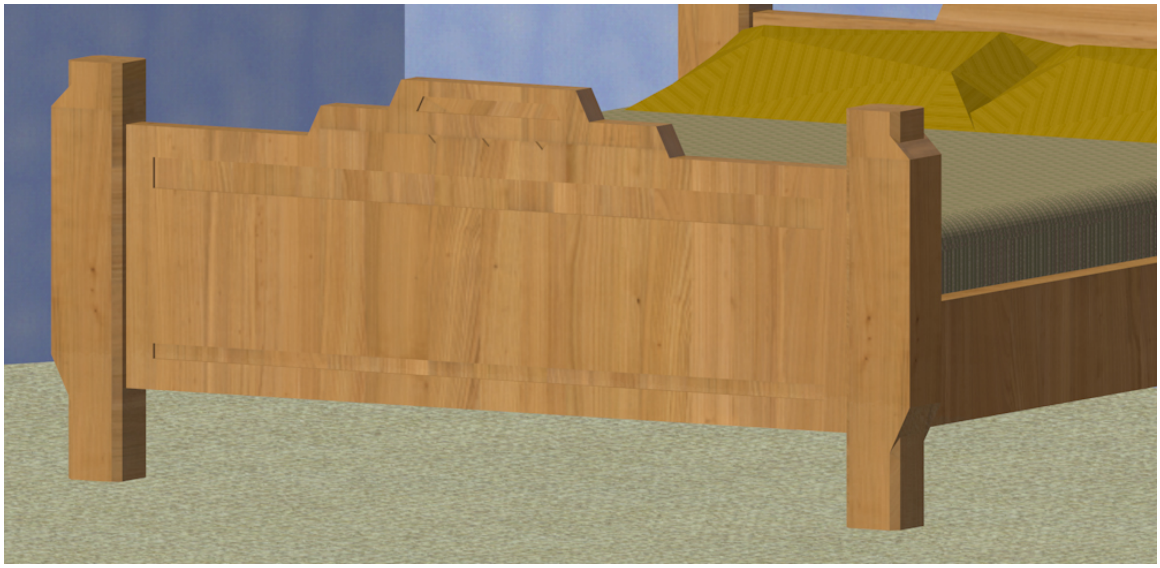
explored and discarded without too much work. (Hamberg, 3/7/16)

Flexibility of digital models takes form in color, size, perspective/view, zooming in/out, moving left/right, up/down. It is possible to add/delete items such as furniture, walls, windows, doorways, architectural features, and people. “The fact that a digital model can be updated, basically, after every design meeting and then shared, beats out [this aspect of] a physical model.” (Hamberg, 3/7/16) While the changed variables are as endless as technology, the digital model can also take on new form quickly.

By nature of its design, a digital model exists in transportable, small and compact form. When using digital, a delicate physical model does not need to be transported to production meetings or rehearsal spaces. Digital models can be emailed and opened on any screen in any location and access to the model becomes instantaneous. Director Hamburg has found also that “…sometimes we have artists that aren’t working locally, so being able to share the design digitally is also facilitated by working digitally.” (Hamberg, 3/7/16) This ease of dissemination can keep everyone contributing to and up to date on changes since it affords all members of the design team access to the model at anytime.

Along with succinct updates, flexibility with other scenic information such as a groundplan is sometimes needed in reorienting layout. Ms. Hamberg states, “[with a digital model] we can move from the design to the groundplan in a snap”. (Hamberg, 3/7/16) Since a digital model begins with a groundplan, which is then layered upon, these layers can easily be removed with the click of a button to reveal the groundplan underneath which may assist in expediting design team decisions.

In addition to changing the view direction from above, digital can also be used to magnify aspects of the model. Digital models can be zoomed in to show details or zoomed out so that the entire set may be viewed at once.



[Figure 8] Footboard with wood grain parquet/inlay and shape details available with zooming. Created in Vectorworks. 2016. Hilary Landowski.

View flexibility makes communication between a designer and director fluid. This feature of digital “can show different looks” (Hamberg 3/17/16). Questions are answered in a flash and comparisons are done with ease.

Since so much of a scenic design requires mathematics and measurements, digital models aid in the process because they can provide instant calculations. Freelance director Charlie Otte says, “I usually work with the designer to clarify things in the model to make sure [the mathematics are] accurate.” (Otte, 3/7/16) When the decisions of a design are considered, the mathematics of the area must be consulted. These calculations are easy to obtain since the creation of a digital model is based on measurement commands. The dimensions needed for building and estimating space usage are already labeled in the model and readily available for accuracy during the decision making process. Director Hamberg appreciates the use of “dimensions [which] are immediately available” to avoid errors in execution.

Not only are dimensions quickly available, adjustments based on these accurate measurements can be accomplished quickly. Any changes, “which once had to be laboriously drawn by hand can now be generated effortlessly by clicking a button.” (Morris, p. 159) This ability to perform swift adjustments can aid in the creative process.

However, these adjustments can only be made by individuals or designers who are extensively trained in the digital design programs. Director Hamberg points out, “most creative members don't have access to the programs” (Hamberg, 3/7/16) to experiment with various elements or adjust views of the set. Their understanding and use of the set is then limited.

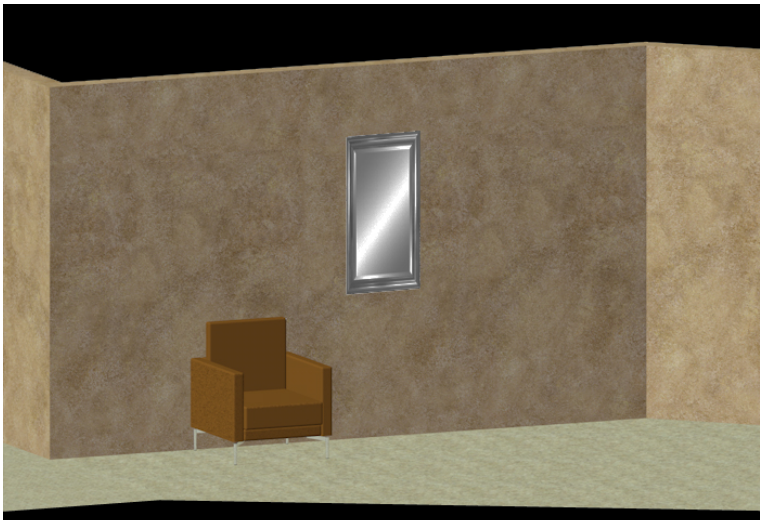
Furthermore, a director’s individual manipulation of the digital model for blocking and choreography becomes theoretical rather than manual. Planning movement in a digital model is less interactive. Director Colleen Kelly states that for her blocking process, “I have to pick things up and move them around.” (Kelly, 2/25/16) This feature of interactivity is not possible with a digital model when a director isn’t skilled in using digital model software.

Directors may also find a disconnect between digital and real human visual perception. Director Marianne Kubik states that for her, “The digital model simply takes too much work to imagine three-dimensional action on a flat surface, no matter the attempts at perspective.” (Kubick, 3/9/16) Director Hamberg agrees with this by saying,  “We must accept the angularity, falseness and general flat character [of digital models].” (Hamberg, 3/7/16)

To move past the flat angular qualities of digital models the designer must add shadows, reflection and transparency. In addition to these visual devices,

> Color in the computer is either extravagantly false or attempts to simulate photographic representation of reality through sophisticated rendering programs incorporating reflection, transparency and texture mapping fall short. (as cited by Morris, 2006, p. 159)

The application of these visual devices requires advanced skill and many steps in a software program to create the intended look. Even when using additional computer commands, reflection often does not show as well in digital format as it does with real materials. The digital mirror reflection in [Figure 9.1] is not as convincing as in the physical model mirrored floor in [Figure 9.2].



[Figure 9.1] Mirror reflection in a digital model using Vectorworks and Photoshop. 2016. Hilary Landowski

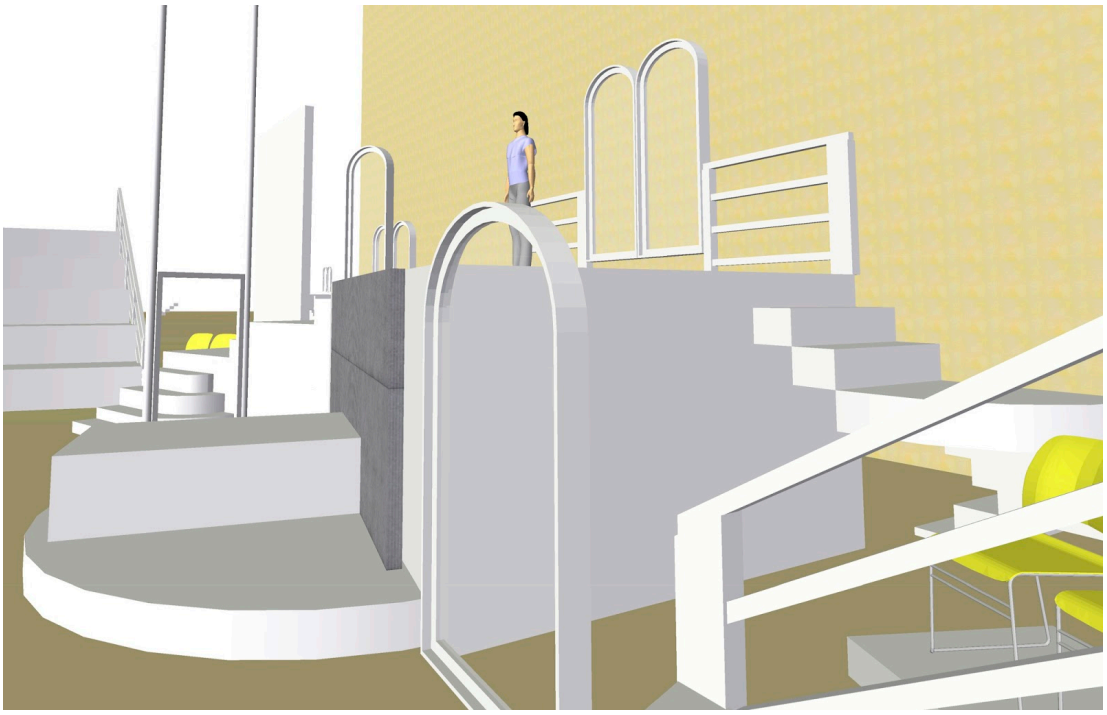
[Figure 9.2] Mirrored reflection in physical model using Mylar. *Max:Understood*. 2014; University of Virginia. Unrealized scenic design by Hilary Landowski.

It is useful to have reflection in a model since reflections from a window, mirror or metallic surface may cause problems with lighting and may influence the design team to make different choices. Mirrors or paint finishes may need to be dulled.

Along with real or believable textures and colors, the view or sightline must be correct for the design team to fully comprehend a possible layout. Sightline accuracy for audience members may become complicated to measure when in digital format. Director Hamberg is cautious of obtaining precise sightlines when using digital models.

> Often I bring up a sight-line issue when using a digital model. The designer manipulates a view and says, ‘See, it’s fine’. Yes, digitally, all looks well. When a physical model is consulted [though], the designer sees that specific sightline does not, in fact, work well. (Hamberg, 3/7/16)

This may be due to the definitive computer screen; the image it shows terminates at the edge of the screen. This creates a lack of peripheral vision. A lack of peripheral sight may make a digitally measured sightline inaccurate. [See Figure 10] Without the proper sightline during the planning phase, items on stage may block the view of an audience member. Therefore, it is important to accurately gauge the relationship of set pieces. Considering sightlines will inform a production team of what may be hidden or revealed for the audience and what positions need adjustment when planning layout. Peripheral vision cannot be included when using a digital format, which may cause lack of sightline accuracy. In [Figure 10], the staircase on the right is cut off, which cannot show the action/entrances and exits occurring on the far right.



[Figure 10] *A Flea in Her Ear.* Digital sightline of an arched doorway blocking the view of actor on set. Created in Vectorworks. Hilary Landowski.

## Chapter 3: Conclusion

Survey responses show that directors have had various results in the efficiency of both types of models (and this may imply that usefulness and satisfaction with a model may partially be based on the quality of the model). Directors have found that physical models allow for access to plan blocking for both directors and actors thus allowing for greater collaboration in this process. Physical models provide an opportunity for exploration of building materials and techniques. When a physical model is available to them, directors manipulate items to experiment with variances in the layout of set pieces and set dressing. It was found that when using a physical model, designers in the other design areas experiment with changes in their design plans as well as coordinate proposed changes with each other. A miniature and realistic looking physical model is a source of inspiration for the entire company. It was also found that in a physical model fine details are too small to be viewed easily and they are rarely updated to reflect changes as they occur.

The data I compiled indicated that some of the respondents have found that digital models allow for quick model updates, various views with easy to see details and quick views of the ground plan. With digital models the dimensions are built-in and readily available for reference. A digital model

allows accurate and swift adjustments to the design. It was also found that digital models are limited in their ability to be manipulated by directors and viewed by company members. Digital models lack accurate visual perception affecting sightline accuracy negatively.

Benefits of physical models found in this study include; easy director manipulation, assistance in other designer's work and integration of theatrical space, swift comprehension of actor/set relationship, early troubleshooting, and inspiration for the entire production team.
The disadvantages of physical models found in this study include, lack of updates, details were too small.

Benefits of digital models found in this study include; quick updates and changes, ease of digital dissemination, flexible view changes such as ground plan, zoom-able details, and precise measurements.
The disadvantages found include; lack of skill for director and design team in the software needed to manipulate model, issues with digital perception and sightlines, acceptance of the digital quality/look, and a poor or inaccurate representation of finishes and/or colors.

The clearest summary of findings comes from the respondents themselves. Three of eight respondents indicated they preferred both models in different circumstances.

Due to problems and strengths with either type of models directors found that when problems with both digital & physical model capability occurred, they liked to refer to the other type of model. When visualizing the entire set Director Charlie Otte likes that “digital helps [him] with visualizing” and when wishing to adjust the set pieces “[the] physical [model] lets [him] reach in and move furniture…I like both digital and analog [physical].” (Otte, 3/7/716) Director Doug Grissom prefers to “start with a physical model [and then] the digital is a great asset”. He states that “it would be most valuable to have [both] a digital and physical model.” Director Hamberg says that, “Occasionally a designer will create a physical model and then build digital models to show multiple ‘looks’/options to augment the concrete model.” (Hamberg, 3/7/16)

Taking these facts into consideration, the findings of this study did not fully support the hypothesis that Digital models are a faster more effective way of communication during the design process. Of those I sampled it was found that digital modeling was not always the preferred mode of communication between director and designer. In actuality, due to the

strengths and weaknesses of each type, receiving both types of models is preferred.

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## Appendix 1: Questionnaire Distributed to Directors

- In general, of what use is the scenic model to you?
  - In your process, do you refer back to the model or do you use a different resource furnished by the designer?

- Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)

- If you had been provided with a digital model was it a finished model or still in the design process?
  - Was it colored and/or textured?
  - If applicable, did it contain furniture or representations of furniture?
  - Were there any aspects that needed further explanation?

- Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other?
  - Why?

- On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?

## Appendix 2: Transcripts

*Kate Burke: February 29, 2016*

- **In general, of what use is the scenic model to you?**
    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  The model is extremely important. Its 3-dimensionality allows a seeing of actor and set piece placement and relationship, as well as movement patterns, entrances and exits. (I had trouble envisioning sightlines, though. Would digital images help with this?)

  Yes, I often refer to the model. It is the additional cast member. Later in the process you provided images of pool walls, and probably other things, which only made sense because of the model.

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  No, but I don't direct that often.

- **If you had been provided with a digital model was it a finished model or still in the design process?**
    - **Was it colored and/or textured?**

      N/A

    - **If applicable, did it contain furniture or representations of furniture?**

      N/A

    - **Were there any aspects that needed further explanation?**

      N/A

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

N/A

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  Physical definitely, for the reasons described above.

*Dave Dalton: March 10, 2016*

- **In general, of what use is the scenic model to you?**
    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  The designers I have worked with have usually provided a physical model as well as renderings. I tend to think of myself as a pretty good judge of how I'll be able to use the set from renderings alone. I've had a number of experiences in which we only used the physical model in passing and did not refer back to it, relying instead on the 2D renderings to discuss the set. However, the best design experience I had involved a designer who insisted that we sit together with the physical model and consider possibilities before any renderings were made. Together we moved things around and tried different configurations. We were able to get on the same page about the set and find some really interesting ways to move forward.

  I've never worked with a digital model that was interactive. The renderings usually do a fairly good job of communicating the color, dimensions, and best use of the set. I would be open to working with an interactive digital model, however.

  In general my interactions with models have been greatly influenced by the designer and his or her interest in manipulating them. Another influence is the relative need of the set to interact with existing architecture. Many off- and off-off-Broadway theaters in New York have oddly placed details that must be either masked or integrated with the set. For example, I've worked several times in the Ontological-Hysterical Theater (which is also called the Incubator theater) on 2nd Avenue in New York. That theater has a very prominent support column in the middle of the downstage right portion of the playing space. It also has a balcony built into the stage right wall, which many productions do not have the time or inclination to mask. In my experience those elements have made physical models more necessary as the designer and I would need to sit and think through how to either mask or integrate these architectural elements with the design ideas.

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  (See above)

- **If you had been provided with a digital model was it a finished model or still in the design process?**

  (See above)

  - **Was it colored and/or textured?**
  - **If applicable, did it contain furniture or representations of furniture?**
  - **If applicable, did it contain furniture or representations of furniture?**
  - **Were there any aspects that needed further explanation?**

  (See above)

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

  (See above)

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  (See above)

- **In general, of what use is the scenic model to you?**
    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  The scenic model is invaluable to me; I can't have any real sense of the space from groundplans or drawings. I need to have a real sense of the space and acting areas before I can even think about staging.

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  For Arctic Circle, I received a physical model, and later saw the digital model online. I found the digital model extremely useful, and I would always hope to have one in the future. But it would be most valuable to me to have a digital and physical model.

- **If you had been provided with a digital model was it a finished model or still in the design process?**

  I've only seen the finished version, though an earlier version might have been available to me if I'd thought about it.

    - **Was it colored and/or textured?**

  It was colored; not sure what you mean by textured in this case.

    - **If applicable, did it contain furniture or representations of furniture?**

  No furniture used in this set.

    - **Were there any aspects that needed further explanation?**

  No, not really; it was very clear, especially in conjunction with the physical model.

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

If I had to choose, I'd favor the physical model because I can easily manipulate it and see it from different angles; and the physical model gives me a better feel for the actual stage. For me the digital model was a great supplement.

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  As I said before, the physical model for the reasons outlined above.

- **In general, of what use is the scenic model to you?**

  1. It helps me, and the entire design team, visualize exactly what the scenic designer has in mind
  2. Clarifies any difficulties/challenges with sight-lines - which a 2 dimensional drawing does less well
  3. Gives a clear way to see how the set will transition from one look to another
  4. Is a concrete tool to which the team refers when we're in discussions. We point to specific elements when we want to discuss adjustments or have questions, eliminating doubt about location, space, etc. I see it as a time-saving and clarifying tool -- it short-circuits confusion. We can get right to an issue by pointing at it.
  5. If it is colorized it can give a sense of the anticipated palettes
  6. It can be used to communicate the vision, beyond the creative team to the actors, Master Carpenter, builders, etc.

    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  If a model is available, I do refer back to it. I like to have it at every design meeting if at all possible. Of course, if no model is available, we go with drawings

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  I've often been provided with a digital model without a physical model. This is the way most designers are working, it seems, right now. My experience is that designers often create one or the other, rather than both. Occasionally, a designer will create a physical model and then build digital models to show multiple "looks" / options to augment the concrete model.

  My most recent experience of working this way was on MASTER AND MARGARITA at Live Arts. It was a hallucinatory show. We incorporated projection and puppetry, with some magic, so a physical model was particularly helpful. Creating and seeing digital looks as well, given the giant design team, helped keep us all on the same page.

- **If you had been provided with a digital model was it a finished model or still in the design process?**

Ok, since I've worked on multiple shows with multiple digital models (at least 7), I would say designers vary in when they create their models in the process. In my experience, however, designers wait until the concept has been fairly defined (after meeting 3 at least?) before they put in the time and effort to create a digital (or physical) model. Rarely it "finished" when initially presented because it's early in the design process.

- **Was it colored and/or textured?**

Often it is. Even though the designer doesn't know if the pallet will be "right," she/he often puts something out there as a beginning point of discussion. If we're using the 7 shows number, I'd say of those, 2 might have come in without color choices.

- **If applicable, did it contain furniture or representations of furniture?**

Interesting. My experience has been that digital models often don't include furniture, which drives me batty. Or these items come in much later in the process. (I'd rather have a block where a mountain should be, or an oval where the sofa is, then an empty space so I can have some perspective.) I understand not including these in the digital drawing is a time issue for the designer and there are always trade-offs.

- **Were there any aspects that needed further explanation?**

I can say positively that no model has ever come in that didn't need some explanation by the designer. Designers do their darnedest to make their vision clear. The rest of the team just can't get in their heads, so we have questions. Painful to the designer I'm sure, but true.

I'm not trying to be flippant here. We always have questions and that is how it should be. The creative team is grateful to have a model to discuss. It brings the team together. It helps us focus and gets our creative juices flowing. Vision is clarified and details are clear.

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

I do not have a giant preference, though working with a physical model is pretty great. It's like "getting your hands dirty." Everyone has access to it. We can pass it around, look in every nook and cranny. Play with the furniture/set items. When it's digital, the designer must manipulate the model view. Most creative team members do not have access to the program, so PDF's must be created for the rest of the team. (But, rarely is a physical

model updated at all!)

The great thing about digital models is that they can show changes very quickly. That can be invaluable. Ideas can be explored and discarded without too much work (depending on the designers facility with the program and level of detail.) One thing we all know is difficult in digital-land is just that -- it's digital. We must accept the angularity, falseness, and general flat character of the medium. All romance, mystery, and mood that a designer might want to communicate is virtually lost. Another visual medium must be used to augment the model in this case. A physical model can, on the other hand, communicate all of the above (if the designer were so inclined to sculpt it this way). I have had a few designers do this, although it is rare. Generally, a physical drawing/water color, or collage is provided to augment the model if needed.

Now, sharing thoughts as artistic director at Live Arts: I must protect the audience experience. Often if I bring up a sight-line issue when using a digital model, the designer manipulates a view and says "see, it's fine." I know my theaters and they are a bitch to design in and can create some pretty horrific sight line hurdles. Yes, digitally, all looks well. When a physical model is consulted, the designer sees that specific sight line does not, in fact, work well. Why this is, I'm not sure. What I am sure of is that when I've bowed to "it's fine," ultimately seats get cut and the theatre loses precious revenue. We now keep models of both theatres available for this discussion.

Also at Live Arts, sometimes we have artists on the creative team that aren't working locally, so being able to share the design digitally is also facilitated by working digitally.

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

Ultimately, I would come down on the side of digital. I love a physical model for the reasons above. But the fact that a digital model can be updated, basically, after every design meeting and then shared, beats out a physical model. Acknowledging that its a lot of work for the designer, of course. Summing up why digital: update-able, shareable, can show different looks/options. Something I haven't mentioned, we can move from the design to ground plan in a snap, dimensions are immediately available, etc.

**-What use is the scenic model?**

For me, the kind of show I do are big movement things with lots of people on stage, kinda like a marching band and people moving in and out weather it's a musical or a Flea in Her Ear. There's usually a lot of movement going on. So in my processes, thinking about what is this experience going to be for an audience member and what's the rehearsal process going to be for the actors? I have to have the physical model in my process. I have to pick things up and move them around and ok, so I need to play house with them. So that's important to me in my process as a director working with actors and thinking about the audience's experience.

The other part of being a director is how do I communication with the designers and get stuff in the shop and get the thing I think I'm going to have. How do I make that happen, so even though personally I don't need that I know it's important for other people to communicate what I need. I don't need it but I know other people need it so I value it in that way because it helps facilitate between the designer and the shop. It also for example in Flea it came in use when I said is there a way we can figure out the sight lines here. Ok, so that because there's a program or something that can do that that becomes helpful and I think it makes it a lot easier to shift something. To say let's raise this 6" or let's do that. Obviously you can do that better on a computer than you can say, let me rip this off and glue it back together again. I see them as having very different purposes for as far as my process. The one that involves actors, I want the hard thing and the one that needs to be on the design/construction end, then that I think makes sense that it's in a digital model.

**-Have you ever been provided a digital model only?**

No

**-Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

I don't think I've ever had a digital model other than what you provided. I think I've received electronic copies of blueprints but not a digital model. So I think that might have been the first time.

- **-If you had been provided with a digital model was it a finished model or still in the design process?**

I don't remember. It had the furniture the pouf and the bed, that was definitely there.

- **Were there any aspects that needed further explanation?**

I don't think on the model. Again, my big concern was trying to imagine how the doors would work. Not just the flying in but the opening, so and I'm not sure a model could have provided any of that information, I don't know. And the bed turning, I don't know if there is a way in a model, there might be, for example how long is it going to take, what will the timing of someone entering or someone jumping on the bed or turning around. But I'm not sure a model could have provided that information. The Stage Manager, Kristina, just timing you know the doors coming in but to tell you the truth if that could have been done digitally it wouldn't have been as exciting as watching her try to figure out the exact moment of timing that with the music, you know? I understand how the digital is helping us be more precise but I think we're also losing an aspect of the art of it. Especially for Stage Managers, you just push the button push the button rather than ok, there music and the sun is coming and then they kissed. That being involved in the action so maybe I could have gotten this information but I also didn't mind having people twirl around a bed.

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

They serve different functions for me.

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

I want the hard, I need to be able to play and the other is for other people.

I'll already have my own play model to do so. Some Moliere thing I did. It was very late in the process when I received the model but it was also very, very detailed. There were even people in the seats, and I didn't need all of that but it was it's own piece of art, basically. And what I need if just the rough (there are stairs there and this pouf can't go off stage, it doesn't fit there) those are the things I need to move around so I wouldn't care if the hard model is detailed, I just need it to play with. I wouldn't need someone to spend a lot of time on it. I just need the basic structure.

I don't know and this might be a generation thing I can't see how the digital would work for me, I know it would be like a little game but I don't know, it would be like learning another whole computer game.

The other thing in educational theatre, a young director coming up here not taking the same classes as you are. So, I don't quite understand how we're training directors to have one vocabulary and we're training designers to have one vocabulary but if you expect people to come together you have to be able to have a common vocabulary because this is where we're going to come together in this virtual world here to have those conversations so it might be helpful. We don't have a MFA Directing program here but even the undergraduates directors are they even ever told how to have a conversation with a designer and what they're going to expect. I mean as soon as you open something up and are moving something around I'm thinking do I have to know something about that? That looks nice but where is the set?

But it's also then when I look around and I see the lighting designer or someone else going yea yea yea, then I think well good they're getting a lot of good information from this and that's good, that good for me and that's good for the show. That other people, things are moving forward. I don't know how they're moving forward but they are moving forward.

Well, I think that you could beg the question of what I said before, at what point are you taking the art out of it, that things are so precise that you don't need the human involved in the timing or feeling.

- **In general, of what use is the scenic model to you?**
    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  The scenic model gives me a dimensional perspective of what the physical world of the production will be like, helping me envision how the story plays out from an audience perspective. I like to continually refer to the model throughout the rehearsal period to determine staging patterns, spacing, visual pictures and physical safety. I ask the actors to study the model so they can establish their own initial blocking in the world they'll inhabit.

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  I received both digital and physical models for the UVa production of Rhinoceros (director) and, possibly, Romeo and Juliet (fight director),

  I recall receiving only physical models and hand-drawn renderings for the UVa productions of By the Bog of Cats (director and choreographer) and Scapin (director).

  I received only a digital model for the UVa productions Vodka Variations (director and choreographer) and Bloody Bloody Andrew Jackson (fight director), as well as Live Arts productions of City of Angels (staging consultant) and Les Miserables (choreographer).

  I don't recall receiving any models for the HRT production of Crimes of the Heart (director) nor for any devised projects I've created.

- **If you had been provided with a digital model was it a finished model or still in the design process?**
    - **Was it colored and/or textured?**
    - **If applicable, did it contain furniture or representations of furniture?**
    - **Were there any aspects that needed further explanation?**

  Most of the digital models I've been provided have been near completion but never finished. Furniture or actors were not often represented. Discussions that altered the design did not often generate a new, edited version. They were colored with minimal representative texture. I recall creative team members asking questions about visual elements that were unclear or underrepresented in the digital design, especially with regard to the perspective, distance or dimensional relationship we were seeing onscreen.

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

  I referred only to the physical model once design meetings were completed. I've observed digital models provoking a lot of questions from the creative team about clarification of what's suggested onscreen. I've observed physical models stand alone with fewer clarifications needed.

  There is a "curio" kind of feel that I observe in the room when a physical model is first presented to a design team or acting company, as if the world of the play has just arrived to us in miniature. Digital designs don't provide that same emotional "ooh" when presented. Rather, the response is more objective than emotional. I feel a flatness, a lack of real-ness, and sometimes confusion, in the digital model that doesn't exist with a physical model, so I can't get behind the digital model as freely or subjectively as I'd like, making it harder to connect this background to the action I'm about to stage.

  I've observed that, when the creative team can have a physical model, issues about placement of furniture, size and height of platforms, off-stage exits, traffic problems, and available space for blocking, fights and dance have arisen early in the process, before rehearsals begin. With digital models, I'm often surprised by the dimensions that appear in the final set, and so I've learned to refer mostly to the groundplan and elevations for imagining the staging. The digital model simply takes too much work to imagine three-dimensional action on a flat surface, no matter the attempts at perspective.

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  The physical model, without a doubt. For my work, I need to see a full three-dimensional picture of the set, and a digital version only suggests this without providing me or my actors a realistic feel of physical and kinesthetic space. It reminds me of watching a video game. I appreciate the excitement designers might find in digital technology's ability to illustrate, rotate and change patterns with simple clicks. But they're never true representations of color, size and perspective, and it makes me wonder whom these illustrations are really serving. When I experience a scenic designer take the time to handcraft a miniature world and let one's hands calculate relative dimensions, color and texture, and relationships among bodies to furniture to architecture, my instinct knows (s)he has physically worked through the story and connected to the anticipated living material that will inhabit the set.

- **In general, of what use is the scenic model to you?**

  It's very important to me. I tend to refer to a model often if it is available. I usually work with the designer to clarify things in the model to make sure it is accurate.

  - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  I refer to the model and to drawings, art work, and research

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  I have often been provided with a digital model. In general, I've been given more analog models for theatre, and digital models for installations, theme parks, museums, etc.
  - Analog – Good Woman of Setzuan, The Dead, Travesties, Flight, 410 Gone
  - Digital – Smithsonian Exhibition on American Culture, Ghosts of the Library (Lincoln Pres. Library and Museum), Minions Opening Day press event.

  I received both for the Texas State History Museum show The Star of Destiny. We used them for client presentations as well. Also for the play, Fault, where projections and scenery were designed by one designer, so she created digital and analog.

- **If you had been provided with a digital model was it a finished model or still in the design process?**

  I can deal with an unfinished model recognizing that it is in process, and provide suggestions as to how it might be finished.

- **Was it colored and/or textured?**

  - I've been given digital models that were finished, or simply sketch-up models that were still blocks to show general shape

- **If applicable, did it contain furniture or representations of furniture?**

    - Depending on the show,

- **Were there any aspects that needed further explanation?**

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

  I like both digital and analog.
  Digital helps visualizing, but analog lets me reach in and move furniture around

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  This is a hard one. Depends on the show and the project. I think that for traditional theatre, an analog model is more helpful, since I will stare at it and move things around. A digital model is better for large scale events where I'm not really thinking about staging, but looking at the storytelling aspects of the overall mise en scene.

- **In general, of what use is the scenic model to you?**
    - **In your process, do you refer back to the model or do you use a different resource furnished by the designer?**

  I like models, though I am good, I think, at reading floor plans and transferring from 2 to 3 dimensions. It was very helpful to actually tape out the space to discern that we needed more.

- **Have you ever been provided a digital model only? Have you ever received both? (If so, for which production(s)**

  I think we just had a digital model, right? Don't think I've ever had both

- **If you had been provided with a digital model was it a finished model or still in the design process?**
    - **Was it colored and/or textured?**
    - **If applicable, did it contain furniture or representations of furniture?**
    - **Were there any aspects that needed further explanation?**

  Frankly, I don't remember. I did see something, digital, I believe, that was painted and textured enough so that we discussed the floor treatment, and I urged you to go with the wood.

- **Of the times the scenic designer provided both physical and digital models, did you have a preference; was one more helpful than the other? Why?**

  I probably prefer physical models, just being old and all. Digital models are particularly useful when you can move the point of view around, especially when working in thrust or round.

- **On the occasion where only one model will be provided, which type (digital or physical) model would you prefer? Why?**

  See above.