



## Building Video Game Adaptations of Dramatic and Literary Texts

*E. B. Hunter*

This chapter offers a method for adapting a dramatic or literary source into a short video game. Building a video game adaptation of a dramatic or literary text reflects a growing interest in practice-led humanities research, especially within the field of theatre studies. This method also demonstrates how Digital Humanities research can move beyond documentation and preservation to open up critical possibilities for the humanities through making as an **epistemology**. Making a video game adaptation of a play or other literary text is an example of what design and **pervasive computing** scholar Matt Ratto calls “critical making.”<sup>1</sup> In a critical making project, the site of knowledge creation is the *process* in conversation with a discipline’s scholarly research. The following sections explain how adapting a source text into a video game can allow a

---

<sup>1</sup>Matt Ratto, “Critical Making: Conceptual and Material Studies in Technology and Social Life,” *Information Society* 27, no. 4 (2011): 252–260, <https://doi.org/10.1080/01972243.2011.583819>.

---

E. B. Hunter (✉)  
Northwestern University, Evanston, IL, USA  
e-mail: ebh@fabulab.us

researcher to illuminate themes, character insights, or plot elements with new emphasis. As an example, I use *Something Wicked*, a video game adaptation of William Shakespeare's gory, witchy tragedy, *Macbeth*. The game was built by Fabula(b), the theatre and computer science lab I started at Northwestern University, and it enacts an epic battle described in Act 1, Scene 2 of *Macbeth*.

When incorporated into a classroom setting, this research method aligns with an approach known in learning sciences as a **constructionist pedagogy**.<sup>2</sup> In this chapter, I describe a constructionist approach whereby individuals or teams make a video game as a complement to traditional humanities research. In addition to thinking through a text by adapting it into a video game, users of this methodology can create projects for public use. Particularly in a classroom setting, this potential public impact can create a sense of investment and encourage researchers to exert more effort and engage in a more substantive analytical interrogation than they might when writing a traditional research paper disconnected from a practical application. Educators and artists have long held the belief that people learn more when they are emotionally invested in a subject; this connection has recently been supported by neuroscience research.<sup>3</sup>

This method could be conducted using a range of game genres and authoring tools; as such, the steps below are not intended as a comprehensive list of tools and technologies. Instead, I focus on the process of thinking about a source text by using the actions, decisions, and rules that characterize the video game medium. Although I provide examples from *Something Wicked*, which is a combat, 2D side-scroller, the method described herein could work for any game genre. The steps below address readers who may not have significant game-building, technological, or learning sciences experience.

<sup>2</sup>Seymour Papert, *Mindstorms: Children, Computers, and Powerful Ideas* (New York: Basic Books, 1980).

<sup>3</sup>Jessica Lahey, "To Help Students Learn, Engage the Emotions," *New York Times*, <http://well.blogs.nytimes.com/2016/05/04/to-help-students-learn-engage-the-emotions>; Helen Immordino-Yang, *Emotions, Learning, and the Brain: Exploring the Educational Implications of Affective Neuroscience* (New York: W. W. Norton & Company, 2016).

As a result, video game specialists may find some of my descriptions broad. This chapter concludes with a short reading list for those interested in a more specialized exploration of the theoretical and practical dimensions of video **game design**.

## ORIGINS

The method of adapting a dramatic or literary text into a video game derives from my theatrical work directing site-specific productions of Shakespeare's plays at Sloss Furnaces National Historic Landmark, a restored blast furnace in Birmingham, Alabama. My company staged "**walking showcases**," which were composed of short Shakespearean scenes set in unusual locations, such as the site's underground tunnels and cavernous machine rooms. Lifting these familiar scenes out of the context of a full play and out of traditional theatrical architecture opened up space for more robust audience participation. At the blast furnace, patrons hissed at Richard III, gave up their drinks to Puck, and even spontaneously charged down the 50-yard Sloss cart path after Henry V, shouting "England, Harry, and Saint George!" Audience members regularly commented that they had never understood Shakespeare so well, they did not realize the plays were so fun, and they felt like they were part of the story. Post-show conversations often engaged deeply with the text.

Live theatre does not scale, so I began using the medium of video games to approximate some of the outcomes I noticed in the walking showcases—namely, increased **comprehension**, **critical thinking**, and **affinity**—in a format scalable to a broader public. Because much of my directorial experience is in staging Shakespeare's plays, and because his plays are in the public domain, I began with an adaptation of a scene from *Macbeth*. This adaptation, *Something Wicked*, has been successful as a research project in two important ways: (1) early informal feedback shows that players' affinity and comprehension increase through playing the game, and (2) the design and building process demanded I analyze a text I already knew quite well with a very different strategy. *Something Wicked* led to the formation of Fabula(b), where I lead a team to use emerging interactive technologies—like video games—to think digitally about dramatic and literary works. The method below provides

a step-by-step guide to using this approach. It is important to note that, while the technological elements of my lab's projects are engineered by paid professionals,<sup>4</sup> industry-grade production values are not requisite for adapting a play or literary text into a video game.

## ETHICAL ISSUES

Building a video game with limited resources raises basic copyright issues for digital content. Teams should familiarize themselves with attribution, fair use, and other applicable laws for non-original digital assets they find online, many of which will not be royalty-free. This project also raises questions of design ethics. Like all design, digital technology is not neutral. As an example, consider the cautionary tale of a 2016 online beauty pageant, Beauty.AI. Billed by its creators as an attempt to arrive at a technologically determined, “impartial perception”<sup>5</sup> of beauty, the competition's judge was **artificial intelligence** (AI). AI uses **algorithms**—sets of instructions or rules, written in computer code—to “teach” a machine to quickly evaluate a number of parameters. After thousands of photo submissions from the public, the “impartial” AI robot selected winners who were almost all light-skinned people. Far from an “impartial perception,” this result happened because the engineers programmed the algorithms with a data set that included only a few photographs of dark-skinned people.<sup>6</sup> Thanks to its algorithms, the Beauty.AI robot quickly “learned” to reject dark-skinned faces. I include the Beauty.AI lesson to emphasize that *people* designed the algorithms that powered the contest robot. Robots do not impartially judge *anything*. Whether researchers

<sup>4</sup> *Something Wicked*, the lab's first project, was made possible by a crowdfunding campaign. Crowdfunding campaigns are complex and time-consuming, and beyond the scope of this chapter. Any teams considering crowdfunding should research the process thoroughly. Major sites like Indiegogo and Kickstarter offer suggestions and tutorials, and alternatives to these sites crop up frequently.

<sup>5</sup> “Beauty.AI Announces the First International Beauty Contest Judged by an Artificial Intelligence Jury,” *PRWeb*, November 19, 2015, <http://www.prweb.com/releases/2015/11/prweb13088208.htm>.

<sup>6</sup> Sam Levin, “A Beauty Contest Was Judged by AI and the Robots Didn't Like Dark Skin,” *The Guardian*, September 8, 2016, <https://www.theguardian.com/technology/2016/sep/08/artificial-intelligence-beauty-contest-doesnt-like-black-people>.

build advanced AI or a simple Twine story,<sup>7</sup> they should consider accessibility, representation, and bias in their design.<sup>8</sup>

### WHEN TO USE THIS METHOD

Adapting a literary or dramatic source into a video game encourages interdisciplinary research questions that are largely qualitative, thereby providing an effective way to promote critical engagement with a source text. Users do not need any prior experience with digital platforms—as the guide below demonstrates, this method foregrounds the process of thinking about a source in terms of decisions and player engagement, not technological specifications. Similarly, this project does not require specialized technology beyond internet access and a computer or smartphone. As Step 5 notes, many free or low-cost entry-level game creation tools already exist. In a classroom, this method could serve as an alternative to the traditional research paper, because it generates a complex demonstrable outcome with usability outside the class.

Game builders might ask: “what arguments does my video game make about the themes, plot points, or rule systems in my source text?” *Something Wicked*, for example, argues that Macbeth lives in a world where backstabbing and violence are rewarded. The game makes this argument by setting up rules that reward players for stabbing enemies in the back and penalize players for not killing enough enemies.

Instructors using the method might ask: “does the constructionist approach of building a videogame adaptation enhance students’ ability to closely read and critically analyze a source text?” Having assigned myself the task of building a *Macbeth* adaptation, I can confirm my own knowledge of the play increased considerably. Even more exciting, however, is that *Something Wicked* players report combing through Act 1, Scene 2 to see if they can figure out how the game turns the dialogue’s imagery into mechanics.

<sup>7</sup>Twine is a free, online, and easy-to-use tool for nonlinear storytelling. Links to Twine and other game-building tools appear at the end of the chapter.

<sup>8</sup>“The Bias Blind Spot and Unconscious Bias in Design,” *The Interaction Design Foundation*, accessed October 3, 2017, <https://www.interaction-design.org/literature/article/the-bias-blind-spot-and-unconscious-bias-in-design>.

While this method also works well for nondramatic literary text, it is of particular relevance for plays, because the leap from traditional literary to dramatic analysis can be challenging. For plays, building a video game adaptation foregrounds the distinctions between these two modes of qualitative analysis—video games, like plays, are spatiotemporal arguments. “Thinking with” a video game adaptation foregrounds research questions about dramatic elements like timing, bodily presence, and production choices embedded in dialogue. Creating a classroom-use guide for each game with an accompanying bibliography would also allow users to generate secondary source research activity.

The timeline for this method requires at least several weeks. Building even a short game can be a considerable undertaking, especially for teams new to the process. However, teams with a compressed timeline could follow the step-by-step guide to write a game proposal instead of building a working prototype. Similarly, builders without access to digital technology might create a paper-based game adaptation. Creating a non-digital or even hypothetical version of a game-like adaptation can encourage substantive critical analysis.

### STEP-BY-STEP GUIDE

This step-by-step guide is addressed directly to the researcher(s) building the game. As with any recipe, read the entire guide before starting the first step.

#### *Step 1: Write a Beat Sheet*

Video games are action. In this regard, they are similar to screenplays, and screenplays should only include descriptions of what can be filmed. A director cannot film “the clown was sad,” because this description contains no actions. But a director can film “the clown wept so loudly that a flock of birds fled from the nearby tree” and then three lines of dialogue. However, unlike a screenplay, video games are also a set of possible decisions—should I pick up the red pill or the blue pill in *The Matrix: Path of Neo*? Should I shoot this Big Daddy in *BioShock* or run from it? Whether the team decides to build a first-person shooter or a text-based journey, basing a game’s mechanics on the decisions that are in the source text

itself will give the adaptation authenticity. These decisions reflect the values of the characters making them and the ethos of the larger **story-world**. Distilling the source text into a list of plot points—its **beat sheet**, to borrow another film business term—will clarify these moments of action and decision.

To make the beat sheet, reread the source and list every point in the narrative where a decision happens that influences the action of the overall narrative.<sup>9</sup> It is also helpful to include the reason for each decision, with a line or a page number from the source text to support each claim. Make a beat sheet for the entire source, not just the section to be adapted—there may be important decisions late in the source narrative that should inform the game. Depending on how long the source is, it might be more efficient to cover only the major plot points, but this document should encompass the entire narrative.

### *How We Did It*

For *Something Wicked*, this document was especially important because not everyone on the team was familiar with Shakespeare's language. The complexity of Shakespeare's language can obscure simple moments of action and decision. I found the process of translating *Macbeth* into decisions a new way of engaging with the text. For example, in Act 1, Scene 7, Macbeth changes his mind and does not want to kill Duncan. However, after Lady Macbeth harangues him, he reverses his decision. Digging into the text to sort out which lines reveal the reasons behind his changes of mind gave the team a much clearer picture of the actions that incentivize Macbeth. I would argue that these lines show that Macbeth does not have a moment of virtue—he just does not want to get caught. Once Lady Macbeth convinces him they will not get caught, he is back to being pro-regicide.

To emphasize this dimension of Macbeth's character by using the tools of a video game, we interpreted “not wanting to get caught” as “sneakiness,” and brainstormed the actions people in the violent world of a medieval Scottish battlefield might take to demonstrate sneakiness. Thus was born the game mechanic of backstabbing. We made backstabbing more desirable than a front attack by attaching more “rage”

<sup>9</sup>David Ball, *Backwards and Forwards: A Technical Manual for Reading Plays* (Carbondale and Edwardsville: Southern Illinois University Press, 1983).

points to a backstab attack. We also gave players a “rage superhit” that activated a smoking sword once enough rage points had been accumulated. Is it likely that a player will connect backstabbing directly to Act 1, Scene 7? Probably not, but as we learned from creating the beat sheet, this moment is just one of many plot points where Macbeth demonstrates—through actions and his spoken rationale for his decisions—that he is pretty sneaky. We condensed all those moments from the source text into one potent game mechanic to create an authentic, action-oriented representation (backstabbing) of a larger, important theme in the play (duplicity). This design mechanic derives from moments in the play beyond the one battle we represent. Making a beat sheet for the full source text is time well spent.

### *Step 2: Identify What the Game Will Illuminate*

Because adapting a source into a video game requires substantial effort, the next step is to determine which of the source narrative’s plot points and themes the game will illuminate. This design choice sets up the game’s central argument. The game makes an argument for the importance of specific plot points/themes by including some elements and excluding others. A fast-paced war or adventure story like *Macbeth* might seem easier to transfer to the video game format, but even a quiet, contemplative source narrative includes action. Even in Samuel Beckett’s absurdist play *Waiting for Godot*, things happen because Didi and Gogo *decide* to keep waiting instead of leaving. In essence, stories are a set of things that happen because characters make choices.

#### *How We Did It*

With *Something Wicked*, we wanted to illuminate the character and world values established by the battle described in Act 1, Scene 2. Thus, *Something Wicked* argues for the importance of nuances embedded in the scene. I have noticed in teaching, directing, and writing about *Macbeth* that this battle description is often confusing to readers, actors, and audience members. But this scene is important—these lines inform audiences that in Macbeth’s world, bloody violence is normal. More importantly, these lines tell audiences that even in this bloody world, Macbeth’s character is extra violent and it is this extra violent nature that earns him social esteem. If readers or audience members do not catch

these nuances before Macbeth shows up on stage, their understanding of the play will be skewed by a twenty-first century value system. Because *Something Wicked* uses an action-heavy, text-minimal design to foreground Act 1, Scene 2's importance, the game also addresses ways in which Shakespeare's complex language contributes to contemporary audiences' difficulties understanding the scene's nuances.

### *Step 3: Set the Production Timeline*

Concepting, building, testing, and releasing a video game, even with experienced programmers like the ones who engineered *Something Wicked* can take a while. Once a set of plot points and themes stand out as the most important elements to include, determine the available production timeline. Figure 10.1 offers a potential 15-week timeline. Adjust the weeks as needed, but keep each step. Some developers build games in “game jams” over a weekend, but these scenarios typically involve designers and programmers well-versed in their chosen technology. Teams new to game building might want a timeline of at least 8–10 weeks. Even if the game is a side project, the accountability of a deadline and a public audience expecting to see the game helps keep production on track. The remaining steps explain the milestones listed in the chart.

#### *How We Did It*

The famous Iron Triangle of design dictates that, while clients want every project to be fast, cheap, and good, they can only pick two of these attributes. I wanted higher production values for the game than I could

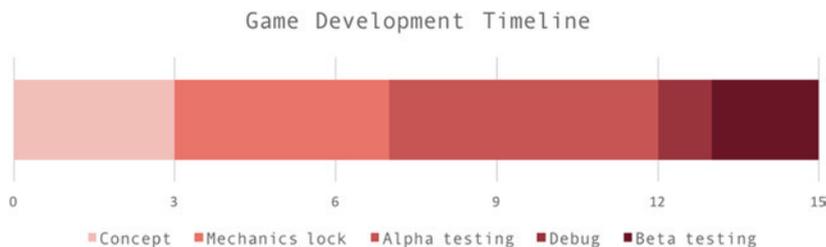


Fig. 10.1 15-week timeline

achieve with my technical expertise. But my timeline was too short to work with coders who might have done the project for free to improve their experience with Unity, the free (but complex) engine many game developers use. Thus, from the Iron Triangle of fast, cheap, and good, I picked fast and good, and ran a **crowdfunding campaign** to fund skilled builders with the computational experience I needed. *Something Wicked* was not part of a class, so our production timeline was longer than a semester, at eight and a half months. However, I needed to show the game at academic conferences and a museum exhibit, so the team still had a hard deadline for finishing.

#### *Step Four: Brainstorm the Design*

If the team is new to thinking about video games as digital narrative, spend some time researching games that use the tools of the medium to approach story in different ways. Games like *Blackbar*, *Heavy Rain*, *Papers Please*, *Halo*, *Undertale*, *McDonald's Videogame*, and *Curtain* are current examples of ways to manage the relationship between player, decisions, and the unfolding story and/or world values they present. Some of these games deal with violent or upsetting subject matter, so please read their respective content warnings before playing. Do not be intimidated by the slick art and animation of these titles; for this step, the way each game handles story decisions matters more than production values. Deciding on a game's overall design or "high concept" can take a few different paths. Here "design" does not yet include visual aesthetics or sound, which will come later. Keep in mind that every design choice translates into labor for someone on the team, whether in code that has to be programmed, an asset that has to be drawn or recorded, or an animation that has to be rigged. Start with some or all of the questions below.<sup>10</sup>

1. How close will the game stay to the source narrative? Will the game narrative be **railed** in order to follow the source, like *Something Wicked*, or will it offer players the chance to rewrite the story, like *Elsinore*, in which players are Ophelia, trying to prevent *Hamlet's* storyline from happening?

<sup>10</sup>Jesse Schell, *The Art of Game Design: A Book of Lenses* (Amsterdam: Elsevier, 2010).

2. Will players control an **avatar** through the game? If so, which character will it be, and will the game be first- or third-person **perspective**?
3. How will the game integrate text? Through the **interface**? **Cut-scenes**? A **tutorial**? By using symbols and images to represent ideas described in the text?<sup>11</sup>
4. What does “winning” mean in this game?
5. What are the rules of this storyworld, both in terms of the physical laws of nature and in terms of a value system?
6. What actions should be incentivized, and what **mechanics** will the game include to allow the player to make decisions by following the value system of the source text?

*How We Did It:*

*Something Wicked* addressed these questions through a series of design meetings in our early concept weeks:

1. The central design goal for *Something Wicked* was to use a railed narrative to stay close to Shakespeare’s text, because the game is a practice-led complement to the theoretical side of my research. In that research, I consider live scenarios like theatre productions, or Disney theme parks, or political rallies. In these scenarios, producers tell the audience two competing things: audience interactivity is vital, but the audience cannot impact the story. So, the audience feels part of the story in a meaningful way that has nothing to do with changing that story. One of the reasons I built *Something Wicked* was to see how this quality operates in a new media environment. The four levels of the game thus follow the story beats of the battle described in Act 1, Scene 2.
2. Another design goal was for players to respond to some of the same world constraints that affect Macbeth, so *Something Wicked’s* players control only a Macbeth avatar. Third-person perspective is generally simpler to engineer, and as simpler generally translates to faster and cheaper, it was the design choice that worked best for our parameters.

<sup>11</sup>Marvin Carlson, “Semiotics and Its Heritage,” in *Critical Theory and Performance*, ed. Janelle G. Reinelt and Joseph R Roach (Ann Arbor: University of Michigan Press, 2010), 13–25.

3. *Something Wicked* visualizes textual imagery with art assets like hearts, sparrows, and hares; the game also features lines from the play in the pregame tutorial. We opted not to include a voiceover, because we did not want an actor's voice to overwrite the player's interpretation of Shakespeare's lines.
4. "Winning" in *Something Wicked* does not mean that Macbeth wins in the end. It means that the player follows the rules established by the game's mechanics. Our mechanics not only incentivize violent actions, they also necessitate violence if a player wants to keep the game going.
5. Though Shakespeare's *Macbeth* features witches, the scene *Something Wicked* enacts does not include supernatural beings. Our animations generally follow recognizable laws of physics (i.e., they cannot fly, and they do not float or transform into other creatures). In terms of a value system, the game requires that players behave violently—stabbing waves of enemies—in order to keep playing.
6. To demonstrate the storyworld's value system, we incentivized backstabbing. Players can choose to kill an enemy from the front and receive X rage points from stepping in the enemy's blood, or they can choose to roll past enemies and stab them from behind to earn 2X rage points from a bigger blood spatter. We engineered the waves of enemies to become too much to manage with only front kills, so players' success in the game depends on their ability to more closely approximate Macbeth's values of duplicity and backstabbing.
7. To balance our timeline and production costs, and to scope down the number of art and animation assets the game would need, *Something Wicked's* mechanics are limited compared to a commercial off-the-shelf (COTS) game. Among the more noticeable actions Macbeth can perform are to stab, roll, run, and stand still. While he can cause damage to enemies, he cannot damage the game's environment: i.e., he cannot smash the portcullis at the game's start, and he cannot kill Banquo, the nonplayable character (NPC) who follows him. Players can restore Macbeth's heart meter, but they cannot change his weapon.

#### *Step Five: Choose a Platform*

Recommending specific game-authoring tools is beyond the scope of this chapter, other than the short list that appears at the end. Free or low-cost

consumer-grade digital storytelling tools are released so frequently that what seems cutting-edge today will be clunky or defunct within the year. More important for this step is to gauge the skill level and available time of everyone on the team, and assign responsibility for tasks accordingly. Do not worry if nobody has built a game before, because many authoring tools are designed for true beginners to pick up quickly. Others, like the Unity or Unreal engines, have a steep learning curve even with their respective online tutorial communities.

After evaluating the team's resources (timeline, skill level, and financing), compile a few search terms that describe the design choices from the previous steps. Use these terms to search online for current game-authoring tools that other independent developers are using to build similar games: "easy text-based game creator," "easy location-based game editor," or "free side-scroller game tool" might be a good start. Because so many different game builders exist, the remaining steps do not cover the technical aspects of any one authoring tool. Instead, they cover the main steps of the overall design process. Online troubleshooting suggestions and tutorials for specific issues exist for most game creation tools.

### *How We Did It*

We chose the tools each team member already knew well. Our artist/ animator built all the art assets in Adobe Photoshop and exported them to Spine, an animation tool that was designed specifically for 2D games. Spine integrates nicely with Unity, the free game engine the programmers used to write the game's code. Our music director also used a tool that integrates nicely with Unity—Digital Performer—to build the game's music score and sound effects.

### *Step Six: Scope It Down*

Scope the project down to the smallest possible game that adapts the smallest possible element from the source text, but that still demonstrates an important theme or concept. Scoping the game down includes narrative focus as well as art and animation style. For example, 2D animation is generally simpler than 3D animation to engineer, and plain text screens are simpler than animated 2D. If your team is embarking on their first game building project, the process will likely take longer than anyone anticipates. A small, simple game, elegantly designed and thoroughly



Fig. 10.2 *Something Wicked's* 2D aesthetic

tested, promotes a better quality of research into the source text than does an unwieldy, unfinished grand concept. A small, working game can always be expanded in the future with more features or updates.

#### *How We Did It*

Once my team looked at the timeline and available resources, we scoped the game down to the two waves of enemies and two boss battles that Act 1, Scene 2 describes. To simplify the engineering, we also chose a 2D visual aesthetic (Fig. 10.2). Our flat, puppet-like art and animation thus became a stylized design choice instead of a limitation.

#### *Step Seven: Brainstorm a Visual Style*

This step can begin much earlier, but if it has not, now is the right time to start finding visual inspiration. Remember, a strength of the video game medium in adapting a source text is that games foreground the *actions and decisions* that drive the source text. The art assets should round out this focus, not eclipse it.

Collect an online folder or mood board of visual art, movies, games, or other images that capture an aesthetic that might work for the game. Once the game has a clear visual style, it can be helpful to settle on one key image for inspiration. As I discuss below, our key image helped us

craft game mechanics and solve design challenges. While any image can serve as informal inspiration, be sure to research and follow all copyright, derivative, fair use, or other relevant laws before using non-original images or artwork in the actual game build. Instructions for creating original digital art assets and animation is another complex topic beyond the scope of this chapter, but, as with game-building tools, many free or low-cost, consumer-grade options exist for creating video game art and animation.

### *How We Did It*

Because we knew flat, puppet-like art and animation would save time and budget, we compiled inspiration images of other flat animation styles that captured the dark aesthetic we wanted. Early examples included the animated films *The Secret of Kells* (2009) and *The Adventures of Prince Achmed* (1926), the artist Henri Matisse's paper collages, and the video game *Apotheon* (2015), which has visuals inspired by ancient Greek urns. These early images led one of the designers to research medieval storytelling scrolls because *Macbeth* is set in medieval Scotland. This brainstorm led us to *Something Wicked's* main visual inspiration, the Bayeux Tapestry.

The Bayeux Tapestry depicts the 1066 Battle of Hastings, and its 231 feet of embroidered battle scenes and simple environmental pieces were an ideal inspiration for our game. In addition to providing us with a visual touchstone, the Bayeux Tapestry informed many of our mechanics. Because the medium of cloth has its own rules and affordances, thinking about how the tapestry itself would behave helped us solve design challenges. It also helped us create elements like bloodstains that dry and stain the cloth, and sear marks from Macbeth's sword, which, as Shakespeare's play says, "smoked with bloody execution." (Act 1, Scene 2, line 20)

### *Step Eight: Lock Mechanics*

Before dropping in art assets, get the game's basic rules and interactions working properly. Use rough shapes to approximate any elements of the game that will eventually be art and make sure the core mechanics behave as needed. Additional mechanics might be added later, but the first major hurdle in programming is to establish the game's central interactions.

*How We Did It*

Some of the basic rules of interaction for *Something Wicked's* avatars include: (1) avatars can walk forwards and backwards; but not through one another; (2) only Macbeth can roll past another avatar; (3) Macbeth and Banquo can cause damage to the enemies, but not to each other; (4) enemies can cause damage only to Macbeth; and (5) all avatars can stab. Before we added art and animations, the programmers used simple rectangles to test and perfect these rules of interaction.

*Step Nine: Add Art*

With this step, the game begins to look and feel much more complete. Because the previous step set up placeholders for eventual art assets, this step amounts to dropping those assets in and making the elements aesthetically consistent. Most of the game authoring tools available online will have instructions for importing finished art.

*How We Did It*

To avoid any copyright issues, we built all the assets in *Something Wicked* from scratch: fonts, background, avatars, environmental pieces, music, and sound effects. Even within our design, which is sparse compared to many 2D side-scrollers, creating all these elements from the ground up was a substantial undertaking. Because the programmers could use placeholders as they engineered the mechanics, the production timeline was rarely dependent on completion of any given art asset; we were able to keep adding and testing mechanics as the programmers finished them, and then replace the placeholders with art assets when they were ready.

*Step Ten: Playtest Alpha Versions*

Making changes to basic mechanics is much easier earlier in the production process, so as soon as the game reaches the **alpha stage**, start playtesting it. An ideal alpha playtester is a gamer who is also familiar with the source text. If these candidates are limited, recruit gamers who do not know the text, rather than non-gamers who do know the text. Playing an unfinished game can be unproductively confusing to players who are unfamiliar with video games, regardless of how well they know the source text. Because they know what a game should feel like, gamers are more likely to give feedback that can be addressed with another alpha

build. It is helpful to have fresh eyes on major new builds, so try to keep some playtesters in reserve throughout the testing process.

Playtest early and often to make sure the game is recognizable as an adaptation of the source, especially after adding new mechanics. In terms of research insights, the alpha testing stage can be a powerful opportunity to test the legibility of the game's argument with players who might not know the source well. In the design process, similar to the rehearsal process in theatre, it is easy to lose sight of what will register with an audience and what will be too nuanced.

It is tempting to explain all the mechanics to a new playtester, but explanations will hide the game's design flaws. Simply set up the game without a preamble and provide a feedback survey. Effective feedback surveys do not measure whether the player is smart enough to understand the game's links to its source text. Rather, effective feedback surveys measure the game's ability to telegraph these links. In other words, effective questions measure what *actually* registered with the player, not what the development team hopes players will see. With this goal in mind, avoid questions like "what do you think the birds mean?" A question about birds reminds players the game had birds, so there would be no way to know if the player missed the birds altogether while playing. More effective questions are "what did you pay attention to in the game?" or "what was the most/least satisfying aspect of the game?"

### *How We Did It*

Once we locked the mechanics and had art for the Macbeth avatar, we began playtesting alpha builds of *Something Wicked*. We adjusted major game mechanics after these early playtests, like the bottom border's hearts, which indicate how much damage Macbeth has sustained. Our feedback questions helped us flag an early design flaw that plagued these hearts. Our first iteration of a damage meter was a line of big hearts in the bottom border of the frame. This damage meter was obvious to the development team because we had spent so long debating the best visual before deciding on hearts.

However, in answer to our feedback question, "did any information seem missing?" our gamer playtesters noted that they kept looking for a way to measure Macbeth's damage level—and these were experienced gamers, who knew to look for a damage meter. When our experienced gamers did not make the connection that the big hearts represented Macbeth's damage level, we knew we needed to come up with

a more legible representation. With the game's current, smaller hearts, Macbeth's remaining "heart level" is much more legible. But we would have missed this flaw until it was too late to change it, if a leading feedback survey question had asked, "what did the hearts mean?" Phrased this way, the question would have reminded players of the hearts and made the connection for them.

### *Step Eleven: Debug and Release the Beta*

A common refrain in game design is that games are not finished so much as they are abandoned. A game can always be improved, but at some point the team needs to release it. After the major mechanics and assets are in, after a few rounds of alpha playtesting and adjustments, spend the remaining production timeline playing the game over and over again to catch any **bugs** that arise. By the beta stage, there is less opportunity for adding major research insights. This step is comparable to the syntax and proofreading stage of completing a research paper. However, unlike proofing a research paper, it is hard to estimate how long debugging will take. In a video game, one tiny misplaced command or typo in the game's code can cause major mechanics to stop working. Finding a bug might take five minutes or it might take five hours. Once the game is reasonably debugged and non-gamer players can navigate it, call it a **beta** and release it to the world.

#### *How We Did It*

Fabula(b)'s programmers describe effective debugging as looking for a lost object in a house: the fastest way to find it is not to wander aimlessly. Instead, retrace steps from the last known location and then thoroughly search different sections, one at a time. One particularly stubborn *Something Wicked* bug cropped up when the programmers changed the color of Macbeth's sword to demonstrate he is about to unleash a rage superhit. After one of the programmers made the change, the color disappeared if Macbeth got too close to the enemies. To find and fix the bug, the programmers first made a copy of the existing build and archived it, in case debugging caused more problems. Then they discussed what they added that might have altered the code for the sword. Next, they made sure the sword's code and sequential order were correct. Then they adjusted every variable affecting the sword until they found the problem.

*Bonus Step: Write a Classroom Use Guide*

Video games are meant to be played. And as an adaptation of a play or a work of literature, games can promote a close reading of the source, as players try to figure out how to play better. Video games can also encourage critical thinking, as players enact the plot points and themes the game showcases, and debate whether the game is authentic to its source. But not every instructor knows how to incorporate a video game into a lesson plan. A classroom-use guide can help an instructor integrate the game effectively and quickly, without having to rewrite the curriculum. Consider providing 2–3 sentence directions that address questions like “What is this?” “Why do I need this?” “What do students need?” and “How long will it take?” A guide might also include a list of discussion questions that ask players to identify plot points based on the game’s presentation or imagine elements they would have designed differently.

## CONCLUSION

Thinking about a literary or dramatic text by adapting it into a video game results in a meaningful, widely usable Digital Humanities research project that can demonstrate a deep critical engagement with the source. This method encourages a close reading of the source and a coherent distillation of themes and plot, and it can be accomplished with minimal technological experience and access. These qualitative research findings will be evident in the game itself. The game can also serve as a platform for representing traditional and supporting scholarly research data.

As I noted in Step 2, one of the arguments *Something Wicked* makes is that Shakespeare’s complex language is often a barrier to understanding the play. A robust cottage industry exists around helping people decode this language<sup>12</sup> as a first step to understanding and enjoying the plays.<sup>13</sup> *Something Wicked* takes an alternative approach inspired by the

<sup>12</sup>Perhaps the best-known contemporary example of “translating” Shakespeare’s language is the No Fear Shakespeare series, which provides Shakespeare’s “original” dialogue on the left side of the page, with a version on the right in “the kind of English people actually speak today.” “No Fear Shakespeare: Shakespeare’s Plays Plus a Modern Translation You Can Understand,” accessed October 6, 2017, <http://nfs.sparknotes.com/>.

<sup>13</sup>A longer explanation of the impossibility of an original, authoritative Shakespearean text is beyond the scope of this chapter. Intrigued readers should begin with Stephen Orgel’s excellent *Authentic Shakespeare and Other Problems of the Early Modern Stage* (Florence: Taylor & Francis, 2013).

recent scientific evidence linking emotion and learning outcomes. The game proposes that people will be more intrinsically motivated to decode Shakespeare's language if they understand the storyworld and become emotionally invested in it *before* they encounter the language. Our early results support this hypothesis.<sup>14</sup>

However, an unexpected insight we learned in our alpha testing was that people are emotionally attached to Shakespeare's "original" text even if they are simultaneously confused and frustrated by its complexity. They wanted to see the words written on the screen. We were hesitant to overshadow the action of the game with full lines, so we built a tutorial section that shows each of Macbeth's available moves with its inspiration line in the top border above the avatar. We also included the full text of Act 1, Scene 2, in a separate screen, to encourage players to analyze the full text in order to figure out the game's connections.

## REFERENCES

- Ball, David. *Backwards and Forwards: A Technical Manual for Reading Plays*. Carbondale and Edwardsville: Southern Illinois University Press, 1983.
- Bizzocchi, Jim, and Joshua Tanenbaum. "Mass Effect 2: A Case Study in the Design of Game Narrative." *Bulletin of Science Technology & Society* 32, no. 5 (2012): 393–404.
- Bloom, Gina. "Videogame Shakespeare: Enskilling Audiences Through Theater-Making Games." *Shakespeare Studies* 43 (2015): 114–119.
- Bogost, Ian. "The Rhetoric of Video Games." In *The Ecology of Games: Connecting Youth, Games, and Learning*, edited by Katie Salen, 117–140. Cambridge: MIT Press, 2008.
- Carlson, Marvin. "Semiotics and Its Heritage." In *Critical Theory and Performance*, edited by Janelle G. Reinelt and Joseph R. Roach, 13–25. Ann Arbor: University of Michigan Press, 2010.
- Cutting, Andrew. "Interiority, Affordances, and the Possibility of Adapting Henry James's *The Turn of the Screw* as a Video Game." *Adaptation* 5, no. 2 (September 2011): 169–184.
- Flanagan, Mary. *Critical Play: Radical Game Design*. Cambridge: MIT Press, 2009.

<sup>14</sup>My favorite informal feedback was from two ten-year-olds who happened to be on-site during a playtest. They informed us that, though they had not yet read any of Shakespeare's plays, they did know his name. After playing *Something Wicked*, they told us they did not realize Shakespeare plays would have "awesome fighting."

- Gee, James Paul. "Good Video Games and Good Learning." *Phi Kappa Phi Forum* 85, no. 2 (2005): 33–37.
- Immordino-Yang, Helen. *Emotions, Learning, and the Brain: Exploring the Educational Implications of Affective Neuroscience*. New York: W. W. Norton & Company, 2016.
- Jenkins, Henry. "Game Design as Narrative Architecture." In *First Person: New Media as Story, Performance, and Game*, edited by Noah Wardrip-Fruin and Pat Harrigan, 118–130. Cambridge: MIT Press, 2004.
- . "Ethics and Game Design: A Conversation (Part One)." *Confessions of an Aca-Fan*. Last modified August 5, 2010 and Accessed May 8, 2017. [http://henryjenkins.org/2010/08/ethics\\_and\\_games\\_a\\_conversation.html](http://henryjenkins.org/2010/08/ethics_and_games_a_conversation.html).
- Lahey, Jessica. "To Help Students Learn, Engage the Emotions." *New York Times*. <http://well.blogs.nytimes.com/2016/05/04/to-help-students-learn-engage-the-emotions>.
- Levin, Sam. "A Beauty Contest Was Judged by AI and the Robots Didn't Like Dark Skin." *The Guardian*, 2016. <https://www.theguardian.com/technology/2016/sep/08/artificial-intelligence-beauty-contest-doesnt-like-black-people>.
- Novak, Peter. "Shakespeare in the Fourth Dimension: *Twelfth Night* and American Sign Language." In *Remaking Shakespeare: Performance Across Media, Genres and Cultures*, edited by Pascale Aebischer, Edward J. Esche, and Nigel Wheale, 18–38. New York: Palgrave Macmillan, 2003.
- Orgel, Stephen. *Authentic Shakespeare and Other Problems of the Early Modern Stage*. Florence: Taylor & Francis, 2013.
- Papert, Seymour. *Mindstorms: Children, Computers, and Powerful Ideas*. New York: Basic Books, 1980.
- Ratto, Matt. "Critical Making: Conceptual and Material Studies in Technology and Social Life." *The Information Society* 27, no. 4 (2011): 252–260.
- Salen, Katie, and Eric Zimmerman. *Rules of Play: Game Design Fundamentals*. Cambridge: MIT Press, 2004.
- Schell, Jesse. *The Art of Game Design: A Book of Lenses*. Amsterdam: Elsevier, 2010.
- . *The Art of Game Design: A Book of Lenses*. 2nd ed. Boca Raton, FL: Taylor & Francis, 2015.
- "The Bias Blind Spot and Unconscious Bias in Design." *The Interaction Design Foundation*. Accessed October 3, 2017. <https://www.interaction-design.org/literature/article/the-bias-blind-spot-and-unconscious-bias-in-design>.

### *Related Links*

- Construct 2 (drag-and-drop tool for HTML5 2D game): [www.scirra.com](http://www.scirra.com).
- FreshAiR (location-based, augmented reality stories and games): [www.playfresh-hair.com](http://www.playfresh-hair.com).

Indiegogo crowdfunding site: [www.indiegogo.com](http://www.indiegogo.com).

Kickstarter crowdfunding site: [www.kickstarter.com](http://www.kickstarter.com).

Scratch (simple, intuitive beginner's programming language for stories, games, and animations): [www.scratch.mit.edu](http://www.scratch.mit.edu).

*Something Wicked*: [www.fabulab.us](http://www.fabulab.us).

Twine (interactive, nonlinear stories): [www.twinery.org](http://www.twinery.org).