Setting the Stage
Episode 14: 
Click into the Future: Digital Media Design for the Stage

SC Grade 1st-6th
NC Grades 4nd-6th
SOUTH CAROLINA STATE STANDARDS

1-PS4-2 Make observations to support an evidence-based claim that objects in darkness can be seen only when illuminated by light sources.

1-PS4-3 Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

4-PS4-3 Generate and compare multiple solutions that use patterns to transmit information.

6-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

NORTH CAROLINA STATE STANDARDS

PS.4.3 Understand the nature of light and how light interacts with objects.

PS.6.3.4 Use models to explain that various waves (seismic, sound, electromagnetic, including visible light) are reflected, absorbed or transmitted through various materials.
Part I - Workshop Video

In Episode 4, Hunter discusses the mechanics and functions of light projectors. But how do these unique machines assist with scenic designs onstage?

Watch the video above to explore the world of Projection Mapping and Digital Media Design from Joseph Amodei, the Gaillard Center’s Media Designer for Finding Freedom: The Journey of Robert Smalls.
Joseph Amodei (they/them) is a new media artist, theater designer, activist, and educator. Their work seeks to make material differences with and for people at the intersection of art, technology, and community. Joseph grew up in North Carolina, where they received a BFA in Studio Art from UNC-Chapel Hill. Joseph completed their MFA in Video and Media Design at Carnegie Mellon. Previously, they were a Professor of Immersive Media at Chatham University, and they recently joined Lehigh University’s Department of Theater in the fall of 2023. Recent work has explored gameplay + gerrymandering, immersive archive creation + queer care, the HIV/AIDS crisis + performance, and Human Centered Design + issues of health equity.

This summer, their media design for the dance floor, the hospital room, and the kitchen table, (New Orleans Contemporary Arts Center, Theater Communications Group’s National Conference, Kelly Strayhorn Theater, National Performance Network) – a show about archiving queer care across pandemics – has been selected to represent the USA in the emerging category at the Prague Quadrennial, what USITT calls, “the Olympics of performance design.”

Selected Media Design highlights: They Do Not Know Harlem (Playmakers Repertory), To Buy the Sun: The Challenge of Pauli Murray (Hidden Voices); Amm(i)gone (APAP, The Theater Offensive); Packing and Cracking: Gerrymandering through Gameplay (The PA Center for Women and Politics, UNC’s Process Series, SFX); This Emancipation Thing (RedCat); The Young Playwrights Festival (City Theater Company of Pittsburgh), My Mouth is a Queer Time Machine (Ars Nova); The Pattern at Pendarvis (HERE Arts Center); and The Clothesline Muse (National Black Theater Festival).
PART III - THE RISE OF DIGITAL MEDIA IN THE PERFORMING ARTS

“The past decade has seen an extraordinarily intense period of experimentation with computer technology within the performing arts.” With the increasing incorporation of multimedia (the use of more than one form of communication, such as writing, audio, images, animation, or video) into interactive presentations and live performances, the limitations of stage effects have become virtually boundless! The integration of technology on stage can “increase the effects, spectacles and impact of performances and visual arts. Incorporating multimedia in productions surprises the audience and keeps them engaged. The larger social impact after the performance includes interpretations from diverse groups of people,” then later looking at the 20th century, we see “emerging forms of drama and genres of performance reflected the active and escalating role of computer technology in society, with businesses and education treating computers as essential. As our society became more reliant on computers in everyday life, artists began relying on computer technology to play a significant role in film as well as live theatre.”

PART III - THE RISE OF DIGITAL MEDIA IN THE PERFORMING ARTS

Read the articles below to learn more about the influence of digital media design on theatre's modern landscape.

- How Projection Design Is Changing the Landscape of Theatre
- Digital Drama: The Technology Transforming Theatre
- Projection Mapping in Theatre and Performing Arts: A New Dimension of Storytelling

The modern use of projections and digital media on the theatrical stage largely began with Wendall K. Harrington. Harrington’s projection work on “The Who's Tommy” in 1992 set the stage for the modern projection era of Broadway, and later the digital media wave in the 2010s. Video designers Finn Ross and Adam Young carried on the torch and reimagined video design for the stage with “Mean Girls” in 2018. Using video design to exemplify Tina Fey's writing style, the show's director says that the production gravitated toward digital design because of its ability to feature “quick cuts, short scenes and fast-paced dialogue... [and] allowed him [Finn Ross] flexibility and the ability to jump between scenes, but also deepened the story.”

Reflect on the information that you have learned so far. Why do you think that some productions are choosing to feature digital multimedia design on stage? What does this add to live productions? Do you think that there are any negatives to using digital multimedia design instead of traditional scenery?

Figure 4 & 5 Nicole Rosky, “Broadway by Design: Scott Pask, Finn Ross, Adam Young & Gregg Barnes Bring MEAN GIRLS from Page to Stage,” Broadway World, June 2, 2018, https://www.broadwayworld.com/article/Broadway-By-Design-Scott-Pask-Finn-Ross-Adam-Young-Gregg-Barnes-Bring-MEAN-GIRLS-from-Page-to-Stage-20180602
1Caitlin Houston, "How 'Mean Girls' and more are leaning into video design," Broadway News, May 31, 2018, https://www.broadwaynews.com/how-mean-girls-and-more-are-leaning-into-video-design/
PART IV - EXPERIMENTS

Before you begin the experiments, you will need a science notebook. Use your science notebook to document the scientific process for each one of the experiments. Include one drawing of each experiment in your science notebook as part of your response.

1. Ask a question: what are we trying to find out?

2. Gather information and observe: what do you know about this topic?

3. Make a hypothesis: what do you think will happen?

4. Experiment and test your hypothesis.

5. Analyze your test results.

6. Present a conclusion: What happened? Was your hypothesis correct or incorrect? What did you learn?
PART III - EXPERIMENT

Experiment 1 - Stop Motion Animation

Learn About: How digital media designers animate images and projections
Intro: Media designers often work with animating the still work of other artists and transforming it for the stage. In this experiment, students will work to engineer their own stop motion media and explore its use in narrative storytelling.

Instructions:
1. With your computer, laptop or tablet, visit ABCYA Animate (click here).
2. Begin exploring the stop motion software. When ready, use your paper and pencil to create a draft for your animation narrative.
3. On your draft paper, sketch out the timeline (beginning, middle, and end) of your animation narrative.
4. When you are ready, begin to animate the story.
5. When you are finished, play back your animation and record three observations in your science notebook.
6. Now, open a new tab on your device to ABCYA Animate.
7. With your pencil and paper, draft a new version of your story timeline that results in the same ending.
8. Repeat Steps 4 and 5 of the experiment.
9. Compare and contrast your animation observations during this experiment. Do you notice any differences between your first and second animations? If so, what do you think is the cause of this difference?
10. Reflect: How do you think this experiment translates to the work of digital media designers for theatrical performances?

Supplies:
• A computer, laptop or tablet
• Paper
• Pencil
• Access to ABCYA Animate (click here)
PART III - EXPERIMENT

Experiment 2 - Media Overlay Models

Learn About: How digital media designers create scenery

Intro: In many cases, media design is used to evoke emotion and create different setting locations in a short time frame. In this experiment, students will imitate how multimedia designers create scenery using digital media technology and projection of light waves to create different locations and abstract environments, instead of physical set pieces.

Instructions:
1. With your marker, draw the outline of a city skyline on your first square of foam board. Next, draw the outline of several trees on your second square. For your third square, draw a few abstract shapes. It is very important that you connect each of your shapes or outlines to the outer edge of your foam.
2. When you are finished, cut out the shapes. Be sure to cut them out carefully from the connected outer edge in a way that does not damage the foam board.
3. Decorate and cut out your paper doll (template attached below).
4. Place your paper doll against a blank wall. When your doll is in place, turn off all of the lights in the room. Placing your first square of foam board in front of your flashlight, shine your light onto your paper doll.
5. Notice and observe how the light waves pass through the foam board and how they affect the paper doll, then write about it in your science notebook.
6. Repeat Steps 4 and 5 for the other 2 pieces of foam board.
7. Optional: Place a colored gel in front of your flashlight and notice how this changes the effect of the lighting on your paper doll. Record your observations in your scientific notebook.
8. Compare and contrast the lighting effects that you observed during this experiment. Do you notice any differences between what the light source illuminates and what feelings the lighting differences evoke? If so, what do you think is the cause of this difference?
9. Reflect: How do you think this experiment translates to the work of media and lighting designers for theatrical performances?

**Supplies:**
- 3 Pieces of foam board (5”x5” preferably)
- Scissors
- Flashlight
- Paper doll (template attached below)
- Markers
- Lighting gels (optional)
RUBRIC FOR
“MEDIA OVERLAY MODELS” EXPERIMENT

1-PS4-2 Make observations to support an evidence-based claim that objects in darkness can be seen only when illuminated by light sources.
1-PS4-3 Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
6-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
PS.4.3 Understand the nature of light and how light interacts with objects.
PS.6.3.4 Use models to explain that various waves (seismic, sound, electromagnetic, including visible light) are reflected, absorbed or transmitted through various materials.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Beginner 1</th>
<th>Developing 2</th>
<th>Accomplished 3</th>
<th>Advanced 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension 1</td>
<td>I did not describe what I learned about how light waves interact with other materials.</td>
<td>I gained a little knowledge about how light waves interact with other materials.</td>
<td>I gained some knowledge about how light waves interact with other materials, and I described it partially.</td>
<td>I clearly gained knowledge about how light waves interact with other materials, and I described it effectively.</td>
</tr>
<tr>
<td>Dimension 2</td>
<td>I did not create a media overlay model.</td>
<td>I created a media overlay model, but I did not follow all of the directions.</td>
<td>I created at least two media overlay models, but I am missing one part.</td>
<td>I created three media overlay models, followed all of the directions, and included all of the parts.</td>
</tr>
<tr>
<td>Dimension 3</td>
<td>I did not write in my science journal during the experiment.</td>
<td>I began to write in my science journal, but I did not complete it.</td>
<td>I wrote several observations in my science journal.</td>
<td>I wrote several observations in my science journal, and I answered the reflection questions.</td>
</tr>
<tr>
<td>Dimension 4</td>
<td>I did not clean up my station and was not respectful towards my teacher and classmates.</td>
<td>I had difficulty staying on task and cleaning up my area.</td>
<td>I used my class time for work, but I sometimes was distracted by others.</td>
<td>I used my class time to the maximum and was always on task. I put a lot of time and effort into my assignment.</td>
</tr>
</tbody>
</table>
SELF-REFLECTION

What is one area that you could improve in?

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

What is one area that you did well on? What advice could you give to someone else in this area?

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________
RESOURCES

Explore More Resources
- Watch BrainPOP's Lesson on Color
- Watch BrainPOP's Lesson on Waves
- Watch BrainPOP's Lesson on Light

BIBLIOGRAPHY


https://www.broadwaynews.com/how-mean-girls-and-more-are-leaning-into-video-design/.


The Free Library. “The prevalence of projections: projection in the theatre is nearly as old as theatre itself, but recent technological advances have made it easier to use--and misuse..” Accessed Jan 11 2024.
https://www.thefreelibrary.com/The+prevalence+of+projections%3a+projection+in+the+theatre+is+nearly+as...-a0276518532.
Setting the Stage
Episode 13:
Click into the Future: Digital Media Design for the Stage
Setting the Stage is presented in part by: