

LEVEL 101: A VIDEO GAME ABOUT VIDEO GAMES

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

English—Doctor of Philosophy

2022

ABSTRACT

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For my dissertation, I developed a serious game entitled *Level 101: A Video Game About Video Games*, a playable video game that explores, explains, and interrogates the video game in order to understand the medium through a methodology of play. In doing so, *Level 101* puts disparate elements of Game Studies into practice due to its branching paths, introducing players to three distinct frameworks for understanding video games: 1) history, 2) design, and 3) theory. Each of these three branches features five stages designed to educate players about the video game medium, as well as encourage critical reflection on video games and the process of playing through them. The primary audiences are twofold: college instructors who will use and assign the video game as a lecture supplement, and college students who would play through the video game. This is accompanied by a traditional dissertation component that addresses several issues: 1) historical and cultural contextualization; 2) theoretical and methodological investments; 3) a summation of the project's critical contributions; and 4) a reflection of the development process. *Level 101* seeks to begin filling in a crucial and overlooked pedagogical gap in Game Studies through uniting play and learning via digital means, but only in conjunction with other aspects of traditional learning. As such, *Level 101* sits at the intersection of three distinct areas of inquiry: Game Studies, Pedagogy, and Digital Humanities. By drawing not just from Game Studies, but from other corollaries in such disparate fields as comic studies, literary studies, film studies, among others, *Level 101* also holds the potential for further experimentations with playable methods of academic engagement and alternative scholarship.

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This dissertation is dedicated to Sam.
My best friend, my biggest supporter, and the funniest person I know.
I love you.

ACKNOWLEDGEMENTS

Over my six years here at Michigan State University, I have been so fortunate to only find support wherever I went. Not everyone can say that, but truly, every faculty member, support staff or specialist, and student I spoke to about my dissertation provided encouragement. These thanks are all too brief, but hopefully they gesture towards the depths of my appreciation.

Scott Schopieray provided me with my very first outlet to make a video game in a classroom setting; he exposed me to alternative scholarship before I knew what the term was, and inadvertently set me on the path to *Level 101*.

My unending thanks to my committee members: Gary Hoppenstand and Emery Petchauer, with co-directors Elizabeth LaPensée and Kathleen Fitzpatrick. Gary provided pure encouragement before I knew I needed it. Emery's sharp insights and capacity for seeing the forest for the trees were especially crucial in the late stages of this project; Emery never misses a beat, nor the breaks between. Beth not only opened the door for starting this project, but shepherded this project from a nascent seminar half-demo into something robust, playable, worthy. Kathleen is the singularly most generous, insightful, and patient person I have ever met. These scholars are exemplary humans, and I strive to live up to the potential they see in me.

This project was generously supported through several awards and grants made available by Michigan State University. The College of Arts & Letters provided ample financial support for travel funding related to presenting this project outside Michigan State. DH@MSU awarded me two separate Summer Seed Grants, first for the purchase of research materials in 2018, and in 2020 for the acquisition of Unity assets, playtesting hardware, and preservation hardware.

Utmost thanks to the English Department for travel funding, my 2022 Dissertation Completion Fellowship, and of course, for my time in the department as a University Distinguished Fellow. I found a home at MSU, and it is thanks to my home department: Justus Nieland and Kristin Mahoney for constant support and guidance; Zarena Aslami for taking a chance on me; and Marina Valli for answering all of my inane questions each and every month.

I also wish to thank many of my friends at MSU and beyond: Julian Chambliss, for unerring mentorship on all things comics, DH, games, and life – you’re the best. Mitch Ploskonka, Zack Kruse, Christine Bennett, and the rest of my graduate cohort for countless coffee runs, office chats, movie days, and offering to playtest the project. My Special Bois, Shane and Josh, for the support, care, and laughs; all the rest of my nerd pals for everything else.

I’ve thanked so many folks over the last six years with letters, hugs, beers, or tears (or all four!). For everyone else: if you are reading this, if we met or spoke at all during my time at MSU, know that you made an incalculable impact on me, and I thank you for it.

Shouts out to Bailey the Cat: Bails, Bailzebug, Boobaloo, Bo, Mo, Beep, Beebee, and every other name under the sun. You’re a terror that probably left typos in this dissertation, the warmest fifteen-pound weighted blanket, and a constant delight.

This project would not exist without my wife, Samantha, pure and simple. I came in to MSU with a completely different dissertation project in mind. Over a long drive between Chicago and Lansing years ago, I talked to Sam about switching from that project to *Level 101*: she provided the most critical, thoughtful, genuine feedback at the time I needed it most, but best of all, she offered encouragement, support, laughter, and love.

Thanks y’all,

Justin “Wiggy” Wigard, PhD

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INTRODUCTION: PRESS START TO DISSERTATE

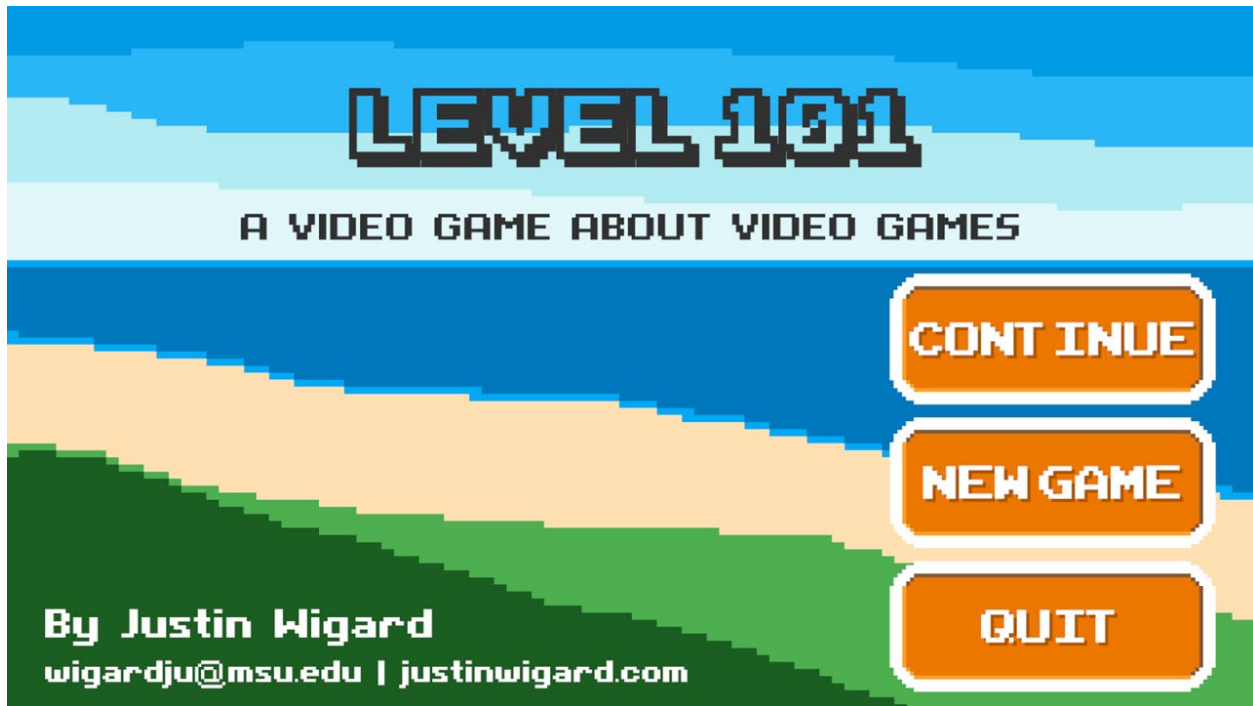


Figure 1: The title screen for *Level 101: A Video Game About Video Games*.

Within the realm of comic studies, Scott McCloud's *Understanding Comics* emerged in 1993 as a clear and salient approach both to teaching comics and to making sense of them, building on the foundational work of Will Eisner's *Comics and Sequential Art*.¹ What marks *Understanding Comics* as something of a revolutionary text is McCloud's utilization of the comics medium to metatextually explain the comics form. For example, each page in McCloud's book is a comic book page that McCloud has written, drawn, and inserted himself into as a

¹ It should be noted that McCloud's metatextual approach is not altogether revolutionary for comics: forms like graphic medicine and educational comics have featured teacher-like figures explaining different concepts, lessons, and ideas through the medium.

comic book character. When McCloud teaches the reader about concepts like time in comics, the comic book version of McCloud visually points to panels to illustrate his points, showing, for instance, how time shifts when panels are lengthened or shortened. In drawing on the work of Will Eisner, McCloud defines the medium of comics as sequential art, then lays out formalist approaches to comprehend comics utilizing the form itself (9). Though McCloud is working in comics, early video game studies scholars like Mark J.P. Wolf have leaned on the inherently visual and interactive nature of both mediums (comics and video games) as means of understanding the video game.² Problematically for the field of Game Studies, there is no corollary text that decodes and demystifies the video game in quite the same medium-specific manner, and more perplexing, there are no corollary texts that explain video games through play.³

This is troubling for Game Studies, a field so closely intertwined with play and games. For example: to illustrate *play*, which Johann Huizinga calls a voluntary act that is an innate function of culture, and what Roger Caillois defines as “a free and voluntary activity, a source of joy and amusement,” game scholars utilize extensive academic texts with long, dense, and nuanced expositions. To illustrate the definition of what a video game is, many scholars (including myself) resort to lengthy descriptions, static images, and winding rhetoric to try

² In *The Medium of the Video Game*, Wolf draws on film and media studies to explicate both terms and phenomena central to video games, including “active spectator, suture, first-person narrative, and special orientation, point of view, character identification, sound and image relations, and semiotics” (3). In the process of highlighting these visual components central to the medium, both tangible and otherwise, Wolf rarely offers visible examples of these salient points, himself acknowledging that the active spectator relation and the first-person perspective make sense if the player has familiarity with film studies, yet failing to actually provide examples of games that demonstrate these concepts in context. Likewise, Wolf acknowledges the difficulties with analyzing and understanding video games at the time of the book’s publication in 1997, yet does not move to make these concepts more accessible or address this difficulty. In other words, Wolf deploys film and media studies to analyze games, assumes his audience is familiar with these fields, and does not work to offer footholds, whether through diagrams or images. See also: Wolf, Ch. 6, “Genre and the Video Game” where Wolf discusses iconography and interactivity by drawing upon film, yet does not draw upon game studies scholars who had previously published in the field, such as Chris Crawford.

³ I take up what does exist in this regard more fully in Chapter 3.

capturing the experience of what a video game actually is, rather than utilizing a video game *as* the mode of delivery. When trying to explain the experience of playing the classic arcade game *Breakout*, as an example, Katie Salen and Eric Zimmerman resort to a single static image of the game at rest, then devote several *pages* to explaining the game and unpacking it (319). While the information therein is certainly valuable due to their explication of *Breakout*'s core mechanics, it also signals an underlying friction to how we talk about games: play, a concept to Game Studies, is curiously absent in our engagement with video games. For whatever reason, Game Studies has even been willing to adopt other media to reflect on the video game before turning to the video game as a mode of academic thought and pedagogic transmission about the medium itself.

Comics creators like Box Brown, or writer Jonathan Hennessey and artist Jack McGowan, have turned to the comic book medium to record different historical, cultural, and personal accounts of video games in a visual, playful way. Brown presents a thoughtful meditation on the sprawling history of *Tetris* against the backdrop of the Cold War, told through the narratives of the game's creator, Alexey Pajitnov, his friend, Vlad Pokhilko, and various corporate actants interested in capitalizing on *Tetris*. What's more, the account is personalized through Brown's straightforward visual stylings, lending a human poignancy to Alexey's story. Contrast this with Hennessey and McGowan's approach to the visual history of video games, one that finds McGowan adapting his art style to match the visuals of the games in reference to Hennessey's expositions on video game history. Hennessey and McGowan are comprehensive in their historical account, and taken together, what emerges from these miniature case studies are that comics are an effective medium through which video games can be understood, a plastic medium that is transparent. Comics readers can move through video game history and visually see representations of these games, read through accounts of their shared histories.

This makes sense, given the unification of visuals and text to the comics medium, but also given the interactivity of comics. One of McCloud's oft-cited pages in *Understanding Comics* explores the notion of closure, or, the interpretive act of reading two comics panels and internalizing what happens between the two panels (the interaction effectively closing the gap between the two panels). To illustrate this, McCloud refers to a two-panel sequence on page 66 of *Understanding Comics*: in the first, a man in the background is swinging a hatchet at a man in the foreground, shouting "Now you die!!"; in the second, a silhouetted city is shown at nighttime, with a single word bubble declaring "Eeyaa!!" In reading these two panels, the reader must perform an interpretive act about what happens in that gap: read one way, the man in the foreground gruesomely was struck and screamed in the second panel, but read another way, it could be that the man in the foreground escaped with the would-be attacker screaming in frustration at his failed attempt. For Brown, Hennessey, and McGowan, the act of converting video game history to the comic book medium enacts a kind of playful interactivity, where the reader can make interpretive acts between panels, read through comics pages in nonlinear sequences, and engage with a visual medium that comes closer to the interactivity of the video game than, say, the traditional methodology of an academic book. The pedagogical gap in Game Studies, then, is one of play.

This is not to say that video games are solely explained through only one methodology, as pedagogical video games exist alongside of helpful explanatory and educational materials in all media. For example, video game "walkthroughs," or, step-by-step accompaniments leading the player through the entirety of a game have existed for several decades, as in the case of player's guides, articles in gaming magazines, and even online articles on forums like GameFAQS.com. As technology has developed, so too have these paraphernalia, with

educational videos emerging that explain how to play and succeed in a given video game without offering rationales for why in-game actions correspond a certain way, or why given play styles correlate to certain outcomes within the code itself (as two examples of many). Other corollaries might be found in the instructional manuals for video games themselves, or in tabletop board games that explain how to play the game by setting up a sample game, even in the video series “Extra Credits,” which break down key components and theoretical concepts of video games through short, easy-to-understand videos on Youtube. To wit, youtuber John Wolfe utilizes the popular “Let’s Play” model of video playthroughs to deconstruct the genre of horror within video games, highlighting ludic innovations at the same time as he illuminates problematic or tired trends. One salient example is Wolfe’s demonstration of horror games’ prevalence of red lighting right before a jump-scare or dangerous zone, intended to put the player off-kilter, prompting Wolfe to often repeat “Red means scary!” The affordance here means that Wolfe is able to record and upload playthroughs of hundreds of horror video games for viewers, thereby allowing viewers insights into what a game holds, or lacks, with regards to the horror genre. Still other avenues exist in the form of critical podcasts like Waypoint Radio, which features games critics who dissect video games and video game news through short, topical, and critical conversations about games’ ideological impact or their entertainment value.

However, each of these are missing playable elements: videos feature one-way direct instruction, instruction manuals are primarily text-based, podcasts are auditory, and even walkthroughs demonstrate a single pathway through a given game. Video game tutorials offer instructions on how to play their specific game, what their specific user-interface elements are (“This is your stamina bar! When it depletes, you will move sluggishly for a brief period”) without explaining these in a larger context. In short, these corollaries are helpful, but in their

capacity to instruct, teach, and at times interrogate the video game medium, they highlight a critical problem: if *video games are rules-based games using digital means of technology for play*, if video games are indeed a medium grounded in play, then attempts must be made to teach, engage with, and even interrogate the medium of video games *through* a playable text. Thus, this dissertation takes the form of a video game: *Level 101: A Video Game About Video Games*.

Dissertation Outline

My dissertation is a serious game⁴ entitled *Level 101: A Video Game About Video Games*, which is a playable video game for classroom use that explores, explains, and interrogates the video game medium on several levels in order to understand the medium through a methodology of play. In doing so, *Level 101* puts disparate elements of Game Studies theory into practice due to its branching paths, introducing players to three distinct frameworks for understanding video games: 1) history, 2) design, and 3) play. Each of these three worlds⁵ features five stages (for a total of fifteen different modules) designed to educate players about the video game medium, as well as encourage critical reflection on video games and the process of playing through them.

Level 101 is not intended to be a comprehensive guide to games history, a doctrine for how video games operate, or a bible on the theory of play. It cannot, and does not, cover the ever-evolving and rhizomatic history of video games, the infinite approaches to game design and video game forms, or even the exponentially open-ended modes of play within the medium.

⁴ That is, a game designed for a purpose other than entertainment. See Chapter 1 for more contextualization of the term and its origins.

⁵ To use video game parlance, a video game “world” is a designated and distinct container for a set of video game stages. Much like a traditional dissertation features multiple chapters, so too does *Level 101* feature multiple worlds.

What it does offer are usable in-roads into understanding video games as complex digital artifacts, ones with history, design, and theory all their own.

World 1: History

The first world is focused on broad historical foundations of video games, beginning with the trio of video game “fathers” (Steve Russell with *Spacewar!* in 1962, Ralph Baer developing video games for home use in 1966, and Nolan Bushnell’s *Pong* in 1972), the progenitors of early video game history. *Level 101* attempts to build on the more interactive and progressive entries into video game history, Box Brown’s *Tetris: The Games We Play* along with Justin Hennessey and Jack McGowan’s *The Comic Book Story of Video Games: The Incredible History of the Electronic Gaming Revolution*. As outlined above, these two entries utilize another medium of visual and textual interactivity, comics, to explain video games, but the historical branch of *Level 101*, World 1, affords players the opportunity to experience and experiment with different playable representations of eras of video game history. This begins with a simulation of the earliest popular video game, *Pong*,⁶ before moving into the rhizomatic expanse of video games’ evolution after *Pong*, culminating with a multifaceted investigation into contemporary video games. The emphasis here is on the experiential component of play. To play is to learn, and to learn is to play. Because this is intended to be a historical module, and because it is suggested as the introductory module, World 1 features direct instruction, with the players encountering explicit lessons about video game history and then engaging within those same historical spaces.

World 1: History is focused on introducing players to one key frame of understanding the long, complicated, and rhizomatic history of video games. It does so by offering a learning

⁶ As discussed within *Level 101* itself, and as many, many games historians note, *Pong* is not the first video game, but the first to hit the popular culture consciousness.

module broken down by decades, covering the 1970s, 1980s, 1990s, 2000s, and 2010s. Within each decade, the player is introduced to a brief historical contextualization of the decade as it relates to video game history before learning about one particularly influential or otherwise significant video game from that decade. Then, the player will play through a simulation of that video game in order to give the core experience of the game's clearest attributes. Returning to the earlier example, the first stage of this section is a playable simulation of *Pong*, one that reflects the audio, visual, and ludic stylings of this game accompanied with a textual overlay situating *Pong* within video game history as the first publicly available video game. Because there have been an untold amount of video games produced since the medium's existence, and more being published every day, capturing the totality of video game history lies outside the scope of this project.

World 2: Design

The second world moves from direct engagements with history to a deconstruction of the video game by exposing its formalist elements; in other words, World 2 is centered around the fundamentals of game design and understanding these fundamentals. Each of the stages in World 2 will engage with core concepts of game design that make up every video game. It does so by iterating on the same level over and over again, so that the player can understand how each of these elements are operating in the same context. Using *Space* as an example, players will see how *Space* functions or manifests within small actions like jumping between platforms, or their avatar occupying a space and colliding with an enemy's space. But, this also manifests when comparing the original level, say, a cavern towards the end of the level, and modifying the ceiling in the *Space*-level so that it is lowered, but does not impede player movement. An illusion is created of a cramped environment, even though the player's mobility is not impacted at all. A

third way to think about space manifests when transforming the background and environment of World 2-0 (the base level) from a bright green forest to a red and brown lava-infused level; the physical space remains much the same, but impacts the tone of the level. The player will learn about the world in a “blank slate” of the game level (Level 2-0), then choose between one of five game elements. They will then play through a modified version of the same level that centers one key design element. This world puts theory into practice concerning video game form by providing examples of the fundamentals of game design, drawing on texts like Salen and Zimmerman’s *Rules of Play*, Wolf’s *The Medium of the Video Game*, or Jesse Schell’s *The Art of Game Design* to articulate concepts that are central to playing video games, but often near-invisible and intuitive to the player: *time*, *space*, *rules*, *systems*, and *interactivity*. In the process, *Level 101* shows these core concepts in action, explaining to players what a *rule* is from a designer perspective, what the computer system might understand or see a *rule* as, and how that manifests for the player. Players are exposed to concrete methods of understanding how these concepts appear through one specific instance of that concept, then apply their knowledge to move through the game. At the end of each of these modules, they are asked to demonstrate their knowledge in the form of a “boss battle” that acts as a mode of unstructured assessment: if the player has understood the concept, then the boss battle can be overcome.

One unique facet of World 2 is that these concepts will be explored by deconstructing facets of game design, such that the level focused on *space* peels back the graphics of the level to reveal how the illusion of space is created within a video game. This aligns with Yusoff et al’s framework for serious game design where players are assessed within the confines of the serious game, and then receive feedback on how they did within the assessment. Because the game is meant to be played, players have opportunities to replay the level to go over the material more,

or to experiment with other ways of understanding game design. Ideally, a future version of this branch would implement a manner of teaching *how* to design video games, but this currently exists outside the scope of *Level 101*.⁷

World 3: Play

The final world, World 3, is the most esoteric, and arguably, the most significant in scope and purpose: engaging with *play* as a concept. The centrality of *play* in relation to Game Studies, along with my own vested interest in video games and play as critical pedagogy, necessitates a branch exploring what *play* looks like. To begin, players are introduced to working definitions of the concept before being exposed to ways that these definitions can be complicated. From here, players learn more about how to analyze the mode of play within a video game through one framework: the concept of the magic circle (Huizinga's notion of the imaginary border between the real-world and the imagined space of play), how video games create it, and how it manifests within this game. This world centered around play unites the direct instruction from World 1 and the deconstructive approach to World 2, but also builds upon the important work done in Game Studies concerning play by offering a self-referential and educational branch of stages to demonstrate this concept, rather than working to describe it using texts and methods of instruction not grounded in play. In other words, it is a world that illustrates play by having players work through the game, experiment with the concept in a system of constraints, and to do so with concrete, interactive examples.

This world does not address the vast expanse or totality of game studies' engagement with play, as the field has grappled with this concept for decades. For example, *Level 101* does not cover every definition or application of play, nor does it engage with every manifestation of

⁷ For more limitations, see: Chapters 2 and 3.

play within video games. Likewise, it does not address the intersections of game studies and play as it appears within childhood studies, though the two do overlap greatly at times particularly in children's video games. In keeping the frame centered solely on video games, the intention is to offer one primary approach to understanding this fluid concept, and to do so in a manner that will allow players to grasp the concept through concrete examples. Future extensions of this project would offer playable versions of how play engages with and embodies similarly large properties like rhetoric, culture, and aesthetics.

Written Report Outline

The rest of this traditional written component consists of short essays addressing the following topics for *Level 101*: Chapter 1 — historical and cultural contextualization; Chapter 2 — theoretical frameworks and practical methodologies; Chapter 3 — a summation of the project's critical contributions; and a Conclusion — a reflection of the development process. Chapter 1 traces two interconnected historical movements that intersect with *Level 101*: a curious friction between game developers and critics, and the historical movement of serious games. By tracing these two movements, I situate *Level 101* as a product of critical-making, a serious game that is situated both within educational classrooms and as a product of alternative scholarship itself. Chapter 2 demonstrates both theoretical frameworks from game studies, digital humanities, and pedagogy that inform *Level 101*, as well as practical approaches taken to create the game itself, particularly from a game design perspective. Chapter 3 explores *Level 101*'s critical stakes as alternative scholarship, highlighting its outcomes and where it expands on or intervenes in its connected fields. Finally, I conclude with a short and personal reflection of the development process over the course of the last five years, before looking ahead to the project's future iterations.

Level 101 thus begins filling a crucial and overlooked pedagogical gap in Game Studies through uniting play and learning via digital means, but only in conjunction with other aspects of traditional learning. It is also intended to be a living project, one that can be expanded on throughout the course of several years and one that takes advantage of new technologies, expands to address new concepts, and grows through collaboration. The project can conceivably be scaled up to address upper-level undergraduate courses, even do the complicated and rigorous work of graduate courses. At its core, however, *Level 101* is about advocating for a new approach to game studies and scholarship. Play becomes not just a method of inquiry, a means of pedagogy, but scholarship itself.

CHAPTER 1: THE CRITICAL-CREATIVE DIVIDE OF GAME STUDIES AND ALTERNATIVE SCHOLARSHIP

Though game studies as a field has always embraced approaching games with a critical focus, making serious games to advance external fields, and using video games as pedagogical tools, there is a curious friction between scholarly/critical camps and creative efforts. Within corollary fields like comics studies, for example, scholars have long embraced creating comics as a means of disseminating discourse and advancing the field, seen in Linda Barry's *Syllabus* or *Making Comics*, Scott McCloud's *Understanding Comics*, John Jennings and Stacey Robinson's *Black Kirby* endeavors, etc. Game studies' creative/critical divide seems problematic for a field so closely intertwined with play and games, yet one that relies on every other medium for explication, e.g., to illustrate *play*, game scholars utilize extensive academic texts with long, dense, and nuanced expositions, or rely on other media (comics, video, podcasts, etc.).

This is not to say that game studies is wholly lacking in efforts that bridge the divide: we need only look to Elizabeth LaPensée's corpus,⁸ Jane McGonigal's work,⁹ even programs like MIT's Game Lab. Likewise, Jason Helms' playable article on the affordances of different media-as-scholarship¹⁰ and Anastasia Salter's sprawling game as scholarship¹¹ further push at the boundaries between critical and creative. But, as an ever-expanding and increasingly rhizomatic field of critical inquiry, game studies is rife with potential for alternative scholarship, for *playable* criticism and creative endeavors, yet has historically been resistant to such efforts.

⁸ Elizabeth LaPensée, "Games," accessed February 25, 2021, <http://www.elizabethlapensee.com/#/games>

⁹ Jane McGonigal, "Play Me," accessed February 25, 2021, <https://janemcgonigal.com/play-me/>

¹⁰ Jason Helms, "Play Smarter Not Harder: Developing Your Scholarly Meta," *Scholarly and Research Communication* 10, no. 3 (2019). <https://doi.org/10.22230/src.2019v10n3a333>

¹¹ Anastasia Salter, "Alice in Dataland 2.0," *Kairos* 20, no. 1 (2015): <https://kairos.technorhetoric.net/20.1/inventio/salter/index.html>

This chapter traces this creative/critical divide within game studies' history, offering some accounting of where this stems from, along with how it has grown and shifted particularly in relation to other fields. One such way of understanding the persistence of this creative/critical can be traced to the relative historical inaccessibility of game development knowledge, software, even hardware, let alone time, energy, and communal efforts.¹² Another might be to understand the academy's resistance to consideration of alternative scholarship in lieu of traditional scholarship models¹³: the monograph, the peer-reviewed article, etc.

Further, this chapter envisions a future game studies that bridges the critical/creative divide through alternative scholarship, using *Level 101* as my own entry point in this regard. I do so by revealing opportunities for playable criticism to intervene, and demonstrating conversations that *Level 101* builds on, responds to, or aligns with. Ultimately, this chapter speculates on what future game studies may look like by embracing playable criticism as a mode of scholarly discourse, by embracing games as our mode of critical inquiry, not just our subjects of observation.

Early Creative/Critical Divide

Prototypical video game developers were few and far between in the 1950s, working on their own or in small groups due to the expensive and inaccessible nature of early computers being housed at academic institutions or loaned out in conjunction with government grants. To even begin learning about these computers, one had to have access to an academic institution, then gain access to the massive computer itself. At the same time, what computers were available at academic institutions were often only available on a timeshare basis, meaning would-be

¹² Tina Amini, "Why It's So Hard To Make A Video Game," *Vice Games*, October 19, 2016:

<https://www.vice.com/en/article/4w33ed/why-its-so-hard-to-make-a-video-game>

¹³ Danielle Cooper, et al., "Supporting Research in Languages and Literature," *Ithaka S+R*, last modified Sept. 9, 2020: <https://doi.org/10.18665/sr.313810>.

developers and students fascinated with the new and exciting enterprise of working with computers had to maximize what little time was available for these computers. Tristan Donovan highlights that creating prototypical video games during the 1950s and 1960s required at least a baseline knowledge of electrical engineering in order to modify the hardware necessary to create games, not to mention having access to these early computers.¹⁴

Games like *Spacewar!*¹⁵ initially developed by academic institutions were quickly co-opted into commercial enterprises.¹⁶ Because early video games were quite often built within academic institutions, early developers worked to bring that knowledge and those systems to the public. This was less a Promethean democratization of knowledge and more of a commercialization of extant technologies, as embodied by the efforts of creators like Ralph Baer¹⁷ and Nolan Bushnell¹⁸ to bring *Pong* and *Breakout* to the public and home markets, but these efforts did inspire grassroots developers to begin developing their own commercial video games. However, these would-be developers would have to overcome the hefty price-point of home computers in the 1970s, then learn the programming skills necessary to create their own games. While this caused an early gap between those with access to technological knowledge or those with the financial means — and those without — the lowering price of home computers, combined with the ease of access brought on by the Apple II, offered opportunities to bridge this

¹⁴ Tristan Donovan, *REPLAY: The History of Video Games* (East Sussex, UK: Yellow Ant, 2010), 41.

¹⁵ Stewart Brand offers a detailed account of the very first video game tournament, held on October 19th, 1972 between fans, hackers, and developers of *Spacewar!*. Brand also tracks the nascent popularity and grassroots development of the game across universities, academic institutions, and government spaces in the 1960s and 1970s. Stewart Brand, writer and Annie Liebovitz, photographer, “Spacewar: Fanatic Life and Symbolic Death Among the Computer Bums,” *Rolling Stone*, December 7th, 1972. https://www.wheels.org/spacewar/stone/rolling_stone.html

¹⁶ Tristan Donovan recounts the story of Bill Pitts, an undergraduate at Stanford University who, in 1969, set about creating a coin-operated version of *Spacewar!* to try and ‘make money’ though he and his partner, Hugh Tuck, would later get poached by Nolan Bushnell. Donovan, *REPLAY*, 16-17.

¹⁷ Jon-Paul Dyson, “Ralph Baer Brings His Brown Box to NCHeg,” *The Strong National Museum of Play*, June 29, 2009 <https://www.museumofplay.org/blog/chegheads/2009/06/ralph-baer-brings-his-brown-box-to-ncheg>

¹⁸ Shannon Symonds, “By Any Other Name: The Origin of Atari,” *The Strong National Museum of Play*, May 16, 2011 <https://www.museumofplay.org/blog/chegheads/2011/05/by-any-other-name-the-origin-of-atari>

gap. As Benj Edwards details, minicomputers during the late 1960s “might cost anywhere between \$6,000 and \$25,000...the average yearly income for American families during 1972 was \$11,286” — steep costs that prohibited many would-be developers from getting started with video game development outside of the academy, even in a nascent form.^{19 20}

These barriers did lead to inventive workarounds, however. In one notable instance, Joseph Weisbecker slowly built his own computer at home over a period of several months, buying pieces from multiple computer retailers to keep costs low and keep prying eyes away from his project, which he lovingly termed “the FRED Machine.”²¹ Elsewhere, Ken and Roberta Williams have detailed their own experiences collaborating on their first video game by developing computer games out of their kitchen, writing codes, programs, and game design elements on “the back of large sheets of wrapping paper” as this was much more accessible than finding reams of expensive printer paper.²² To even access some types of early video games, consumers had to find them in “magazines and books that contained listings of computer programs for people to type in line by line,” requiring knowledge of how to find these programs, then knowledge of how to compile them into a playable form.²³

Meagan Marie demonstrates that “women have always played a major role in the video game industry, despite widely-accepted beliefs that it originated as and continues to be the domain of men,” finding that women have historically made significant contributions to game design, development, and studies.²⁴ Joyce Weisbecker was the “earliest known female developer

¹⁹ Benj Edwards, “Rediscovering History’s Lost First Female Video Game Developer,” *FastCompany*, October 27, 2017, accessed February 25, 2021, <https://www.fastcompany.com/90147592/rediscovering-historys-lost-first-female-video-game-designer>

²⁰ See also Brand, “Spacewar,” *Rolling Stone*, Appendix B for additional pricing discussions.

²¹ Edwards, “First Female Video Game Developer.”

²² Donovan, *REPLAY*, 58. See also “Roberta Williams”, Lemson-MIT, n.d., accessed February 25, 2021, <https://lemelson.mit.edu/resources/roberta-williams>

²³ Donovan, *REPLAY*, 56.

²⁴ Meagan Marie, *Women in Gaming: 100 Professionals of Play*, (New York: Prima Games, 2018), 6.

who wrote video games and got paid for it,” whose historical contributions went largely unrecognized until 2017, though Weisbecker herself only claims credit for being the first indie game developer. Weisbecker recounts how she began programming for her father’s own homemade computer system, Joseph Weisbecker’s aforementioned FRED machine. However, in the summer of 1976, Weisbecker was recruited by RCA to begin programming demos for the RCA COSMAC VIP before being officially contracted to develop educational games and quizzes for RCA later that year.

Joyce Weisbecker’s story, along with dozens of others, exemplify the early independent game developer movement.²⁵ While the nascent video game industry was beginning to grow, indie game creators and programmers were creating games on floppy disks, bagging them up, and distributing them through mail order or at their local tech store. Frustrated with this gap to games, Scott Miller turned to self-publishing and distributing games through a bulletin board system. Though his shareware model (later dubbed the “Apogee Model”)²⁶ was aimed at commodification, this model also helped pave the way for other independent game developers to carve out their own space in a saturated and competitive market of game design.

At the same time, a different kind of insulation took place – companies made up of would-be developers and self-taught programmers were now leading the charge of an entire industry, one that worked to closely guard any secrets. Whereas the early academic sequestering was exclusionary based on means of access and proximity, this business sequestering was tapered by financial motivations: protecting developers’ secrets and design principles to outpace

²⁵ For a more thorough accounting of the history of indie game development, see Tabitha Baker’s “The Complete History of Indie Games”, *Indie Game Website*, October 19, 2018, accessed February 25, 2021, <https://www.indiegamewebsite.com/2018/10/19/the-complete-history-of-indie-games/>

²⁶ Chris Plante, “Apogee: Where Wolfenstein Got Its Start,” *Polygon*, originally published February 27, 2013, accessed February 25, 2021, <https://www.polygon.com/features/2017/10/26/16511514/wolfenstein-origins-apogee>

their competitors.²⁷ This was coupled with a growing expectation of games development experience and effort. Anna Anthropy notes that as the industry grew, so too did the expectations for entry: not just years of schooling or relevant programming/coding experiences, but exorbitant periods of crunch once the job began, or barring these constraints, an offer for contract-only work.²⁸

In his influential *Art of Computer Game Design*, Chris Crawford is intensely critical of what he saw as tepid approaches to video game development when he wrote his landmark text in 1984. It is important to note that Crawford was an early bridge between criticism and creation, having worked as an independent game designer as so many early video game developers operated, before joining Atari in 1979 and working on games like *Energy Czar* (1980) and *Excalibur* (1983), then founding *The Journal of Computer Game Design* in 1987. Crawford lays bare a tension between the entertainment industry and what he terms “the art business” of game development, creative endeavors that advance the medium rather than simply commodify it (xiii). Certainly, other designers-turned-critics like Brenda Romero, Karen Schrier, and Brenda Laurel offer insight not only due to their early games criticism, but to efforts that bridge the gap between criticism and praxis. Romero cut her teeth on game development with the *Wizardry* series of games in the early 1980s, then transitioned to the academic realm in the late 2000s, blending her design experience with intellectual pursuits, founding the IDGA Romance and Sexuality Group in 2005 and publishing several books related to game studies. Likewise, during her tenure at Atari Systems Research Laboratory, Laurel “sought academic answers for

²⁷ Box Brown works through one particularly prominent example in *Tetris: The Games We Play* (New York: First Second, 2016).

²⁸ Anna Anthropy, *Rise of the Videogame Zinesters: How Freaks, Normals, Amateurs, Artists, Dreamers, Dropouts, Queers, Housewives, and People Like You Are Taking Back An Art Form* (New York: Seven Stories Press, 2012), 16-17.

fundamental questions. What are games? What is interactivity? How can we make games more intelligent?” (Marie 20). In pursuit of these questions, Laurel earned her PhD and published *Computers as Theater* in 1991, eventually creating her own educational games company for young girls – Purple Moon – before leaving the game industry behind for academia.

Scholars, too, were flocking to game development to make games based on work from other disciplines, bringing in perspectives or approaches from media studies, social sciences, communication, and more. Peter Favaro, a psychology PhD graduate, turned to creating a psychology-based video game to supplement his income, interviewing “more than a thousand people to work out what made them tick and what life decisions really affected their lives.”²⁹ (Donovan 323). While his game, *Alter Ego* (1986), has been noted in recent years for being problematic due to sexist and misogynistic trappings,³⁰ it does stand as one avenue of a critical creation, scholarly-researched games with critical intentions. Still others have worked to bridge this critical/creative gap by starting their own companies built on research, such as Laurel’s Purple Moon company.³¹ Serious games often act as bridges between the critical and the creative, and in this regard, *Level 101* conjoins the playful nature of games with the serious purpose of critical thought and inquiry, affording new opportunities of learning and experimentation without the risks and costs of other such methods.

²⁹ Donovan, *REPLAY*, 323.

³⁰ Jimmy Maher, “Alter Ego,” *The Digital Antiquarian*, November 2014, accessed February 25, 2021, <https://www.filfre.net/2014/11/alter-ego/>

³¹ It is worth noting that Purple Moon faced scrutiny for reinforcing sexist, gender-based, and racial stereotypes. For more information, see Amy Huang, Ashley Ring, Shelley Toich, and Teresa Torres, “Purple Moon: Thanks but No Thanks for Rockett’s New School,” *GREAT*, 1, no. 1 (1998) <https://web.archive.org/web/20090403084211/http://www-cse.stanford.edu/classes/cs201/Projects/gender-gap-in-education/page19.htm>; and Rebecca Eisenberg, “Girl Games: Adventures in Lip Gloss,” *Gamasutra*, Feb. 13, 1998. https://www.gamasutra.com/view/feature/3252/girl_games_adventures_in_lip_gloss.php Both accessed February 25, 2021.

Serious Games

While Simon Egenfeldt-Nelson, Jonas Heide Smith, and Susana Pajares Tosca present several classic definitions of video games (and their own taxonomy for understanding video games, for that matter), they argue that “it is more important to acknowledge and specify one’s own definition than it is to try to decide on the ‘correct’ one,” due to the voluminous and contentious approaches to defining and understanding video games.”³² As Brian Upton notes, “a good definition is *computationally convenient* – in the sense that it structures a discursive field that makes it easier to say interesting or useful things.”³³ My definition of video games here is not an end-all/be-all, but rather, one organizing principle. To this end, I follow in the footsteps of my Game Studies peers in offering my own definition for video games that will be used moving forward: *video games are rules-based games using digital means of technology for play*. This definition finds purchase in delineating games as governed by rules, in contrast to the free nature of play, while also situating video games as being governed by technological means (whether in development or delivery). In defining video games as such, I am able to further tease out the intricacies of serious games with respect to how Game Studies has responded to the sometimes-subtle, sometimes-explosive trajectory of serious games.

Clark C. Abt first coined the term “serious game” in 1970, defining a serious game as one that differs from a traditional game in a fundamental way. Perhaps the most interesting point to note about Abt’s definition of the serious game is that it stems from his experiences in the U.S. Air Force during the 1950s. Here, Abt and his colleagues “designed computer simulations of air

³² Egenfeldt-Nelson, Smith, and Tosca avoid providing their own definition of video games in this text, instead charting helpful components from various definitions while exposing conflicting or nuances in others as a means of instructing readers to develop their own personal definition of the medium. Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca, *Understanding Video Games: The Essential Introduction* (Taylor & Francis, 2015), 37: <https://books.google.com/books?id=oLg0CwAAQBAJ>.

³³ Brian Upton, *The Aesthetic of Play* (MIT Press, 2015), 12. <https://books.google.com/books?id=hd11BwAAQBAJ>.

battles, space missions, missile exchanges, disarmament inspection systems, and international political competitions,” effectively developing a bevy of digital simulations which later influenced his later post-military work at MIT where he experimented with the applications of computer simulation games in the classroom.³⁴ Given these experiences, for Abt, a traditional game is “an *activity* among two or more independent *decision-makers* seeking to achieve their *objectives* in some *limiting context*,” or, in other words, a “contest with rules among adversaries trying to win objectives.”³⁵ By contrast, and more significantly for the purposes of understanding how *Level 101* fits within the historical trajectory and long-lasting intervention of serious games within the field of Game Studies, Abt defines serious games as those with “an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement.”³⁶ Thus, *Level 101* is conceived of as a serious game, one intended for the express purpose of educating players on the machinations and historical foundations of video games in a playable format. Though it has been designed with fun and engagement in mind, first and foremost the game is intended to be a serious game in the Clarkian sense. With this in mind, the historical weight of this term and *Level 101*’s positioning within the field bears more unpacking.

Foundational Game Studies scholar Johann Huizinga articulates games to be organized by play, a “free activity...outside ‘ordinary’ life as being ‘not serious,’”³⁷ whereas Roger Caillois declares play to be “a free and voluntary activity, a source of joy and amusement.”³⁸ Without this free act of play, a serious game would simply be some form of simulation, a carefully-designed program designed to see whether an experiment, situation, or hypothesis

³⁴ Clark C. Abt, *Serious Games* (Viking Press, 1970), xv.

³⁵ Abt, *Serious Games*, 6-7.

³⁶ Abt, *Serious Games*, 10.

³⁷ Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture* (Routledge, 1949), 13.

³⁸ Roger Caillois, *Man, Play, and Games*, Sociology/Sport (University of Illinois Press, 2001), 6, <https://books.google.com/books?id=bDjOPsjzfC4C>.

succeeded or failed. Similarly, without this explicitly serious purpose, games are simply playful experimentations with win-lose conditions, but no significant stakes, no ramifications beyond those established by a ruleset, and even then, ramifications that are reset by starting a new game. While this differentiation between traditional games and “serious” games may seem pedantic or trite to those outside Game Studies (and even to many of us within the field), understanding this delineation helps make sense of the tensions within Game Studies regarding serious games, as well as offer insight into the current state of serious games that *Level 101* enters into.

It is important to understand the historical context in which Abt published *Serious Games*, namely, 1970, or more significantly for Game Studies, two years prior to the release of Atari’s *Pong* in 1972, the first commercially-available video game. In *REPLAY: The History of Video Games*, Tristan Donovan writes a global history of video games, one that gives “the US its due without neglecting the important influence of games developed in Japan, Europe, and elsewhere,” and in doing so, traces the expansive explosion of said global history to the release of *Pong* in the United States in 1972, a move that ignited development globally.³⁹ This is corroborated by scholars like Dustin Hansen, whose own historical accounting of video games, *Game On! Video Game History from Pong and Pac-Man to Mario, Minecraft, and More* lists *Pong* not as the first video game, “not by a long shot,” but as the video game that jumpstarted the industry (1). Likewise, Steve Malliet and Gust de Mayer’s “History of the Video Game” in *The Handbook of Computer Game Studies* suggests that the trio of video game “fathers” (Steve Russell with *Spacewar!* in 1962, Ralph Baer developing video games for home use in 1966, and Nolan Bushnell’s *Pong* in 1972) are progenitors of early video game history, but that Bushnell’s *Pong* caused video game development to become increasingly rhizomatic due to the proliferation

³⁹ Tristan Donovan, *Replay: The History of Video Games* (Yellow Ant, 2010), xiii, <https://books.google.com/books?id=\ lrSSAAACAAJ>.

of arcades and home game consoles. Due to the volume of critical attention devoted to the historical, cultural, and commercial impact of *Pong*, it is safe to declare the release of *Pong* to be a watershed moment for the field of Game Studies, if for no other reason than due to the immediate and rapid growth of the video game industry from 1972 onwards. As such, *Level 101*'s historical world is intended to begin here. There are, of course, innumerable simulations that exist of *Pong*,⁴⁰ but part of this project's aim is presenting the historical roots of video games in context with one another. With *Pong*, video games had emerged in North America before spreading overseas to become a global phenomenon, resulting in what Ken S. McAllister calls the "video game complex": the transdisciplinary, transmedia, and global nature of the video game assemblage (players, designers, industry, and the games themselves).⁴¹ *Pong* was a harbinger of a new medium, one that utilized elements of fun interactivity, digital screens, and advanced technological frameworks, and with *Pong*, the field of Game Studies transformed from one focused on the study of games as they manifest in different areas of history, culture, and society, to include those that games that manifest technologically: video games.

The video game's radical emergence caused Game Studies scholars to rapidly expand the boundaries of the field to include, understand, and analyze the video game. Drawing on Clark's definition, *Level 101* is situated as a serious game due to its explicit goals and critical aims. As outlined elsewhere in the dissertation, *Level 101* has two primary goals: 1) teach players how to think critically about video games through a playable experience, and more specifically, with entry points of history, design, and theory; and 2) act as a point of alternative scholarship and

⁴⁰ One need only search a platform or digital storefront to find hundreds of variants available for download at a given time, while David Winter maintains a catalog of almost 400 *Pong* clones created between its release and 1983: David Winter, "Pong Rarity and Price Guide, *Pong-Story*, accessed March 7, 2022: <http://www.pong-story.com/mypongs.htm>

⁴¹ Ken S. McAllister, *Game Work: Language, Power, and Computer Game Culture* (University of Alabama Press, 2004), viii, <https://books.google.com/books?id=2Gjy1sPzm74C>.

critical creation, a nontraditional dissertation that is meant to be played, rather than read. Each of these goals fits within the defining traits of serious games, those that “use the artistic medium of games to deliver a message, teach a lesson, or provide an experience.”⁴² Ben Sawyer, co-founder of the Serious Games Initiative, notes that the ‘serious’ portion of serious games is in the intent and purpose, not necessarily the content per se. *Level 101* intentionally draws on a long lineage of both games history and game studies for construction, content, and delivery. In the rest of this chapter, I trace historical movements that *Level 101* draws inspiration from, engages with, and iterates on, including serious games, educational games, and metatextual games. Through this path, I articulate where *Level 101* is positioned within each of these sub-fields, as well as where it expands, deviates, and opens doors for new playthroughs.

Contemporary Movements in Serious Games

The historical rise of the video game brings us full-circle back to the initial point of departure: understanding the potential for serious games. As mentioned before, what *Pong* signaled for the development of serious games was a massive movement towards developing video games to be sold as entertainment products, but also a movement towards developing serious games as video games. Abt himself notes that “games are effective teaching and training devices for students of all ages and in many situations because they are highly motivating, and because they communicate very efficiently the concepts and facts of many subjects,” and for serious game designers, the digital medium of the video game provided an incredible opportunity to push at what serious games could do and be.⁴³ With the advent of video games, serious game designers turned their attention to developing serious games for the digital medium, games like

⁴² David R. Michael and Sandra L. Chen, *Serious Games: Games That Educate, Train, and Inform* (Muska & Lipman/Premier-Trade, 2005), 23.

⁴³ Abt, *Serious Games*, 13.

Microsoft Flight Simulator for the Windows PC, developed by Microsoft in 1982. With *Microsoft Flight Simulator*, players could experience the inside of an airplane cockpit through playable simulations, learning the interface of the different technological and mechanical implements without the intense experience of going through flight school. As video games began emerging in full effect, Game Studies scholars began carving out boundaries for understanding video games as an emergent medium, and in doing so, often articulated points of view that were at odds with one another, including viewing video games as games or narratives, as entertainment products of popular media, or as educational tools, tensions which played out in contesting opinions over the serious nature of games and serious games' nature.

Game Studies scholars like Mark J.P. Wolf and James S. Newman outlined and worked through foundational qualities for what they saw as the serious work (and serious potential) of video games as a medium. Wolf argues that the video game medium features unique traits that are intrinsically tied to the experience of playing the video game medium, such as how *time* and *space* work while playing (moving one direction in the real-world, differently within the game-world). Whereas Wolf et al. drill down into the foundational qualities of video games as they existed, James Newman, Jesper Juul, Janet Murray, and Espen Aarseth began devising ways to understand the potential of video games and look to the future of the medium. While Wolf's ideas and approaches are central to the development of this project, his critical analysis and explanation of the medium are necessarily limited to the print page. With *Level 101*, I seek to foreground that missing component so necessary to video games: interactivity, play. James Newman offered a platform of places to begin researching (players, the cyborg nature of the console, social gaming, the move from stationary to mobile gaming). Juul and Aarseth advocated for increased attention to the ludic structures of digital texts (which included video games) while

Murray offers foundational insights into the simulatory and narrative potential for many of these same digital texts (also including video games). Others, like Salen and Zimmerman, Richard Rouse III, and Raph Koster, sought to understand video games structurally, advocating for increased attention to the *design* of video game. These conversations have further inspired, in different ways, World 2's focus on *design* elements.

These tensions over taking video games seriously manifested in a brief inflection point of contention between Game Studies scholars. If video games are both game and narrative, narrative and game...which should be prioritized? Rather, which element takes priority, is dominant, defines the video game medium? These questions defined a subset of Game Studies in the early 2000s termed the “Ludology vs Narratology” debates which centered around how video games should be taken seriously: as games, or as narratives. Narratologists like Murray, Bogost, and Crawford argue that video games offer unique affordances in nonlinear storytelling, taking advantage of the infinite expanse of the digital medium in ways that traditional narrative forms cannot. For narratologists, then, games have narratives, and therefore, video games are doing increasingly unique narrative work by utilizing digital spaces, digital tools, and digital modes of interactivity. Ludologists like Gonzala Frasca, Juul, and Aarseth argue that video games should be studied for the unique manifestations of interactivity and specific game qualities not present in other mediums. Due to their uniquely application of interactivity, rules, and play not found in other forms of media, video games are to be celebrated and studied for their serious work as a new medium within the ludologist paradigm. The longlasting ramifications of these debates have been covered elsewhere, and in this regard, *Level 101* does not cover this debate, instead keeping the focus on what I feel are formal entry points to understanding the medium. These debates

galvanized scholars from the then-nascent game studies field and critics from interdisciplinary spaces to note the critical cultural values and ideologies that permeate games.

Indeed, scholars like Newman and McAllister argue that video games should not be seen as a children's medium unworthy of study, nor as forms of low art, but as a serious medium due to their widespread impact as entertainment products.⁴⁴ Newman highlights the massive popularity of video games, the correlative size of the video game industry, and their exemplary evidence of the human-computer interaction.⁴⁵ For McAllister, "analyses of cultural artifacts like computer games are doomed to remain little more than interesting hermeneutic exercises if they are not somehow connected to an understanding of" a dialectic, that video games should not be understood in isolation as they are always part of a constitutive process, emerging in a given historical or cultural context, and/or connected to a greater trend.⁴⁶ Here, *Level 101* is limited in its current iteration. However, some of this is deployed in the Historical section, replicating this constitutive process as a form of emulation. For example: rather than creating a hyper-contemporary version of *Pong*, I offer a rough emulation of Baer's original version.

This corresponds with the work done by T.L. Taylor, who finds that massively-multiplayer online role-playing games (MMORPGS) are never confined to just the digital world, but bleed into the game world. Players who play MMOs begin playing between the game and the game-world, the game and real-world, whether through experiences of meeting other players in the real-world or discussing real-world events and problems with in-game players.⁴⁷

Approaching games by understanding the experiences of the *designers*, Jason Schreier suggests

⁴⁴ Though this is a very necessary critical observation to make by scholars like Newman and McAllister, the high/low art debate has been paralleled in many similar fields that I and other games scholars work in, including children's literature, comics studies, media studies, popular culture/literatures, etc.

⁴⁵ James Newman, *Videogames* (Taylor & Francis, 2012), 3, <https://books.google.com/books?id=9C0umoF4o3AC>.

⁴⁶ McAllister, *Game Work*, 32.

⁴⁷ T.L. Taylor, *Play Between Worlds: Exploring Online Game Culture*, The MIT Press (MIT Press, 2009), 10 https://books.google.com/books?id=M9f_b-SFi4C.

that because “video games straddle the border between art and technology in a way that was barely possible just a few decades ago...lots of video games look the same, but no two video games are created the same way.”⁴⁸ Following the trials and tribulations that plague both large AAA developing companies and indie developers working on their own, Schreier highlights the narratives of game creators and their relationships to their own games: the ludic and narrative elements, how developers navigate (or fail to navigate) mass market movements, the connections between the game and the real-world. Of particular interest is Schreier’s focus on independent creators and their journeys: one prime example is the story of Eric Barone’s development of indie game *Stardew Valley*, a pastoral farming simulator. *Stardew Valley*’s success is tremendous and commendable, selling over 15 million copies at time of writing in 2021; creator Eric Barone’s story about its development, however, is more complicated. From one perspective, Barone maintained authorial control over the project, building it from the ground up. From another, Barone taught himself programming and animation while using Microsoft XNA with “no methodology at all,”⁴⁹ working on the project’s development without a strong development plan and handling all of the skill-based duties of game development himself. As a first-time developer, I took note of Barone’s story, alongside those of the Weisbeckers, the Williams, and other independent game creators, and chart more of my own successes/trials/failures in chapter 2.

These larger critical conversations prompted Game Studies scholars to revisit what serious games are and what they mean. On one hand, the unique trappings of the term “serious game” make good sense: serious games are those developed for a purpose other than entertainment, whereas traditional games are geared towards entertainment, play, and fun. On the

⁴⁸ Jason Schreier, *Blood, Sweat, and Pixels: The Triumphant, Turbulent Stories Behind How Video Games Are Made* (HarperCollins, 2017), xvi-xvii, <https://books.google.com/books?id=bK-DQAAQBAJ>.

⁴⁹ Schreier, *Blood, Sweat, and Pixels*, kindle location 1030 of 4213.

other hand, a problematic emerges for the field of Game Studies in light of these movements: this distinction suggests that all other games are somehow non-serious, even frivolous by comparison. Given Game Studies' work to understand the serious nature of video games, in which a bevy of scholars argue that not only do video games warrant serious merit on their own as a medium with unique narrative, ludic, and digital traits, but have expansive connotations as a rhizomatic assemblage connected to mass market movements, popular culture trends, and historical/cultural values, treating a subset of video games as "serious" and all others as "non-serious" was seen by many as frivolous itself.

As a result, several scholars have argued for further departures from serious games within the field of Game Studies. For example, Bogost argues that a new framework is needed for understanding and analyzing video games, one that examines "*procedural rhetoric*, the art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images, or moving pictures. This type of persuasion is tied to the core affordances of the computer: computers run processes, they execute calculations and rule-based symbolic manipulations."⁵⁰ Through this framework, Bogost finds fault in the term serious as applied by Abt, as "the concept of serious games as a counter movement apart from and against the commercial videogame industry eliminates a wide variety of games from persuasive speech. It is a foolish gesture that wrongly undermines the expressive power of video games in general."⁵¹ While Bogost's own personal politics have often been seen as both nearsighted⁵² and wrongfully

⁵⁰ Ian Bogost, *Persuasive Games: The Expressive Power of Videogames* (MIT Press, 2010), ix.

⁵¹ Abt, *Serious Games*, 59.

⁵² In one of Bogost's particularly inflammatory writings, "Video Games Are Better Without Stories," Bogost revives the decades-old narratology-ludology debate by arguing that all other media tell stories better than video games, and therefore, video game designers should stop telling stories. This is, of course, nonsense.

undermining other Game Studies scholars,⁵³ his alternative viewpoint proves useful in understanding the problematic of serious games, that *persuasive games* showcase the power of procedural rhetoric is not within the content, but in the delivery of the game itself. Instead, *Level 101* is not intended to change attitudes, but to deliver education and to get players to *learn* how to navigate the video game medium through play. This actualizes some of James Paul Gee's assertions about video games being effective learning tools on their own, principles like the Bottom-up Basic Skills principle, where "Basic skills are not learned in isolation or out of context...Basic skills are genre elements of a given type of game/domain."⁵⁴ In this vein, I situate *Level 101* within other educational games in the section below, and tease out some of the overlapping intricacies between serious games, educational games, and edutainment.

Educational Games and Edutainment

This is not to say that Game Studies wholly neglected critical attention to serious games, nor to the development/implementation of serious video games, with the rise of the video game. Though the first instance of a scholar using the term serious game to refer to a digital game is Ben Sawyer's deployment of the term in 2003 regarding the use of video games to affect policy-making, much attention within Game Studies focused on Abt's original conception of serious games as ones with pedagogical aims, or at least, how video games foster learning.

⁵³ In this same article, Bogost co-opts Janet Murray's theory of the Holodeck as a means of articulating his point that video games should abandon narrative aims, and does so without acknowledging Janet Murray in any way shape or form within the article. While this is particularly frustrating given Bogost's position as an academic who knows the conventions for attributing work that is not one's own, it becomes even more frustrating given Bogost's citation, explanation, and acknowledgement of Murray's book *Hamlet on the Holodeck* as a significant predecessor within and to his own *Persuasive Games* book. I am using Bogost's work here due to its contribution to Game Studies, but am distancing myself about as far away from his personal practices as possible.

⁵⁴ This is one of Gee's 36 principles of learning that he argues are built into good video games, and I do not claim to have imbued every single principle into *Level 101*. James Paul Gee, *What Video Games Have to Teach Us about Learning and Literacy* (Palgrave Macmillan, 2003), 210, <https://books.google.com/books?id=ADgZf3Yqp1QC>.

For instance, drawing on Abt's emphasis that games afford lower stakes than traditional simulations, Koster finds that video games "serve as very fundamental and very powerful learning tools" as they organize abstract representations of the real world into digital patterns that the human brain can make sense of.⁵⁵ Koster finds that "a good game is therefore 'one that teaches everything it has to offer before the player stops playing.' That's what games are, in the end. Teachers. Fun is just another word for learning," suggesting not just that all games can teach players, but that video games are inherently fun *because* they teach us something.⁵⁶ James Paul Gee agrees here that good video games "encourage and facilitate active and critical learning and thinking," and yet, Gee's emphasis on "critical" learning and thinking proves interesting within the context of serious games.⁵⁷ For Gee, the learner-player must not be learning just from and about the game, but must think critically "at a 'meta' level as a complex system of interrelated parts. The learner also needs to learn how to innovate in the domain – how to produce meanings that, while recognizable, are seen as somehow novel or unpredictable."⁵⁸ This meta level is central to *Level 101*: teaching the player to begin holding several interrelated parts of how video games function at once, all while playing the text. While Koster suggests that games are only fun while we have something to learn from them, Gee counters that any game is ripe to be learned from, but good video games encourage a kind of critical thinking that goes beyond the game in some way, whether encouraging the player to think in relation to a given dialectic or to think critically outside the sphere of games. For both Koster and Gee, edutainment doesn't fit this bill, as these games simply teach content, not taking full advantage of the video game medium to

⁵⁵ Raph Koster, *Theory of Fun for Game Design* (O'Reilly Media, Inc., 2013), 36.

⁵⁶ Koster, *Theory of Fun*, 46.

⁵⁷ James Paul Gee, *What Video Games Have to Teach Us about Learning and Literacy* (Palgrave Macmillan, 2003), 46, <https://books.google.com/books?id=ADgZf3Yqp1QC>.

⁵⁸ Gee, *What Video Games*, 23.

encourage a greater depth of learning, but, both suggest that all games, not just those designed for pedagogy nor serious games, have something to teach. However, neither scholar can escape the insidious nature of the ludology/narratology debates, as Koster knowingly privileges that the ludic qualities of games are those imbued with pedagogical qualities, while Gee suggests that video games provide embodied experiences through digital narratives that foster meaning.

In light of this, Johannes Breuer and Gary Bente situate serious games within the broader theoretical umbrella of entertainment education, an arm of education concerning “any attempt to make learning (more) enjoyable, no matter if media-based, mediated, or within a classroom setting” which includes: game-based learning, serious games and E-learning, digital game-based learning (DGBL), and classical edutainment games.⁵⁹ As a formal product, *Level 101* also takes into consideration the well-intentioned but often maligned/misaligned edutainment of the 1990s, moving past the content-oriented model of instruction and instead adopting a process-oriented model of pedagogy. Edutainment, meaning educational games that “utilize games’ motivating qualities to facilitate learning,” have found mixed success as products that mixed play and pedagogy.⁶⁰ On one hand, edutainment makes efforts to capitalize on the ludic qualities of games and motivate students to learn more through fun. The intention is clear: make learning fun by playing a game to teach the concept, and there are many edutainment success stories out there: *Where in the World Is Carmen Sandiego?* had sold more than 4 million copies between its release in 1984 and 1994,⁶¹ while The Learning Company “was considered the world’s second-

⁵⁹ Johannes S. Breuer and Gary Bente, “Why so Serious? On the Relation of Serious Games and Learning,” *Eludamos. Journal for Computer Game Culture* 4, no. 1 (April 26, 2010), 11.

⁶⁰ Carsten Jessen, “Learning Games and the Disruptive Effects of Play,” in S. Egenfeldt-Nielsen, B. Meyer, and B.H. Soerensen, *Serious Games in Education: A Global Perspective* (Aarhus University Press, 2011), 155 <https://books.google.com/books?id=nQqiDwAAQBAJ>.

⁶¹ Brett Atwood reported that the game had sold more than 4 million copies between 1984 and 1995. Brett Atwood, “That’s Edutainment,” *Billboard*. Vol. 107, no. 19. May 1, 1995. p. 91.

largest consumer software company after Microsoft” in the late 1990s.⁶² *Carmen Sandiego* was particularly noteworthy for its successful blend of learning goals, fun gameplay, and smart game writing, while the figure of Carmen herself was enduringly popular, as seen in a recent Netflix animated adaptation. Others, like the *JumpStart* suite of games (first started in 1994) are notable for reaching populations that were historically underserved due to their low price-points and large distribution.⁶³

In practice, many products of edutainment have been noted as featuring low-quality content or being poorly designed (or both), rendering well-intentioned pedagogical practices to be ineffective. Carly Schuler also attributes the fall of edutainment to several shifts in the late 1990s: the rise in mass market retailers and a shift away from specialty software stores; downward pricing-pressure; lack of investment in innovative products and increased innovation in mainstream, currently-licensed products, etc. However, Carsten Jessen notes that “games can have success in education, as long as the choice of game, the situated environment, and the teacher’s role are considered carefully,” echoing Salen and Zimmerman’s attention to designing games meaningfully for audience, intended outcomes, and with context in mind.⁶⁴ This same intervention intends to help students navigate the tensions between play and pedagogy as outlined above by Egenfeldt-Nielsen, Smith, and Tosca.

This problem of education and entertainment being intertwined within video games informs much of *Level 101*. My early conversations with colleagues at Michigan State University in various departments often revolved around how *Level 101* would broach education and entertainment, fun and learning. But, in many ways, *Level 101* speaks to both Gee and Koster’s

⁶² Carly Shuler, "What in the world happened to Carmen Sandiego? The edutainment era: Debunking myths and sharing lessons learned," New York: The Joan Ganz Cooney Center at Sesame Workshop, (2012).

⁶³ Mizuko Ito, *Engineering Play: A Cultural History of Children's Software*, MIT Press, 2012.

⁶⁴ Jessen, “Learning Games,” 156.

ideas, offering a slightly more narrative-minded emphasis within the historical track and a more ludic-oriented experience within the design track. It also takes seriously both scholar's emphasis on games being fun and fun games being those that have something to teach the player.

Similarly, Breuer and Bente find that serious games are not housed wholly within entertainment education, aligning closely with David R. Michael and Sandra L. Chen, who offer their definition of serious games in opposition to the edutainment movement:

Edutainment,⁶⁵ or *education through entertainment*, is a term that came into common use in the 1990s with the appearance of 'multi-media' personal computers. Though edutainment is not limited to video games and refers to any form of education that also seeks to entertain, it most often refers to video games with overtly educational aims, specifically for preschoolers and new readers. Serious games, however...move past the limited focus of edutainment to encompass all types of education and at all ages.

Edutainment titles are considered a subset of the overall topic of serious game.⁶⁶

This highlights one crucial implication of video games for serious games. Whereas Abt's original definition of the serious game was any game with a purpose other than entertainment, the appearance of edutainment in the form of video games with "overtly educational aims, specifically for preschoolers and new readers," like the *JumpStart* series, encroached upon the serious game traits, causing Game Studies scholars to rethink serious games and how to approach them. Ultimately, in their systematic review of serious game scholarship, Breuer and Bente suggest that Abt's core sentiment is mostly true, but, the difference is in *use*: "serious

⁶⁵ Edutainment is, of course, also the title of Boogie Down Productions' 1990 album (Petchaeur 2022).

⁶⁶ Michael and Chen, *Serious Games*, 24.

games are games which are *used* for more than just mere entertainment.”⁶⁷ As they note, “serious games...also have application fields outside of education and learning (art, therapy, advertising, etc.), expanding Abt’s understanding of serious games and encompassing those that might fall under Bogost’s nebulous field of persuasive games.”⁶⁸

Almost 50 years after Abt’s landmark book, serious games continue to have a tremendous impact within the classroom, as well as within larger contexts. Some, like *Chore Wars* and *Fold It!* are able to effect change on a large scale. *Chore Wars*, a serious game intended to motivate players to complete real-world chores, which are, as Jane McGonigal puts it, “by definition, unpleasant tasks.”⁶⁹ *Chore Wars* transforms the mundanity of completing tasks around the house into a serious game through intrinsic and extrinsic motivation, encouraging players to make meaningful choices about when and where they complete chores. *Fold It*, by comparison, is aimed at solving “one of the greatest mysteries of human biology: how proteins fold” (236). To do so, Stanford University biologists reached out to PlayStation3 owners to see if they would be willing to volunteer the computing power of their PS3 console while not in use; the process of crowdsourcing idle PS3s allows the scientists to harness much more computing power than through the average PC, effectively overhauling their biological research through a crowdsourced serious game.

Though the term serious game comes laden with dialectic baggage (serious vs non-serious, pedagogical video games vs entertainment games, meaningful design vs edutainment), understanding its contentious history and winding trajectory in the context of Game Studies means that there must be a distinction between serious games and others, one that marks *serious*

⁶⁷ Breuer and Bente, “Why So Serious?,” 8.

⁶⁸ Breuer and Bente, “Why So Serious?,” 11.

⁶⁹ Jane McGonigal, *Reality Is Broken: Why Games Make Us Better and How They Can Change the World* (Penguin Publishing Group, 2011), 122, https://books.google.com/books?id=yiOtN_kDJZgC.

games as games designed or used for purposes other than entertainment. This definition of the serious game, one marked by meaningful intent, informs the design of *Level 101*. I explore more of the serious game methodologies in Chapter 2, along with practical design processes that guided the project.

Alternative Models

Rather than simply tracing this critical/creative divide, I also want to highlight several ways in which this gap has been addressed. These include myriad avenues of increased access for individualized efforts to create critical games and playable criticism; communal spaces and community practices to crowdsource critical games work; and institutional or academic initiatives that can provide models for future pathways forward.

Individual Efforts

The proliferation of free and open-access game development software, combined with the constant lowering prices of computers capable of video game development, has considerably lowered barriers of access for developing games as scholarship and games as critical forms. RPG Toolkit has been long been one such tool for game development, given its free and open-access nature. “First released in 1997 by Christopher B. Matthews,” the toolkit has been kept alive by a small, but dedicated, fan community. A similar prepackaged game engine, Game Maker, was created by Mark Overmars and released on November 15, 1999 for free. Game Maker has continued offering different free iterations over the years and has become a staple for games developers and educators to begin working with.⁷⁰

⁷⁰ Chris Wallace, “GameMaker at 20,” *MCV/DEVELOP*, December 4, 2019, accessed February 25, 2021, <https://www.mcvuk.com/business-news/gamemaker-at-20-sometimes-something-small-and-nameless-is-way-more-impressive-than-one-of-the-big-game-titles/>

These kinds of open and free game engines have led to more powerful ones like Unity, which has become notable for offering Unity Personal, a plan for “Individuals, hobbyists and small businesses that have less than \$100k of revenue or funds raised in the prior 12 months,” along with Unity Student, free for “Students enrolled in an accredited educational institution of legal age to consent to the collection and processing of their personal information (e.g., age 13 in the US, 16 in the EU).”⁷¹ This has afforded opportunities for independent game developers to utilize a robust game engine as well as increased access for scholars, educators, and learners of all kinds. Other programs like Twine⁷² — an open source tool for nonlinear and interactive narratives — have been used to create not just works of interactive fiction, but educational models and games designed for use in the classroom, along with critical endeavors. I talk about the design choices I made in finding, and using, these and other open game engines in both Chapters 2 and 3, where I trace my own move from Twine to Construct 2 to Construct 3, and finally to Unity. These individual efforts are themselves often part of collective groups or communal efforts, even if tangentially, as highlighted below.

Communal Spaces and Collectives

Within *Atari to Zelda: Japan’s Videogames in Global Contexts*, Mia Consalvo notes the significance of activities such as post-mortem panels at the annual Game Developers Conference where game developers share knowledge on “forms, techniques, and tools” between one another, both sharing out and learning from.⁷³ Though Consalvo keenly notes the complexities here of GDC regarding the myriad learning/sharing processes going on between Japanese, European,

⁷¹ Unity Store, “Plans and Pricing,” *Unity*, accessed February 25, 2021

https://store.unity.com/?_ga=2.161248638.295552747.1612903243-1951046385.1612903243

⁷² Adam Hammond, “A Total Beginner’s Guide to Twine 2.1,” *Adamhammond.com*, accessed February 25, 2021.

<http://www.adamhammond.com/twineguide/>

⁷³ Mia Consalvo, *Atari to Zelda: Japan’s Videogames in Global Contexts*, Atari to Zelda (MIT Press, 2016), 11, <https://books.google.com/books?id=tH3TCwAAQBAJ>.

American, and other global game developers during post-mortems, her insights highlight the role that community plays in critical advancements in the medium. In these kinds of events, developers are able to easily share out their experiences, opportunities which have not always been available to those working in game design and game studies.

Other instances of the creative and critical divide being crossed can be found within queer game studies and queer game development, particularly independent developers unburdened by the same restrictions that largescale developers face. Bo Ruberg highlights the emergence of the “queer games scene” in 2012, games that are “‘queer’ either because they explicitly reflect the experiences of LGBTQ people, because the designers and other artists who created them themselves identify as queer, or, most often, both.”⁷⁴ While Ruberg’s overall argument situates queer video games and their creators within digital humanities (DH) work and pushes at hegemonic DH praxes, they highlight the crucial work queer indie game developers have long accomplished within the realm of game development. Here, Ruberg argues that these queer games and their creators’ approach to video game development are an exercise in criticism, that they are utilizing game development “as a tool for exploring identity, performing cultural critique, and enacting distinctly queer ways of making meaning in the world.”⁷⁵ This queer game development has similarly evolved within the game-zine community, as embodied within various collectives and initiatives gathered through Twitter, Discord, and Itch.io.

Game Jams,⁷⁶ otherwise defined as community-generated game development events, serve to bring together creators with potentially disparate skills or overlapping interests to homebrew games in a short, compressed timeframe. Nearly thirty years after the original *Pong*

⁷⁴ Bo Ruberg, *Video Games Have Always Been Queer* (New York: New York University Press, 2019), 417.

⁷⁵ Ruberg, *Video Games*, 417.

⁷⁶ Annakaisa Kultima, “Defining Game Jam,” *Proceedings of the Foundations of Digital Games Conference* (2015).

was released to the public, the first official game jam was held in 2002 with Sean Barret and Chris Hecker inviting developers to their office for a long weekend to test out developing games using a brand new and experimental game engine.⁷⁷ Now, nearly twenty years after Barret and Hecker's first event, game jams occur throughout the globe, and some even on a weekly basis, acting as a nexus for game writers to join with programmers, designers to meet with prototypers, and playtesters to gain experience. Not all teams walk away with complete games, let alone functional products. But, as Allan Fowler, Foaad Khosmood, and Ali Arya note, jams like the Global Game Jam operate as sites of alternative game development and learning. What's more, events like the GGJ "Provides a unique opportunity for studying different professional, educational and cultural aspects of computer games," and while Fowler, Khosmood, and Arya⁷⁸ are reporting out on the GGJ, others like the Climate Game Jam series and the Game Jam [4Research] fit within this mold of spaces for critical game development and serious games research.⁷⁹ The itch.io platform even offers a ranking system for game jams to allow criterion-based rankings, offering a modicum of, if not peer review, then at least user review. Bringing collaborators together, particularly around a specific theme or topic, with the intention of pooling together resources, skills, and experiences can offer in-roads to critical creations, much as scholars can utilize the edited collection model of scholarly publishing to bring together a curated collection of approaches to a given topic.

My own project developed in relation to the communities that I was tied to at Michigan State University, as well as several that I discovered through online interactions. I found a group

⁷⁷ Chris Hecker, "IGJ0," *IndieGameJam*, accessed February 25, 2021, <http://indiegamejam.com/igi0/>

⁷⁸ Allan Fowler, Foaad Khosmood, and Ali Arya, "The Evolution and Significance of the Global Game Jam," *Proceedings of the Foundations of Digital Games Conference* (2013): 3

⁷⁹ Romana Ramzan and Andrew James Reid, "The Importance of Game Jams in Serious Games," *10th European Conference on Games Based Learning: ECGBL 2016*. (2016), 538-546.

of peers in DH@MSU, an interdisciplinary group of scholars and specialists interested in Digital Humanities. DH@MSU is particularly unique as it represents collaborators from all over campus, folks working in the arts, humanities, sciences, technology, as well as graduate students. Presenting early stages of *Level 101* at local or regional DH forums provided me with opportunities to gain feedback from peers who worked outside of game development but had specialized knowledge in digital humanities programs/tools/coding, akin to the experiences Consalvo highlights above without the need to travel for GDC. I also pursued and completed the Serious Games Graduate Certificate at MSU, a program that is “designed to give game designers, business people, teachers, and researchers graduate-level insight into serious game theories, serious game design, and more-than-human-centered design.”⁸⁰ During my coursework, I developed the structure, aims, and outline for the project in concert with my peers, who graciously provided early support and insights into the project’s nascent growth. I was fortunate enough to have access to these communities as a graduate student at an R1 university, to be sure, but even more fortunate to find them while working, teaching, and learning in an English department. While I built this project over several years and conducted the gamedev on my own, I learned from these communities throughout the process. They supported the project in its early life, helping it grow from a sketch of an idea into something more fleshed out, as well as guided me towards developing the project in conversation with other academic initiatives: publication, grants, playable scholarship, and more.

⁸⁰ GameDev MSU, “Serious Games Graduate Certificate,” Michigan State University, last accessed March 7, 2022: <https://gamedev.msu.edu/graduate-serious-games-certificate/>

Academic Initiatives

In the wake of game studies emerging as a nascent field, many games labs, non-profit organizations, and academic workshops were built for the purpose of collaborative and critical game design. Programs like the MIT Game Lab, UH-Clear Lake's Serious Games and Simulations Innovation Lab, and Michigan State University's Games and Education Lab have brought together game studies scholars and student collaborators into a space for purposeful game design and studies programs. One need only look to the games created within these spaces to see critical efforts applied in creative ways: *Walden*, created by Tracy Fullerton and the USC Game Innovation Lab, is an open-world narrative game that simulates the life experiences of Henry David Thoreau during his time living at Walden Pond. However, many of these academic games labs are costly enterprises, and for games like *Walden*, need external grants or fellowships in order to move from design to prototype to deployed game.⁸¹ I was fortunate enough to receive a few small internal grants and fellowships, most notably the DH@MSU Summer Seed Grant, which provided me with funding to purchase assets in the Unity Store and a laptop upgrade. Likewise, at Michigan State University, I was able to utilize the DH@MSU Lab's high-powered computers during Summer 2019, when my own laptop at the time was unable to run Unity.

In their inaugural editorial for the *Journal of Analog Game Studies*, Aaron Trammell, Emma Leigh Waldron, and Evan Torner demonstrate the relatively low barriers of access for critical games in analog modes: "Because the barriers of entry to design do not require the technical expertise demanded by the lines of codes which bring computer games to life, analog games hold the potential to allow a new and different set of voices into design processes, voices which might resist the pathological displays of racism, sexism, homophobia, and violence native

⁸¹ Tracy Fullerton, "Walden, a game Press Notes, 2019," *WaldenGame.com*, 2019, accessed February 25, 2021, https://static1.squarespace.com/static/5972908bf7e0ab1a5fe04927/t/5cf9988e09eaf90001ff228b/1559861390269/Walden_PressNotes_2019.pdf

to the video game industry.”⁸² This can be particularly epitomized through the recent critical and commercial successes of crowdfunding site Kickstarter’s ZineQuest, a month-long event held in February where many first-time game designers and zinesters take to Kickstarter to launch their game, and hopefully, find backers to fund its production and development. First held in 2019, ZineQuest has become a launchpad for marginalized voices creating serious games by another name, advocating for decolonial content, fair pay practices, and thoughtful meditations. It is, of course, important to note that not all participants in ZineQuest are small companies, nor are all games and zines made during this time critical, progressive, or free from controversy – but the event creates space for collaboration, for support, and for creation.

Some publication avenues do exist within the academy for treating games as scholarship and games as forms of academic publishing. *OneShot: A Journal of Critical Games & Play* deliberately creates space for the submission of games and play as scholarship, offering peer-review processes for “publishing games, as viable and authentic forms of academic works, alongside more conventional texts” (“About”).⁸³ What’s notable about *OneShot* is not just the treatment of games and play as academic products, but the offer of peer review processes along with playtesting stages. Other journals, including *G|A|M|E: The Italian Journal of Game Studies*, have curated special issues that incorporate games in different forms, whether including online repositories where the games can be downloaded or including links to online games. These actions add legitimacy to critical games and playable criticism. Taking a different approach, Central Michigan University Press now has a series dedicated to the publication of pedagogical games: “Scholarships and Lore: Games for Learning” not only asks for proposals, playable

⁸² Aaron Trammell, Emma Leigh Waldron, and Evan Torner, “Reinventing Analog Game Studies,” *Analog Game Studies* 1, no. 1 (August 1, 2014). <https://analoggamestudies.org/2014/08/reinventing-analog-game-studies/>

⁸³ *OneShot*, “About,” *OneShot: A Journal of Critical Games & Play*. <http://oneshotjournal.com/about/>

prototypes, and pedagogical materials associated with the game, but asks for input on content experts that would be appropriate for game evaluation. While this has radical and immediate impact for game studies people in academia and those in the tenure-stream, these opportunities also serve to bridge the creative-critical divide through institutional credibility, both for academic and non-academic creators.

Playable Scholarship and Alternate Routes

There have been several recent forays into iterations of playable scholarship. Jason Helm's "Play Smarter, Not Harder" acts as one form of playable criticism, utilizing Twine in a dualistic way: First, using the digital platform of Twine to argue that "medium choice [in scholarly production] shapes knowledge production," and secondly, illustrating an argument about interactivity and play through a playable format.⁸⁴ Like some of Helms' other recent projects, "Play Smarter, Not Harder" takes advantage of digital media and the affordances of play to articulate ideas through interactivity itself. Other digital projects like Anastasia Salter's "Alice in Dataland 2.0" — a work "intended to remediate the text of *Alice's Adventures in Wonderland* into a critical lens for gazing into Alice herself" — stand as solo projects wherein the design and programming is as imbricated in the stakes of the project as the argumentative content is. These acts of playable scholarship have proven radically influential for *Level 101*, not only providing models for what scholarly games can look like, but avenues where the game can eventually be developed for publication towards.

Critical praxis in digital humanities offers yet more pathways for bridging this divide. One need only look at the *Electronic Literature Collection*, volumes 1, 2, and 3, digital collections of critical creations sponsored by the Electronic Literature Organization. Each

⁸⁴ Helms, "Play Smarter Not Harder," <https://doi.org/10.22230/src.2019v10n3a333>

volume contains dozens of entries (60 for Volumes 1 and 2, while Volume 3 is comprised of “114 entries from 26 countries, 13 languages” and includes digital fiction, applications, twine games and ARGs.”⁸⁵ As detailed in Chapter 2, scholar-makers like Coltrain, Ramsay, Ratto and Hoekema articulate a need for critical creations, and *Level 101* is located within this space as a product of critical-making, particularly as a digital artifact.

Similarly, scholar-practitioners from corollary fields like comics studies offer insights into the affordances of bridging the critical and creative divides. Graphic medicine, originally coined by Ian Williams as the “use of comics in medical education and patient care” is a growing subset of comics studies where scholars are not only devoted to analyzing these instances of graphic medicine, but contributing to them as well, whether via online initiatives like the 2020 “Drawing Together Archive” or collecting together scholarly essays with graphic medicine in texts like the *Graphic Medicine Manifesto*. Likewise, Lynda Barry’s *What It Is, Making Comics*, and *Syllabus: Notes from an Accidental Professor* offer comics-based theory, scholarship, and exercises that not only utilize comics as a medium of transmission, but invite participation for readers to create their own creative engagements with and through comics. Nick Sousanis’ own comics-as-dissertation *Unflattening* similarly uses the form of comics to push at traditional models of learning, calling for an “unflattening” to the flattened-out, two-dimensional thinking that pervade academia and higher education. I discuss more about how these texts intersect with *Level 101* in Chapter 2 in particular, touching on what I see as underlying connections between comics and game design as tied through these critical-creative projects.

⁸⁵ Stephanie Boluk, Leonardo Flores, Jacob Garbe, and Anastasia Salter, “Editorial Statement,” *The Electronic Literature Collection 3* (Cambridge, MA: Electronic Literature Organization, 2016), accessed February 25, 2021, <https://collection.eliterature.org/3/about.html>

Hurdles and Roadblocks

Calling for increased attempts to bridge the creative-critical gap within game studies would be disingenuous without acknowledging the painstaking labor and narrow channels of access involved in making games of any kind, be they paper-and-pen, live-action, digital, or something between/beyond. Post-mortems at games conferences like those noted above, books on game development narratives like Jason Schreier's *Blood, Sweat, and Pixels*, and articles like Tina Amini's "Why It's So Hard To Make A Video Game" all highlight the intrinsic difficulties in making any sort of a game, whether as a solo creator or within a AAA company of 100+ employees. This is not to mention the multitudinous hurdles creators face in trying to actually move a game from concept to design to prototype to release: institutional, financial, personal health and well-being, including time itself. The process becomes magnified for many game studies scholars who may not receive much advancement towards the tenure clock for anything other than traditional print publications in academic journals or the individual monograph, let alone for those game studies scholars working without institutional stability or in an independent capacity. Kishonna Gray also notes the "institutional, communal, and individual barriers that impede full inclusion of marginalized users" of technology writ large⁸⁶, and further keenly highlights the necessity for and struggles to inclusive design. Thus, efforts to bridge this critical and creative gap are often blockaded by academic institutions that progenitors of game development and game studies themselves.

But, if early game developers struggled with distribution practices and getting their projects out into the world, an inversion has occurred some fifty years later where games developers now have such a bevy of platforms, hosting spaces, and distribution outlets that it can

⁸⁶ Kishonna Gray, *Intersectional Tech: Black Users in Digital Gaming* (Baton Rouge, LA: LSU Press, 2020), 3.

be challenging to know how to navigate this, let alone how to keep a project stable for long enough to be played. There have been many game studies journals and presses, along with digital humanities journals and outlets receptive to experimental digital projects, that have been put on indefinite hiatus; dissolved; frozen; or otherwise gone inactive. The aforementioned Electronic Literature Organization has been open about their ongoing struggles with publishing and archiving these projects, such as some platforms becoming outdated or discontinued (particularly Adobe Flash), along with new versions of hardware being released and old ones becoming obsolete. However, as Stephanie de Smale notes, there is significance to prototyping projects as praxis,⁸⁷ and as Anthropy argues,⁸⁸ the act of actually making games (digital, analog, or otherwise) or play-experiences with the tools at hand carries weight and merit. Under this purview, even if they fail, or become obsolete, or don't land somewhere notable, these efforts embody game studies and its ties to play. Not all games work, not all playthroughs are successful.

Achievement Unlocked: Chapter 1 completed

Level 101 certainly isn't a panacea for game studies, but it does advocate for critical praxis in game studies. By briefly charting this game studies historiography of a creative / critical divide alongside my own attempts to learn from, engage with, and bridge the divide through *Level 101*, current and future game studies scholars can continue to advance these foundations of playable scholarship and ludic dissertations. We can play with what scholarship looks like, invite other players and collaborators to investigate new potential for creative-critical insights, and

⁸⁷ Stephanie de Smale, "Game Essays as Critical Media and Research Praxis," *Proceedings of DiGRA/FDG 2016*, accessed February 25, 2021, <https://dblp.org/rec/conf/digra/Smale16>

⁸⁸ Anthropy, *Rise of the Videogame Zinesters*, 19-20.

continue lowering barriers of inaccessibility for those invested in critical-making in the field of game studies.

My own project is necessarily constrained by many of the hurdles and roadblocks outlined above in this historiography of the creative-critical divide in game studies, serious games, and educational games: I am not a game designer by trade, nor an audio engineer, nor a programmer. I readily identify with many of the struggles outlined by Eric Barone in Schreier's *Blood, Sweat, and Pixels*, including having to juggle multiple roles for the growth of the project. However, the MSU Serious Games Graduate Certificate provided me with specialized learning opportunities that provided me with experience in C#, Unity, Serious Game development and planning. Through the affordances of the Unity asset store,⁸⁹ I have been able to acquire free and paid assets for use within *Level 101*, as well as learn from programmers and educators through Youtube, Udemy, and online forums. *Level 101* also faces the same long-term problems of digital and infrastructural obsolescence as outlined by the ELO or in the widespread removal of Adobe Flash. To overcome some of these barriers, I have taken a multi-pronged approach to digital and textual preservation, including several backed-up versions, housing *Level 101* in online cloud servers, and in sturdy external hard drives that are heat, water, and dust-resistant.

Level 101 certainly isn't a panacea for game studies, but it does advocate for critical praxis in game studies. By briefly charting this game studies historiography of a creative / critical divide alongside my own attempts to learn from, engage with, and bridge the divide through *Level 101*, current and future game studies scholars can continue to advance these foundations of playable scholarship and ludic dissertations. We can play with what scholarship looks like, invite

⁸⁹ This follows the process that Meagan Marie and others term asset-flipping: "software that is mostly or entirely comprised of assets purchased or downloaded for free from asset marketplaces for engines such as Unity and Unreal, rather than creating bespoke assets for a specific project", *Women in Gaming*, 10.

other players and collaborators to investigate new potential for creative-critical insights, and continue lowering barriers of inaccessibility for those invested in critical-making in the field of game studies. To this end, I devote Chapter 2 to detailing the design and construction of *Level 101*.

CHAPTER 2: RULES OF A DISSERTATION GAME

In this chapter, I chart the theoretical frameworks and practical methodologies used in the development of *Level 101*. I begin by working through the theories that informed the design of *Level 101*, including those from game studies, digital humanities, and pedagogy. From here, I detail the general methodologies of game design and media studies that inform the production of the game, particularly the iterative design loop that includes planning, prototyping, playtesting, and revising the project throughout its development cycle. Lastly, I mark the limitations and boundaries of this project with the express intention of looking ahead to the game's critical stakes in its various connective disciplines.

Theoretical Frameworks

Meaningful Play

Perhaps the clearest theoretical framework that guides *Level 101* is that of *play*, a framework infusing game studies and indeed video games themselves. While this theory is at the center of World 3 and indeed is engaged within the game-dissertation itself, I draw on several models and understandings of play for this project, both in terms of designing and developing the game. Katie Salen-Tekinbaş and Eric Zimmerman define *meaningful play* as emerging “between player action and system outcome; it is the process by which a player takes action within the designed system of a game and the system responds to the action. The *meaning* of an action in a game resides in the relationship between action and outcome.”⁹⁰(34). Here, Salen-Tekinbaş and Zimmerman find significance in the ways that every game generates meaning as the players take actions and assign outcomes to those actions. They go further to note that meaningful play can

⁹⁰ Katie Salen-Tekinbas and Eric Zimmerman, *Rules of Play: Game Design Fundamentals*, Cambridge, Mass: MIT Press, 2004: 34.

occur naturally, but more often occurs through careful and methodical game design. However, Salen and Zimmerman pointedly stop short of connecting meaningful play with “the semiotic construction of meaning (how meaning is made)” and focus “more about the emotional and psychological experience of inhabiting a well-designed system of play” *Level 101* expands this framework and *does* highlight semiotic connections, focusing in World 2 on how video game components invisibly convey meanings of rules, time, and space.

This refinement of meaningful play is at the heart of the game design for *Level 101*, in much the same way that good learning can emerge organically through any classroom, but successful learning must be designed and honed. There is a distinction within pedagogical circles that bears repeating within the context of *Level 101*: the difference between game-based learning, and gamification. Though the two are often mentioned in the same breath in pedagogy surrounding games, the two approaches are radically different. Game-based learning “describes an approach to teaching, where students explore relevant aspect of games in a learning context designed by teachers” while gamification “takes game elements (such as points, badges, leaderboards, competition, achievements) and applies them to a non-game setting” ([edtechreview](http://edtechreview.in)).⁹¹ Jan L. Plass, Bruce D. Homer, and Charles K. Kinzer note the similarities between educational behaviorism and GBL, drawing on the work of Loftus and Loftus (1983) and Vygotsky (1978) to note that “Game designers use behaviorist elements, cognitivist elements, and constructivist elements, and often various combinations of them, in the design of games for learning.”⁹² In other words, GBL is focused on learning through the act of playing games while gamification is the process of applying games components to learning. These two

⁹¹ EdTechReview. “What Is GBL (Game-Based Learning)?” *EdTechReview*, 23 Apr. 2013, edtechreview.in/dictionary/298-what-is-game-based-learning.

⁹² Jan L. Plass, Bruce D. Homer, and Charles K. Kinzer, “Foundations of Game-Based Learning,” *Educational Psychologist* 50, no. 4 (2015): 261.

processes are not necessarily at odds with one another, but they have different outcomes, approaches, and underpinnings. Gamification's root in behaviorism centers around motivating learners to complete activities/lessons/modules through incentive systems or gamified elements; game-based learning draws on constructivism to position learners as active participants, solving problems through play and redesigning activities to orient play as a means of meeting defined learning outcomes (and in some cases, designing an entire game). *Level 101* is game-based learning incarnate, exploring video game history, design, and theory within relevant worlds of a game, rather than gamifying the learning of game history with game-badges or awarding in-class achievements for understanding Huizinga's concept of the Magic Circle. This opens up avenues between pedagogy and game studies, where *meaningful play* can be seen as *play* designed with specific learning outcomes in mind.

Play and Pedagogy

For many scholars, play is intimately related to pedagogy due to play's pervasive nature within all aspects of society. Johannes Breuer and Gary Bente acknowledge the ties between games and learning, saying that "like games, learning is an interactive process, challenges the learners, and has more or less explicit rules on how to acquire new knowledge or skills,"⁹³ (12), whereas Marc Prensky takes an even firmer stance: "Anyone who makes a distinction between games and education clearly does not know the first thing about them."⁹⁴ Educators have worked for decades to find ways to make pedagogy more engaging, often utilizing games and play as a

⁹³ Johannes Breuer and Gary Bente, "Why So Serious? On The Relation Of Serious Games And Learning," *Journal for Computer Game Culture* 4 (2010): 12.

⁹⁴ Marc Prensky, "The Motivation Of Gameplay: The Real Twenty-First Century Learning Revolution." *On The Horizon* (2002): 90.

means to do so, whether in the form of behaviorist turns in edutainment or in the more recent turn to constructivism and connectionism.

Both Raph Koster and James Paul Gee ascribe to the theory of connectionism as a pedagogical starting point for understanding video games as learning tools, though only Gee explicitly articulates this origin. For Koster, “fun from games arises out of mastery. It arises out of comprehension. It is the act of solving puzzles that makes games fun. In other words, with games, learning is the drug.”⁹⁵ What Koster suggests is that games expose players to patterns that, at first blush, seem obtuse or impenetrable, be it the pattern of traffic blocking Frogger from crossing to the other side of the road, or pressing start on *Super Mario Bros.* for the very first time, only to see a bright blue screen, a short, stout plumber, and a clock that is very quickly ticking down to zero. For Koster, demystifying these patterns happens in chunks: players uncover one small portion of the pattern (say, jumping over the first hole in the ground as Mario), then repeat that chunk (jumping over new obstacles) until we discover a new chunk in the pattern (jumping *on* a Goomba, instead of over it, for the very first time) or grow bored because we have mastered the pattern. What Koster outlines here is connectionism in action: finding patterns and iterating on them until mastery occurs. Gee utilizes this same theory, but suggests that, because these patterns are situated in specific experiences (again, jumping over enemies and obstacles in *Super Mario Bros.*), a *good* video game will teach the player a method of recognizing this pattern and applying it to other situations (i.e. other video games).⁹⁶ Both scholars articulate that what makes video games such effective learning tools, in this regard, is their capacity for *play*. Because players are able to experiment with patterns until they learn one

⁹⁵ Raph Koster, *A Theory Of Fun For Game Design*, O'Reilly Media, Inc., 2013: 40.

⁹⁶ James Paul Gee, *Good Video Games + Good Learning: Collected Essays on Video Games, Learning, and Literacy*, P. Lang, 2007: 46.

facet, they're able to continue building on their learning in a scaffolded manner, either allowing them to move further through more complex challenges or apply these modes of understanding to new situations.

Approaching video games from the design perspective, Salen-Tekinbaş and Zimmerman suggest that this facet of video games has to be implemented meaningfully by game designers with a goal of *meaningful play*. According to Salen and Zimmerman, then:

The goal of successful game design is the creation of meaningful play...Play doesn't just come from the game itself, but from the way that players interact with the game in order to play it. In other words, the board, the pieces, and even the rules of Chess can't alone constitute meaningful play. Meaningful play emerges from the interaction between players and the system of the game, as well as from the context in which the game is played. Understanding this interaction helps us to see just what is going on when a game is played.⁹⁷

While not explicitly about learning and play, what meaningful play conveys is a process of players interacting with the game, players receiving a response from the game, and players understanding what that response means in response to the game and the context of the game. Players experiment in a controlled environment, receive feedback, and iterate based on that feedback; in other words, meaningful play is learning, and learning is meaningful play. By approaching serious games with intentional design aimed at achieving meaningful play, meaningful learning with, and within, video games can occur.

The connection between learning and play, or pedagogy and play, can be tenuous, even at odds with one another at times. Because video games are so intrinsically tied to the concept of

⁹⁷ Salen-Tekinbaş and Zimmerman, *Rules of Play*, 33.

play, a precarious balance of educational impetus and freedom to play must be struck, or else players may find themselves caught up in the activity of playing the game, abandoning the learning process along the way. Likewise, if the educational application of the game is too overt or supercedes the gameplay/rules/system at work, players may be discouraged from continuing. A third quandary emerges when Caillois' notion of play is reconsidered: for play to truly manifest, it must be "free and voluntary": assigning educational games, even fun or entertaining ones, puts this foundational element of play into tension with the drive to learn. As Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susan Pajares Tosca keenly observe, amidst this confluence of tensions between play and pedagogy that manifest with video games used in the classroom, students may be "unsure whether to approach the video game as play or learning."⁹⁸ While Gee argues that good video games make learning part of the game itself and Koster argues that video games are fun *because* they foster learning, T.L. Taylor warns against viewing play as only tied to fun or learning. Because of "the notion that people play differently, and that the subjective experience of play varies...suggesting that games are always simply about "fun" (and then endlessly trying to design that fun) is likely to gloss over more analytically productive psychosocial, social, and structural components of games."⁹⁹ Because of these tensions within the discourse surrounding play as well as its tenuous ties to pedagogy, *Level 101* seeks to find a balance between these two areas through adopting meaningful play and careful game design.

Further, *Level 101* will answer Salen and Zimmerman's call for more practical approaches to understanding video games pedagogically, as they argue that "a game design

⁹⁸ Simon Egenfeldt-Nielsen, Jonas Heide Smith, and Susana Pajares Tosca, *Understanding Video Games: The Essential Introduction*, Routledge, 2019: 217.

⁹⁹ T. L. Taylor *Play Between Worlds: Exploring Online Game Culture*. MIT Press, 2009: 70.

education cannot consist of a purely theoretical approach to games.”¹⁰⁰ Understanding video games solely through theoretical underpinnings falls into the pedagogical gap outlined above, whereas utilizing practical approaches to understanding video games will afford students a greater understanding of the medium. Clark C. Abt corroborates this method of instruction through serious games, for “in such a game, the participants learn the logic of the process they are studying by participating in it and seeing the consequences of their decisions.”¹⁰¹ What Abt outlines here is very comparable to the process of meaningful play that Salen and Zimmerman outline, a core concept for the design of *Level 101*. This also calls to mind Koster’s process of “chunking” as a means of learning within video games: finding fun in learning the patterns of play.¹⁰² By designing this pedagogical video game with meaningful play in mind, player-students will be able learn the patterns of the video game medium, experiment with chunks of patterns, and learn from the consequences of their actions within the confines of the video game.

As outlined in my introductory chapter, scholarly discourse surrounding game studies and video games gravitated towards most every other medium but the video game itself, resulting in what comics scholar Nick Sousanis might consider to be a “flattening out” of the discourse’s delivery method.¹⁰³ However, scholars like Anastasia Salter, John Murray, and Jason Helms are leading an invigorating surge in deploying interactive elements in their game studies inquiries, blending game-like elements and digital programming to offer playable components.¹⁰⁴ As a result, I deployed this model of unflattening to devise my own alternative scholarship text, one that unflattens through play. *Level 101* pushes at game studies and games education, drawing on

¹⁰⁰ Salen-Tekinbaş and Zimmerman, *Rules of Play*, 11.

¹⁰¹ Clark C. Abt, *Serious Games*. New York: Viking Press, 1970: 11.

¹⁰² Koster, *A Theory of Fun*, 42.

¹⁰³ Nick Sousanis, *Unflattening*. Harvard University Press, 2015: 33.

¹⁰⁴ Detailed further in Chapter One.

Sousanis' mode of alternative scholarship in conjunction with what Mary Flanagan terms Critical Play, that is, play designed "to create or occupy play environments and activities that represent one or more questions about aspects of human life."¹⁰⁵ While *Level 101* is designed with meaningful play as a demonstrable outcome, the learning of games history, design, and theory, the larger stakes of the project (as charted further in Chapter 3) position this project as alternative scholarship, particularly as an alternative dissertation – that is, a dissertation not constructed purely in written form.

Digital Humanities

In many ways, *Level 101* responds to the provocative question asked by, among others in the DH field, scholars James Coltrain and Stephen Ramsay in the 2019 edition of *Debates in Digital Humanities*:

...can video games go beyond merely illustrating or synthesizing humanistic content in ways that are credited as scholarship to become vehicles for completely new interpretations in the humanities? Can a humanities scholar use a video game to convey his or her interpretation of the literary, historical, or theoretical significance of a novel or of the broader meaning (or underlying cause) of a specific historical event?¹⁰⁶

To address this question through *Level 101*'s methodological interventions, I draw on the work of Paul Coulton and Alan Hook to treat the practice of game design as research itself. This act is more common within fields where design and design studies are prevalent than in the humanities (including related fields like HCI), but scholars such as Christopher Frayling have argued for the

¹⁰⁵ Mary Flanagan, *Critical Play: Radical Game Design*, MIT Press, 2009: 6.

¹⁰⁶ James Coltrain and Stephen Ramsay, "Can Video Games Be Humanities Scholarship?" *Debates in the Digital Humanities*, edited by Matthew K. Gold (2012): 38.

treatment of design as research, as well as creating research through practice-based design (RtD). This aligns with Coltrain and Ramsay's overarching argument, that video games can indeed be humanities scholarship as long as these scholarly games are grounded in proper methodologies and discourses surrounding games. *Level 101* similarly deploys the video game model to convey humanistic interpretations and frameworks of engagement for the medium itself by encouraging deep thinking via playable history; frameworks of design; and theories undergirding video games. Each chapter of the game draws upon not only game studies texts and concepts, but design elements as well.

Further, I designed *Level 101* to present open-ended frameworks for analysis, rather than assessment in mind. Coulton and Hook note that design research more frequently begins with "open-ended research aims or open research questions, rather than a specific hypothesis to be tested," and *Level 101* expands on this idea by offering open-ended frameworks for players and learners to engage with, interpret, and apply.¹⁰⁷ Each level has specific win conditions to end the level, but there is no formal assessment implemented, much the same as most academic texts avoid quizzing readers after each chapter. This allows the game to avoid pitfalls associated with edutainment, educational games from the 1990s and early 2000s that featured "drill and practice activities masked with less than entertaining game play."¹⁰⁸

¹⁰⁷ Paul Coulton and Alan Hook, "Games Design Research Through Game Design Practice," *Game Design Research: An Introduction to Theory and Practice*. ed. Petri Lankoski; Jussi Holopainen. Pittsburgh: ETC Press, 2017: 98.

¹⁰⁸ Dennis Charsky, "From Edutainment to Serious Games: A Change in the Use of Game Characteristics," *Games and Culture*, vol. 5, no. 2, Apr. 2010: 177, doi:10.1177/1555412009354727.

Serious Games

Serious games scholars such as André F. S. Barbosa et al. have highlighted another salient and pervasive issue with designing serious games (and by extension, what we might think of as games primed to be treated as academic research): delivering quality research and/or pedagogical content while keeping the game *fun*. This complicates a core idea that Koster and Gee have put forth in separate but interconnected ways: keeping learning and critical outcomes present while also keeping the game from being onerous. The balance becomes one of rigorous scholarship and learning versus boring, stagnant, or obtuse gameplay. To address this, Barbosa et al. propose a different approach to designing and developing serious games:

...a new methodology of design and development [sic] serious games, which is aligned with the idea of embedded educational tasks in parallel to the main game, for example, through the use of mini-games because they have the potential to reinforce a single or small group of learning objectives by providing engaging and motivating learning experiences.¹⁰⁹

This approach, they argue, fosters learning through a larger main game with targeted, smaller minigames that each have embedded learning mechanisms. As they note, the idea is similar to problem-based learning,¹¹⁰ embedding learning processes within actionable or real-life contexts, but in applying the approach to designing serious games, the learning becomes chunked up,

¹⁰⁹ Pedro N. M. Pereira Barbosa, João A. F. F. Dias, and Frutuoso G. M. Silva, "A New

Methodology Of Design And Development Of Serious Games," *International Journal of Computer Games Technology* 2014, (2014): 3.

¹¹⁰ See also: Wood, Diana F. "Problem based learning." *Bmj* 326, no. 7384 (2003): 328-330.; Hung, Woei, David H. Jonassen, and Rude Liu. "Problem-based learning." *Handbook of research on educational communications and technology* 3, no. 1 (2008): 485-506.; Savery, John R. "Overview of problem-based learning: Definitions and distinctions." *Essential readings in problem-based learning: Exploring and extending the legacy of Howard S. Barrows* 9, no. 2 (2015): 5-15.

again echoing Koster, Zimmerman, and others working in game studies. I drew on this approach while outlining the original structure for the game, and I detail how *Level 101* deploys Barbosa et al.'s approach in the Methodology section below.

Methodology – Game Design

Game Studies

Each of *Level 101*'s final game levels were designed in Unity and has undergone a rigorous process of development: conceptual pre-planning, physical prototyping, production, playtesting/iterative design, and launch. Unity is a powerful staple in the video game industry, a video game development engine currently used by many developers both large and independent. The program is often utilized for its streamlined programming, bevy of premade assets, and capacity for exporting game products to almost any conceivable digital platform. It supports several programming languages, but primarily C# (pronounced “see sharp”), which is an object-oriented programming language developed by Microsoft. Due to my developing knowledge base in coding proper, I initially sought out developmental learning modules and training videos to supplement my nascent familiarity with C#. My first instincts were to find training videos freely constructed on Youtube, so I watched videos from creators like Brackeys and GamesPlusJames. I quickly transitioned to working through training sequences from within Unity itself, then turned to sequences found on Udemy, a popular education platform comprised of user-created educational modules based around practical skills.

Early in the development of this product, I drew on the work of creators from GameDev.tv, whose Udemy modules were focused on learning the basics of Unity through a sequence of creating a handful of game-types: a math number “guessing game,” a text-based adventure game, a Breakout-style brick-break game, and so on. Each module builds on lessons

from the previous one, introducing new methods or new applications of old methods of programming and coding. However, I found that the tutorial sequences were only helpful to a point. While I was learning about how to apply new C# scripts and troubleshoot issues, I wasn't learning about them within the context of my dissertation. So, eventually, I paused this training program, and set to work developing more of *Level 101* until I encountered another development wall. Here, I repeated my process: learned from Unity-based modules from Udemey educator GamesPlusJames, which helped not only inform some of my second world, but infrastructural elements throughout *Level 101*. Specifically, James' approach was geared towards understanding the logic behind the programming, building upon those successive lessons towards a fully functional level, and offering opportunities to customize both the game and the programming as the lessons went on.

The primary digital humanities methodology that informs *Level 101* is what scholars have termed "practice-based research,"¹¹¹ and particularly what Ratto and Hockema term to be *critical-making*: "an elision of two typically disconnected modes of engagement in the world—'critical thinking,' often considered as abstract, explicit, linguistically based, internal and cognitively individualistic; and 'making,' typically understood as material, tacit, embodied, external and community-oriented."¹¹² Rather than simply articulating one more position paper in an overcrowded conference, or one more chapter in an edited collection calling for alternative scholarship and digital projects, I have instead followed in the footsteps of other digital humanists to *make* and *build*, rather than solely *study* or *interrogate*. In this vein, game studies

¹¹¹ Stephen Ramsay rather famously began one provocative version of this conversation at MLA 2011 by stating that "Digital humanities is about building things," though others like Mark Sample have noted that it is nigh impossible for digital humanities to be about building 'things' without it also being about sharing these nebulous 'things.' See: Mark Sample, "The Digital Humanities Is Not About Building, It's About Sharing," @SampleReality, May 25, 2011: <https://www.sample reality.com/2011/05/25/the-digital-humanities-is-not-about-building-its-about-sharing/>

¹¹² Matt Ratto and Stephen Hockema, "Flwr Pwr: Tending the walled garden," *Walled garden* 2009 (2009): 52.

designers and scholars Coulton and Hook draw on the work of Christopher Frayling to articulate the need for practice-based design research, or what Frayling terms research through design (RtD). Practice-based design is separate from other broad generalizable models and frameworks in that critical reflection on the design process is critical to the research being conducted. Further, research is not “a specific hypothesis to be tested,” but rather open-ended research that “requires reflection, leading to an emergence of understanding throughout the design process;” in other words, it is not enough to build or to make, but to do so with critical intention and to mindfully reflect on the process throughout.¹¹³

Serious Games Design

As detailed elsewhere, *Level 101* consists of one tutorial/introductory level that explains the game’s purpose and branching pathways, as well as fifteen separate levels organized into three thematic learning modules. Initial plans for *Level 101* were nebulous and large, but after reading Barbosa et al.’s approach to serious game design, I quickly realized pared down the levels into manageable and embedded lessons guided by distinct context-specific game mechanics. For instance, rather than trying to account for the entirety of the history of video games, I modified World 1 to instead approach the field by a decadal approach, then embedded learning goals via short miniature game interactions emulating one distinct and significant video game from the decade.

Another significant method of game design I utilize is Yusoff et al.’s “Serious Games Conceptual Framework,” a framework grounded in learning and pedagogy focused on providing “a conceptual model for serious games that will contribute to their design and the measurement

¹¹³ Coulton and Hook, “Games Design Research Through Game Design Practice,” 98.

of achievement in meeting their learning outcomes.”¹¹⁴ This framework articulates several key design elements for serious game design that I bring to bear on *Level 101*, including: 1) Capability (skills that the learner will develop); 2) Instructional content; 3) Intended learning outcomes; 4) Game attributes; 5) Learning activity; 6) Reflection; 7) Games genre; 8) Game mechanics; 9) Game achievement. Yusoff et al’s framework outlines clear traits to the serious game that are not necessarily covered in Katie Salen and Eric Zimmerman’s expansive *Rules of Play*. While Salen and Zimmerman condense much of their core design philosophy down to enacting *meaningful play*, “the interaction between players and the system of the game, as well as from the context in which the game is played,”¹¹⁵ Yusoff et al’s Serious Games Conceptual Framework coalesces Salen and Zimmerman’s design philosophy into an actionable approach to designing *serious* games. This framework is certainly not without its drawbacks, as it does not account for the intervention of the educator, and only suggests feedback arises through the level of learner achievement in playing games. As a result, this framework is an effective foundation from which *Level 101* builds but is by no means the only element present in my game design philosophy.

To support this framework, I also deploy elements of Westera et al.’s “framework for reducing design complexity” in serious games, which provides support for “evaluation rather

¹¹⁴ Amri Yusoff, Richard Crowder, Lester Gilbert, and Gary Wills, "A Conceptual Framework For Serious Games," *2009 Ninth IEEE International Conference on Advanced Learning Technologies*. IEEE, 2009: 21.

¹¹⁵ Salen-Tekinbaş and Zimmerman, *Rules of Play*, 33.

than design,” complementing Yusoff et al’s design-oriented framework.¹¹⁶ (421). The Westera framework utilizes an approach that reduces game design complexity in conceptual, technical, and practical levels by focusing on three key areas: game structure, feedback, and game representation. I draw on the Westera framework to account for the tripartite relationship between the game, the teacher, and the learner, all in connection to how the game is run, managed, and coordinated.¹¹⁷ What this framework does is suggest areas that are known to create obstacles for student-players, such as when “games display many scenery objects that have aesthetic or atmospheric value as such, but which are irrelevant to the problem-solving process.”¹¹⁸ Westera’s framework for reducing design complexity has proven to be an effective compliment to the Yusoff model, as the former streamlines the latter’s comprehensive design philosophy.

To offer a practical accounting of both design frameworks, I utilize *iterative design*, which Salen and Zimmerman define thus: “Emphasizing playtesting and prototyping, iterative design is a method in which design decisions are made based on the experience of playing a game while it is in development...it is not a visual prototype, but an interactive one.”¹¹⁹ I deploy iterative design with regards to *Level 101*, as my intention is to create a game that will be useful to and meaningful for my students. For my purposes, spending more time on making a game that is visually appealing but functionally ineffective means that students may see a game that is

¹¹⁶ Wim Westera, R. J. Nadolski, Hans GK Hummel, and Iwan GJH Wopereis, "Serious Games For Higher Education: A Framework For Reducing Design Complexity," *Journal of Computer Assisted Learning* 24.5 (2008): 421.

¹¹⁷ Westera et al., “Serious Games For Higher Education,” 423.

¹¹⁸ Westera et al., “Serious Games For Higher Education,” 424.

¹¹⁹ Salen-Tekinbaş and Zimmerman, *Rules of Play*, 11.

interesting to look at, but ultimately, not fun or playable, and thus, a hindrance to their learning. The process of developing the game's mechanics first, prototyping these whether in physical or digital form, getting feedback, then iterating this feedback ensures that the final product has been constantly refined as it was playtested. Iterative design is also closely linked to my pedagogy as an instructor: rather than utilizing the same pedagogical tool each day in a given class, I experiment and play with new models of instruction or activity, experience real-time feedback from my students, and make adjustments as I progress. In doing so, and in applying iterative design to the development of *Level 101*, I am able to bring much of my student-centered and adaptive teaching philosophy to bear on this new project.

Methodology – Game Development

Game Development Journal

One of my primary practical methods of ensuring meaningful design involved creating and maintaining a game development journal throughout the entirety of the development process. And, for iterative design scholars Colleen Macklin and John Sharp, game design documents (along with design schematics and tracking spreadsheets) play a significant role in the iterative design process as they “capture decisions and turn them into concrete plans for a game’s design that serve as a reference” such that without adequate documentation, “even a gamemaker working alone will be left to rely on memory and the not fully explored ideas that seemed so excellent in the spur of the moment.”¹²⁰ In other words, this journal offers an accounting of *Level 101*’s design process, but it also functions akin to a “playbook” for a film. This particular game

¹²⁰ Colleen Macklin and John Sharp, *Games, Design and Play: A detailed approach to iterative game design*, Addison-Wesley Professional, 2016: 132.

design journal contains many components that Macklin and Sharp highlight as necessary to keep the iterative cycle moving forward: the game's structure, its play experience, goals and basic mechanics, etc. Because this is also a serious game with educational values, I recorded each level's learning outcomes within the game design document, as well as various level design sketches and schematics that illustrate my vision for the game, as well as the theoretical approaches I applied for *Level 101*.

Within this journal, also I periodically charted the progress I made towards developing different stages; documented various bug, hurdles, and difficulties I faced or overcame; and reflected on the state of the dissertation as it grew. This journal was a crucial extension of my game design methodology, following the creed of Coulton and Hook that open-ended research (and, in this case, experimental game design as dissertation) benefits greatly from reflection in order to allow “an emergence of understanding” throughout the design process.¹²¹ (98). One notable example occurred early on in 2019, while I was still attempting to create *Level 101* within Construct 2, and while studying for my comprehensive exams. On January 23, 2019, I was reading James Paul Gee's *What Video Games Have To Teach Us About Learning and Literacy*, and struck by Gee's discussion of semiotic domains as they pertain to players learning from video games. Here, Gee notes that for critical or active learning, the player must be able to understand “what the whole pattern or combination [of design elements] means in a situated way useful for action,” that players have to be able to understand design elements in specific semiotic domains of video games and apply them to others. While *Level 101* is not explicitly devoted to teaching semiotic domains as a mode of active learning, it is concerned with teaching video game literacy as it relates to being able to situate elements of history, design, and theory within

¹²¹ Coulton and Hook, “Games Design Research Through Game Design Practice,” 40.

the video game space. As mentioned, I was working to create the game within Construct 2, a relatively low-barrier design program primarily used for two-dimensional video games, with particular strengths for developing platformers and retro-style space shooters. On February 8, 2019, I wrote that “Construct 2 is feeling limited. How do I reach those learning genres, have players understand the whole?” This short phrase was a reflection of the increasingly visible limitations to Construct 2, as well as my own desire to encourage players to make connections from the dissertation-game to the medium as a whole. I began analyzing the write-ups and documentation up to that point, and realized that only offering two-dimensional games and only offering a few kinds of gameplay was not going to bridge this gap. On July 15, 2019, I wrote that I had “Moved BACK to Unity, moving through the Learn Unity tutorials,” and embraced Unity, a program that would allow me to bridge these gaps, to at least create opportunities for students to see more of the whole. I discuss this program shift more in section 4c later in this chapter.

Iterative Design

I also deployed iterative design as a primary methodology throughout the development of *Level 101*. Macklin and Sharp highlight a four-stage cycle to iterative game design: Conceptualize; Prototype; Playtest; Evaluate.¹²² While each stage is crucial, they are also flexible: the process can and should be applied throughout the development of the cycle. For instance, as noted in section 3a, I conceptualized *Level 101* as being a product I could create in a more narrowly-focused program. I prototyped the game, playtested it, then evaluated it. During the evaluation phase, I realized that I need to approach *Level 101* differently, so I returned to the Conceptualize phase, and conducted another iterative loop. In this example, the iterative design

¹²² Macklin and Sharp, *Games Design and Play*, 108.

process helped me understand the game's scope and process, but it also has been implemented to better make informed game design choices.

One memorable instance of iterative design occurred while I was playtesting World 2-0: Design Intro. At one point late in the level, there is a "Slammer," an object which, in theory (Conceptualize), slams down when a trigger trips, in this case a proximity-based field wherein the player moves closer than 100 units of space, the Slammer drops, and the player might get hurt. In the Prototype, upon playtesting, my trigger would not function properly. I ran into several problems:

- In one iteration, the Slammer mirrored player movement. As they got closer, it got closer to the ground, and as they got further away, the Slammer returned to its original space.
 - Evaluation: The Slammer is missing a one-way trigger.
 - Solution: Fixed by making sure the trigger correlated to a "drop," akin to a tripwire.
- After that fix, the Slammer tripped, slammed, then never rose.
 - Evaluation: The Slammer triggers once, then the loop ends.
 - Solution: Implemented a reset function so the Slammer would fall, then return.
- Upon playtesting this latest iteration, the slammer would fall, rise, then fall again, immediately and infinitely.
 - Evaluation: The Slammer trigger kept reading the player as being within its trigger proximity.
 - Solution: Implement a 2-second timer so that the player could either jump over the Slammer, or wait until it rose to its original position.

In this example, the iterative playtesting allowed me to find and treat a bug within the game relatively early in the game's development. This is also just one example of iterative design for a specific game element in this level, which does not detail other loops of the iterative design cycle, from balancing player movement to implementing music choices. More significantly, iteratively designing this introductory level for World 2, which is the world that has been replicated and modified for the rest of its five levels, ensured the rest of World 2 would at least begin from a relatively stable and bug-free state. Most every instance of the game's development has operated in this iterative fashion, though documenting every instance would constitute its own dissertation-length report. Instead, the game design document charts major moments within the game's iterative design cycle, including playtesting.

Playtesting

Level 101 has been playtested with several audiences, including undergraduate students and graduate students at Michigan State University. I detail these briefly in the sections below:

ENG 142: "Introduction to Popular Literature," Summer (online) and Fall (F2F) 2018

Early versions of *Level 101* were deployed in my Introduction to Popular Literature courses in Summer and Fall 2018. The Summer 2018 shell had 15 students and was an asynchronous online course. The Fall 2018 shell had 38 students and was taught synchronously in-person. Each of these courses had a wide range of majors represented befitting an entry-level survey course, and included first-year as well as senior students. The overall course was designed to teach students how to engage with popular genres in popular mediums: science fiction, horror, romance, adventure, etc. These were assigned in different mediums, pairing one 'classic' primary text with a 'contemporary' one in each genre: an episode of *The Twilight Zone* and *Black Mirror*

for dystopia in television, for example. In this context and structure, I deployed my *Level 101* prototype within a unit pairing the Adventure genre and video games: *Zork!* (1977) and *TellTale Games' The Walking Dead: Episode 1* (2012).

The *Level 101* prototype was developed in Twine and provided players with a Choose Your Own Adventure-style text-based adventure that introduced the historical context of adventure games like *Zork!*, provided some entry-level interactions for parsing the adventure genre in games, and primed student learning for the week-long module. *Zork!* is critically-lauded for its innovations in games history, but it is also infamous for being expansive, ambitious, and at times, obtuse. For this week-long module, I had students read material on the genre, play through the *Level 101* demo which provided further historical and generic context for *Zork!*, then play and analyze *Zork!* ahead of our classroom discussion. During class, students discussed the difficulties in playing through *Zork!* due to its freeform nature, but also praised its open-ended exploration gameplay. In this same discussion, students noted that the demo helped put some of the genre into perspective, seeing how the choices made in *Level 101* had an immediate impact on moving throughout the game and that the interstitial lectures gave insight into adventure games. On the other hand, they also noted that *Level 101*'s limited choices meant they had few opportunities for open-ended gameplay that is endemic to *Zork!*.

ENG 342: "Studies in Popular Narratives," Spring 2020

My spring 2020 course was devoted to understanding the intricacies of narrative and play within both literature and games, particularly spaces where the two overlap. Within this course, students would read and play games and literature imbued with play (broadly conceived) within the first half of the semester. Here students played games in different forms (tabletop RPGs, board games, video games) while reading literature that features different forms of interactivity

(comics, Choose Your Own Adventure books, traditional novels). Then, students would spend the second half of the semester critically-making their own zines: smallscale DIY publications that have historically given space and voice to folks from marginalized communities, and a medium that has found particular purchase within games as a field. This was primed with a visit to the Special Collection on Zines in the MSU Library, along with skyping in and interviewing game-zinester Adam Vass.

While I had intentions to also deploy a more polished and complete version of *Level 101* in this special topics seminar, specifically the history demo, the Covid-19 pandemic derailed much of my course planning. Throughout the semester, the growing unease and concern over Covid-19 grew. After returning to campus from spring break, I was conversing with colleagues before a job talk began about the pandemic; we discussed what our approaches might be, whether campus might close down, and what accommodations/adjustments we might make. Taking a cue from my co-advisor who happened to be in the meeting, Dr. Fitzpatrick, I jettisoned my teaching plan for the day, and instead, I spent our first day back in ENG 342 (March 10th, 2020) speaking candidly with my students about their experiences with online learning, what adjustments we might all need to make, and what accommodations I could make for students to ensure they finish the course. MSU closed campus the very next day, which was also when we were beginning our critical-making segment. I spent the next 48 hours coming up with a modified plan that simplified our course objectives, content, and deliverables for the rest of the semester. This, unfortunately, meant cutting my planned module where *Level 101* would be deployed (along with another) in favor of making sure my students had the material they needed to complete the course in a timely and safe fashion.

Graduate Student Playtesting, Summer 2020

To compensate for this, I enlisted graduate students in my department to playtest *Level 101*. This process revealed several key findings, including strengths, opportunities for iterative growth, and fittingly, a few bugs. Without recapturing the entirety of the playtest report, I have collected a few highlights below:

- Strengths:
 - Lecture-style sequences were engaging.
 - Video game was a good balance of difficulty and ease.
 - Music was upbeat during the levels, and liked that it sped up/changed for the boss fight.
 - Art style was “light” and “clear.”
 - Structure was easy to follow and proceed.
 - Instructions like “Hey! Move Closer!” were a great no-stakes way to teach movement.
- Suggestions for growth:
 - Label in text boxes for “who” is speaking.
 - Modify the frog-enemies in platforming stage to be smaller, and make moving platform larger.
 - Include more moments for interaction within the lecture to break up the dialogue (up/down choices, yes/no – some kind of agency).
 - Adding a “boss flash when the boss gets hit” to World 2, since the player sprite flashes when it gets damaged.
- Bugs:
 - Words appeared off the screen during one of the lectures

- Some of the messages activated too quickly to read.

These playtests confirmed strengths in *Level 101*, to be sure, but exposed opportunities for growth through iterative design. Sergio J. Viudes-Carbonell et al. call attention to the value in applying iterative methodology when designing serious games, particularly highlighting playtesting and iterative design at several key early stages throughout the design process, such that once early stages and mechanics have been playtested, refined, and approved or accepted, progress can move quickly thereafter.¹²³ This aligns again with Zimmerman and Salen-Tekinbaş who suggest that playtesting video games early and often during the design process.

However, another key component to *Level 101*'s design process is the fluid and experimental nature of game design itself. Game design is rarely linear, much like the writing and research process, or revising dissertation drafts and manuscript proposals. Drawing on the work of Schön, Petri Lankoski and Jussi Holopainen highlight the benefit of experimentation within game design and its necessity in serious games design.¹²⁴ Their model is more akin to the scientific model of experimentation: present or design an initial configuration of a game, place it into a state of unpredictability to observe how the materials behave (playtest it), reflect on the outcome, and iterate. This model of flexibility and experimentation is necessary for a game-as-dissertation, one that struggles under triplicate constraints of serious game design, playable research, and pedagogical artifact.

¹²³ S.J. Viudes-Carbonell, Gallego-Durán, F.J., Llorens-Largo, F., Molina-Carmona, R., “Towards an Iterative Design for Serious Games,” *Sustainability* 2021, 13, 3290.

<https://doi.org/10.3390/su13063290>

¹²⁴ Petri Lankoski and Jussi Holopainen, *Game Design Research*, Pittsburgh, PA: ETC Press, 2017

Public Feedback

One further methodological approach to *Level 101*'s design that was gleaned from comics and comic studies is the elucidating approach presented in the recent *How to Read Nancy: The Elements of Comics in Three Easy Panels*. Here, Paul Karasik and Mark Newgarden break down fundamental facets of comics, and illustrate them through a single *Nancy* strip by Ernie Bushmiller from August 8th, 1959. Within the confines of *How to Read Nancy*, readers learn how major concepts like the script and the composition of a comic manifest within Bushmiller's *Nancy* strip, but also how elements are read, such as the staging of a scene, the negative space, even the special effects of a water gun, *all within the same three-panel strip* (emphasis mine). This methodical and groundbreaking approach to comics streamlines the sprawling and often abstract McCloudian approach while offering practical insights. In the vein of other comics scholars who examine the intersections of comics and video games, I immediately began working to translate this approach to the medium of video games. In the introduction to *Comics and Videogames: From Hybrid Medialities to Transmedia Expansions*, Andreas Rauscher, Daniel Stein, and Jan-Noël Thon report on the "ways in which comics and videogames borrow, adapt, and transform a diverse range of aesthetic, ludic, and narrative strategies conventionally associated with the "other" medium in terms of *hybrid medialities*."¹²⁵ I continue in this tradition but applied to the video game medium, drawing out and adapting the rhetorical and pictorial strategies that Karasik and Newgarden deploy as they dissect one *Nancy* strip to illustrate fundamentals of the comics page.

¹²⁵ Andreas Rauscher, Daniel Stein, and Jan-Noël Thon, eds, "Introduction," *Comics and*

Videogames: From Hybrid Medialities to Transmedia Expansions. Routledge, 2020: 2.

For *Level 101*, this approach is applied to one world of stages (World 2: Game Design) to use the same level design but emphasize different iterations throughout. World 2-0 introduces players to stage design in a large level with two platforms. World 2-B uses this same level, but encourage players to think about what the game looks like when *Systems* are brought to the forefront: what happens to this level and experience when the player can only jump twice? This methodological approach allows players to experiment and interact with new concepts in the same level over and over, working to see how different concepts manifest in the same context and what changes from learning session to learning session.¹²⁶ When I first began developing this world in 2018, my initial plan was to apply the McCloudian approach to most of my stages, featuring a fictionalized version of myself talking through a sprawling, comprehensive foray into explaining the intricacies of the medium. But, in practice, this quickly seemed to grow in scope-creep.

Around the same time, I was fortunate enough to present an early version of this project at MSU's Digital Humanities Locus event in 2018, a community-oriented event of presentations for ongoing projects and those just getting started out. When I presented the Alpha version of *Level 101*, I received significant and guiding questions, including those asking about where such a project would end, how it would all be completed, and whether there were other influential comics studies books I looked to, or whether I simply drew from McCloud's *Understanding Comics*. As a then-new person to digital humanities and creating digital projects, the community at the 2018 Locus event provided me with keen feedback to keep the scope within feasible boundaries. Branching out my research, I became aware of *How to Read Nancy*, and was struck by its method of content delivery, particularly how I could see it aligned with the serious games

¹²⁶ For further insight, please see the sample planning documents for Module 2 in the Appendix.

framework I planned to deploy from Barbosa et al. Thus, I made the design choice to offer one larger main concept to learn (design), and then modifying and replicating the game space to have, if not wholly unique minigames as Barbosa et al. might suggest, then miniature lessons that keep player engagement high. This afforded me opportunities to reuse assets and programming with modification, as well as illustrate issues of design within a space that players were familiar with.

Limitations

Scope

One notable limitation to this project is that it will not teach students how to create their own video game. While scholars such as Seymour Papert and Yasmin Kafai have argued that students should be practicing design in order to learn how to produce and construct their own knowledge bases, the pedagogical aims of *Level 101* lie in imparting knowledge for critical studies, not in knowledge for creation. Such products already exist, as in the case of *Code Hero* and Papert's own *Microworlds*. As a result, while there is certainly value to teaching students the creative process involved in games and game design as a means of furthering their understanding of structuralist elements, for the purposes of providing students with a foundation of critical understanding such an effort to expand the scope of *Level 101* will have to wait for a future iteration. This was a critical design decision informed by the work of scholars like Mia Consalvo and Andrew M. Phelps, who bridge the gap between game studies, digital humanities, and education theories by offering case studies of graduate students critically-making video game prototypes as research-grounded course work within game studies and game design courses. For Consalvo and Phelps, "this involves not only the creation of the prototype itself, but the necessary planning, analyzing, testing, debugging, and presentation preparation and execution

activities” necessary to account for intention, process, and reflection.¹²⁷ (2). Consalvo and Phelps note the difficulty of trying to reach every student audience in their own courses: those with design experience but not game studies; those with the inverse; and those with neither. *Level 101*’s focused scope is thus one of providing analytical frameworks and ways of understanding video games through play, primarily targeting an audience interested in learning more about how video games function as a medium through several critical lenses. *Level 101*’s targeted outcomes also leaves room for other forms of alternative and playable scholarship, particularly serious games that address approaches that are absent from *Level 101*: not just the design or programming of video games, but additional design elements or expansions on historical avenues beyond the prototypical/decadal approach deployed in *Level 101*.

Individual Dissertation Designer

Another primary limitation is the individual nature of this dissertation project, meaning, a video game that is being developed by one person. More often than not, video games are developed with teams of developers, which comes with a bevy of advantages: greater distribution of work and task delegation, communal oversight, crowdsourcing and brainstorming, and of course, greater output of work. From a methodological perspective, the design process of *Level 101* is intentionally following in the footsteps of previous successful game development cycles and diverting from failed or less-than-successful game development cycles, particularly those stemming from solo developers. Though Jason Schreier’s *Blood, Sweat, and Pixels* follows the

¹²⁷ Andrew Phelps and Mia Consalvo, "Teaching Students How to Make Games for Research-Creation/Meaningful Impact: (Is Hard)," *International Conference on the Foundations of Digital Games*. 2020: 2.

development cycles of large companies like Bungie, Blizzard, and Entertainment Arts, his reporting of smaller developer experiences like Eric Barone's *Stardew Valley* or Yacht Club's *Shovel Knight* provide firsthand accounts of the potential pitfalls and hurdles that a small developer may face. As discussed in Chapter 1, Barone's initial development goal for the completion of *Stardew Valley* was undefined: "he made what he felt like making. One morning he might have been in the mood to compose the theme song, and the in the afternoon maybe he'd draw character portraits or obsess over fishing mechanics."¹²⁸ This caused Barone to overshoot his expected timeline of roughly one year to over four years of constant development until initial launch, and resulting in *Stardew Valley* being continually updated, even in 2021.

To move forward without following this same path of development stasis, my intention with *Level 101* was to develop each stage of the game using streamlined graphics, focusing on the mechanics, dialogue, and interactivity of the system before moving to more complicated visuals.¹²⁹ Fortunately, *Level 101* has been generously supported by several fellowships and grants, each of which furthered the advancement of the project while offering concrete accountability milestones. For example, for the "2018 Summer Seed Grant" from MSU Digital Humanities, I proposed a rigid design schedule to create a module in time for the 2018 MSU Digital Humanities Locus on Narrative. With the 2018 Seed Grant, I was able to design, iterate, and produce results in the timeframe set forth in my proposal, effectively meeting my proposed schedule. This afforded me the opportunity to present my research to peers in game studies as well as interdisciplinary colleagues in the DH@MSU community, gaining valuable feedback on

¹²⁸ Jason Schreier, *Blood, Sweat, and Pixels: The Triumphant, Turbulent Stories Behind How Video Games Are Made* (HarperCollins, 2017): 68.

¹²⁹ Again aligning with other game scholar-developers in focusing first on actionable prototypes which illustrate the game's design before polishing gameplay and level design.

the project at an early stage. Similarly, each fellowship and grant that *Level 101* received has resulted in a significant development boost and sharing-out of the project.

Shifting Development Programs

The earliest version of this project was developed in RPG Maker MV in Fall 2016 for a graduate seminar on educational technology. RPG Maker MV is a popular game-development program that is used primarily for developing 2-Dimensional role-playing games, particularly Japanese role-playing games (JRPGs). For my final project in this seminar, I developed a playable game-syllabus¹³⁰ for a proposed online course on IAH 207: Video Games, Cultures, and Identities.



Figure 2: A still from the Playabus project developed in Fall 2016, a progenitor for Level 101.

¹³⁰ I name this project the Playabus, after John Jennings and Stacey Robinson's Illabus, an Illustrated Syllabus.

This demo was a roughly 5-minute game that introduced players to the core elements of the syllabus I drafted: course outcomes, texts, assignments, policies, etc. Players had to explore a pixelated dungeon, interact with elements to discover the syllabus elements, and then defeat a virtual boss-version of me as their instructor; answering questions right would deal full damage, $\frac{1}{2}$ correct would deal $\frac{1}{2}$ damage, and so on. This project is not included in the game-portion of *Level 101*, but I mention it because I relied on RPG Maker MV due to its lack of programming experience necessary. The experience of making my first educational video game acted as the catalyst to pursue the early path that led me to *Level 101*. The program's accessibility to a first-time developer, however, led me to pursue additional game development programs that required little-to-no programming knowledge necessary, its own pitfall.

I moved next to Twine – an open-access interactive narrative development program. Mindful of the pitfalls associated with video game development taking on too much, I conceived of a version of *Level 101* that used a few smaller and accessible programs to create finite, niche levels: I could use RPG Maker MV to create a design level based on JRPGs, Twine for a historical level, etc.

As an intrepid adventurer, it is your quest to collect 4 (count them: four) golden tablets. Each time you collect a golden tablet, you will learn more about the adventure game genre, as well as gain the opportunity to record your progress!

Along the way, you'll be faced with numerous obstacles, perils, and hazards. You must use the available actions to overcome these hurdles as you proceed through evermore dangerous sections of the dungeon.

Good luck! You'll need it.

Begin game

Figure 3: A still from a version of *Level 101* initially created with Twine.

Using Twine, I developed a choose-your-own-adventure level that introduced players to the 1970s adventure game genre. This took advantage of Twine's choice-based functionality, as well as its branching narrative platform. It began with a brief description and lecture on the adventure game genre before dropping players into a short text-based level. Players were able to make narrative choices about paths to take, as well as explore a primarily text-driven dungeon that echoed classic games like *Zork!*, *Shadowgate*, and *Colossal Cave Adventure*.

Around this same time, I started work on what would eventually become World 2, using a program called Construct 2, as highlighted earlier in this chapter. I began noticing the limitations of Twine with respect to the growing nature of the project, namely that its narrative focus rendered it incapable of handling the 2-Dimensional game development that I envisioned for a playable exploration of the medium. I found Construct 2, which at the time seemed primed for accessible, no-coding approach to video game development I was searching for. Its simple

logic-based programming interface was appealing, as was its ability to create different kinds of 2-Dimensional sequences. For instance, I developed a rapid prototype for the Design stage, a first attempt at the structure I was envisioning for this world: a short platforming experience that could be modified to show additional components to the design of the game, akin to *How to Read Nancy* by Bushmiller et al. Construct 2 also had the capability to create interactive tutorial sequences with triggerable animations, giving me the space to create early forms of the Professor-Lecture scenes that currently exist in the final demo of *Level 101*.

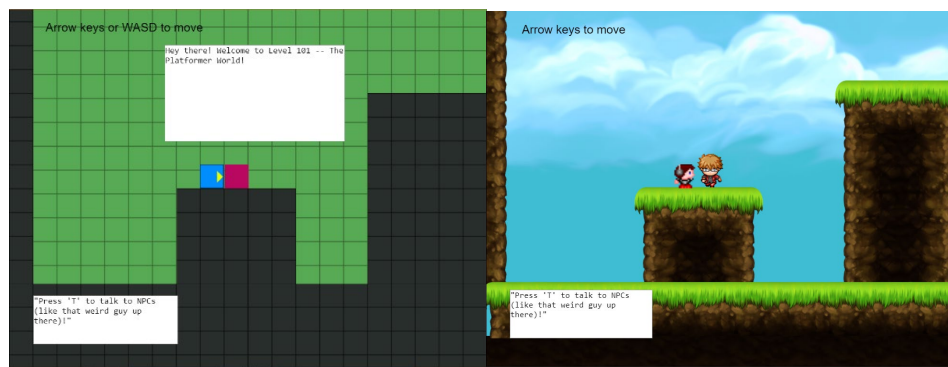


Figure 4: Stills from an early *Level 101* build created with Construct 2. Left: a skeletal version of a platformer level using basic graphics. Right: an updated and reskinned version with a bright background and character avatars.

Still, another unforeseen issue arose in working with Construct 2, beyond what I reference in section 3c: I was unable to effectively stitch these various video game programs and their outputs together in a cohesive experience. I am confident that more accomplished and digitally-literate video game developers would be able to find a way to accomplish this, but as noted in 3c, I realized I needed to move to a program where I could realize the full project as I was planning it. Thus, I shifted – again – to a new development program, Unity, determined to actually learn the fundamentals of C#, coding, and programming. This sequence of changes also set back the timeline and progress of the project, as I had to remake some of the same sequences for a third

time. Yet, as I talk about in Chapter 3, doing so within a coding environment gave me a deeper appreciation and understanding of the medium.

Reliance on Premade Assets

One last significant component to this project is my own usage of premade assets. Unity, the primary game development program I have used, has a built-in asset storefront which houses premade assets built, and released, by external developers. I am not a video game developer by trade, nor am I an asset creator, whether in the form of visual assets or audio files. However, one affordance of Unity is that under Unity's "Asset Store Terms of Service and EULA," the assets purchased through Unity's storefront are primarily able to be used, remixed, modified, and otherwise implemented through games and programs made with Unity (Unity3d.com). Thus, this project was created through the use of many premade assets, and as such, I have endeavored to note where these assets were used in a major way, cited them in my assets used, and given them acknowledgements in the game's credits.¹³¹

In this chapter, I have situated my own developmental ideologies, processes, and methodologies within the various disciplinary fields that *Level 101* inhabits, including implementation of critical-making via digital humanities, iterative design for serious games, among others. Tracking these methodologies and framework allows for a deeper understanding of the critical focus and construction of the game project, while its brief playtesting and limitations sections provides insights into its practical, creative design narrative. Chapter Three advances *Level 101*'s critical purchase within these fields, and details lessons gained from the project's development.

¹³¹ For example, much of World 2 utilizes a premade asset package from creator ansimuz, who specializes in retro-stylized pixelated graphics and brightly colored assets. I spoke briefly with and gained permission from ansimuz about modifying and adapting their assets for World 2.

CHAPTER 3: LUDIC DISSERTATIONS AND CRITICAL CONTRIBUTIONS

This chapter offers an accounting of *Level 101*'s critical purchase within its primary fields of game studies, serious games, and pedagogy. I then move to examine what I see as each World's primary contributions these areas, paying particular attention to ways in which the game's playable experience conveys these ideas through informal playtest reports of *Level 101* in the classroom. Throughout this narrative, I also provide personal and critical reflections on the project's lifespan and current iteration. I end by looking ahead to future stages of *Level 101*, and the potential of ludic dissertations.

Another Bridge Between Critical/Creative Divide

In Chapter 1, I traced several reasons for the critical/creative divide within game studies, including a growing schism between academic institutions and game developers; rises in complexity of programming knowledge or financial means to enter game development; and more. At the same time, I highlighted avenues where these same cracks were patched over or bridged: academic institutions sharing out resources with public audiences; designers turning into game critics and vice versa; and the rise of serious games and educational games. Chapter 2 provided me with an opportunity to detail my methodology for this project, offering some insight into the methodologies guiding *Level 101*'s development.

I see *Level 101* sitting at one nexus of this conversation as a product of an academic institution intended for deployment within educational spaces. As a serious game, I developed it for an explicit purpose other than entertainment – in this case, the education of student-learners, and as a product of alternative, playable scholarship. *Level 101* actively builds on the foundation established by Clark Abt and other serious game scholars in its intentional blend of critical theory and play. My own project takes up calls from scholars like John Aycock and Patrick Finn,

who suggest that understanding both programming and critical analysis frameworks affords deeper engagement with game studies. Though game studies scholarship often centers on teasing out the intricacies of game mechanics, the outcomes of computer game programming, or the effects of these games in a wider historical/cultural context, Aycock and Finn argue that “we need to pay as much attention to code as to words and begin our work from the point at which they support play” – put another way, even if game studies scholars are not actively developing software or critically-making, having knowledge of the coding/programming/games machinery underlying our specific content areas will only advance game studies.¹³²

Financial Gaps

Level 101’s development was also supported by development grants that alleviated some of the financial burden so often intrinsically tied to video game development. As highlighted in Chapter 1, the costs that accumulate during the process can skyrocket quickly: license fees for programs or distribution, contracting work, online storage costs, not to mention simply having wages to live. These development grants alleviated some of the expenses associated with early game development stages: purchasing of storage devices, assets, and other resources (in this case, game studies books). At the same time, I made extensive use of open-access development programs. I was able to take advantage of accessible gamedev programs like Unity with free licenses available to students and independent developers, rather than purchase expensive licenses.

While my own lack of programming knowledge and experience was a major limitation in the early stages of this project, as noted in Chapter 2, the prevalence of programming courses,

¹³² John Aycock and Patrick Finn, “Uncivil Engineering: A Textual Divide in Game Studies,” *Game Studies* 19, no. 3 (2019). <http://gamestudies.org/1903/articles/aycockfinn>

tutorials, guides, and videos provided me with the foundation to develop that programming knowledge. This process demonstrates a much stronger path forward for individual game developers than existed in the early years of video game development: would-be developers do not have to be tied to an academic institution to begin developing video games, nor sneak onto academic campuses after hours for access to superpowered computers. Through the resources available at MSU, I was able to pursue a functional literacy in C# and Unity; I developed this further with the aforementioned tutorials and guides, developing an affinity for Unity.

Level 101's Contributions

World 1

World 1 addresses history by creating playable units that expand on the moment-to-moment interactivity and description of comics; that elucidate and illustrate the long explanations of academic texts; that give agency not found in video walkthroughs. Likewise, as John Hennessey and Jack McGowan note in their comic *The Comic Book Story of Video Games*, “What qualifies something as a video game is first and foremost that it delivers a human experience through the phenomenon of play” (2). In offering a comprehensive graphic narrative charting the history of video games, Hennessey and McGowan necessarily rely on play as the defining feature of the medium, then, perhaps unwittingly, illustrate the limits of the comics medium by trying to capture play. In one segment, Hennessey and McGowan depict an early video game device, the Cathode-Ray Amusement Device with a young teen “manipulating various contactor and resistor knobs to make the electron spot ‘strike’ an imaginary target,” but the moment-to-moment nature of comics renders this experience stagnant and unplayable (24). One otherwise salient example offers illustrations of inventor Karl Ferdinand Braun experimenting with cathode ray tubes on page seven before McGowan’s art transitions to a

pixelated style evoking 32-bit graphics a la *Super Mario World* and other Super Nintendo platformers on pages seven and eight. Here, McGowan draws motion arrows depicting the pixelated Braun jumping from platform to platform before stopping when the distance is too long. While the example conveys the gap between Braun's experiments in 1897 and contemporary video game evolution, it also unknowingly illustrates the necessity of the play experience to understanding video game history. There is comics movement on the page, but not video game movement, no playable experience. *Level 101* expands on these comics illustrations to offer playable simulations situated within video game history to understand these shifts in action.

In other words, World 1's playable history of video games encourages players to attend to significant shifts in the medium across time via the experience of play, what scholars like Brian Upton have termed the "free movement within a system of constraints," what Upton further labels a process, not an object or 'thing'.¹³³ (15). One of the major components of experiencing play is for the player to experiment with the game's system and rules in order to have an impact on its game state within its constraints. *Level 101* thus puts play into action with pedagogical intent. For example, analyzing just one element as it evolves across each of these levels (e.g. movement) demonstrates its evolution in context.¹³⁴ Early video games as exemplified by World 1-1: *Pong*, necessarily relied on then-advanced technologies to create their visuals, sound, and for this example, movement. This level allows players to experience a simulation of the game and to play with the mechanic of movement, working within the constraints of movement on its paddles while trying to match the movement of the ball as it

¹³³ Brian Upton, *The Aesthetic of Play* (Cambridge: MIT press, 2015) 15.

¹³⁴ Drawing again on Gee's principles for learning embedded into video games and the constructivist foundations of game-based learning.

pings around the level. To continue this example, World 1-2 further demonstrates how movement has evolved, with tetronimoes¹³⁵ falling such that the player has to move them into place. This is in addition to more complicated evolutions in sound, graphics, and gameplay beyond the deceptively simple experience of *Pong*.

One key point to *Level 101*'s first world is that it is not intended to be comprehensive, rather providing a playable framework for understanding video games broadly from a historical perspective. By working towards fostering what Gee might term a video game literacy within its players, *Level 101* is intended to be a playable primer for video game history. Upton, in speaking on play in video games, notes that:

...when we say we 'understand' a game, that doesn't mean that we have memorized its rules. It means that we have constructed a set of internal constraints that are sufficient for us to play it. Specifically it means that we have constructed a set of internal constraints that correctly predict future evolutions of the game's state, and thus that we can make meaningful decisions in our navigation of the play space.¹³⁶

Drawing out this notion and extrapolating its essence for *Level 101* means that World 1 is not intended to replace the comprehensive written, audio-visual, or graphic histories of video games that currently exist. Instead, what it does is provide players with the knowledge to recognize historical movements in video games and meaningfully contextualize elements of their position within video game history, all in a playable format. It bridges this critical and creative divide by both advancing a historical survey and doing so within artistic confines.

¹³⁵ Official name for blocks within *Tetris*.

¹³⁶ Upton, *The Aesthetic of Play*, 119.

World 2

World 2 deconstructs game design to show these parts in action. Rather than teaching through design, it teaches about design through play. Design texts typically apply exercises to teach elements of design: ‘Create a game that does X by following this eighteen-step process,’ or in other instances, something more open-ended. These elements of design are universal to video games, constants across games of various genres, scales, and themes. Moreover, presenting them within a 2-dimensional platformer affords a visibility to these elements once deconstructed. While these elements could be presented within a 3-dimensional space, for instance, or showcased across different unique case studies a la World 1, keeping the scope tightly focused to just one level encourages players to learn about how these elements are not only present in all video games. The focus also fosters an understanding that these elements overlap, are present in conjunction with one another (and, at times, in opposition to one another).

Much like Matthew Thomas Payne and Nina B. Huntemann’s *How to Play Video Games*, an “analytic Game Genie for game studies” by offering case studies illustrating key concepts and terms in game studies, *Level 101* focuses on one deconstructed level to offer playable case studies of key elements of design (2). Payne and Huntemann’s anthology “foregrounds the utility of *play* as a means and as a method for reflection on, thinking about, and researching video games,” encouraging readers to “*act playfully* when learning about video games” and “*think playfully* when it comes to teaching about and through video games” (2-3, original emphasis). *Level 101* advances this notion to encourage players to think, act, reflect, and engage playfully when thinking and learning about video games.

Approaching this world from a metatextual perspective allows players to take a virtual step *backward* from their immersion within the game. Playing through World 2 fosters a self-awareness of the ludic structures in additional games, extrapolating learning concepts and

making invisible elements of design, if not visible, then at least dotted and outlined for the player. For example, the “Time” level will visual how this critical function of video games operates in one avenue. It reveals several independent manifestations of time within the level that have an overlapping effect as the level progresses. This propels the player towards a deepening of their video game literacy while leaving room for players to learn about further instances of time in the medium via other video games and texts. Attending to elements of game design here, what might be thought of as ludemes, provides players with the literacy to not only recognize these ludemes in other video games, but make moves to identify and internalize understanding of ludemes not covered within *Level 101*.

World 3

Due to time constraints and design choices outlined in Chapter 2, World 3 remains in the planning stage of development. What follows is an accounting of the critical stakes for the planned World 3 module, and what I see as its potential upon completion in the post-dissertation stage of the project.

World 3 will engage with play and allow for freeform expression not easily found in the common treatises of play theory. Game studies scholars like those referenced throughout this written report, from Payne and Huntemann to Zimmerman and Salen-Tekinbaş on through to Crawford, Sutton-Smith, and Gee all advocate for thinking playfully, for engaging with games and playable texts in radical and open-ended ways befitting their nature as freeform artifacts. This echoes a call to action from Virginia Kuhn and Anke Finger in the introduction to their book, *Shaping the Digital Dissertation: Knowledge Production in the Arts and Humanities*: “While technologists imagine things that *could* be, [humanists] imagine what *should* be” (3). World 3 delivers here by creating a freeform space for imagining what scholarship on play can

and should be. By zeroing in on one prominent element of play, The Magic Circle, World 3 illustrates the concept within a setting where one can freely experiment with the concept. Conceptually, the World is intended to be a Walking Simulator, an increasingly popular game genre with slower walking and simple interactions in a 3-Dimensional space. One planned interactive lesson is to have a literal magic circle that the player must reach, a glowing circle on the ground. By reaching the magic circle, the world begins to open up in tangible ways, demonstrating an immersive aspect to the concept.

Working alongside others under the label of “alternative scholarship,” developing *Level 101* as a digital dissertation also has critical stakes in advocating for non-traditional approaches to game studies, the humanities, and academia. As Kuhn and Finger note, many disciplines within the Ivory Tower of academia rely on the written word to convey avenues of scholarship, and this mode of dissemination suits these ideas effectively. But, in the same way that a hammer isn’t always the best tool for the task at hand, so too are additional modes of scholarship transmission worthwhile endeavors, even necessary, particularly in the 21st-century humanities. The pervasive nature of video games and technology means that *Level 101*’s status as a digital, playable dissertation allows for a potentially wide audience engagement. It has been designed for distribution and play within a web browser, meaning it has the potential for reaching a far wider audience than a traditional print dissertation.¹³⁷

While *Level 101* also sits as a product of alternative scholarship, and more specifically, playable scholarship, World 3 will advance this notion directly. Returning to Upton’s concept of internalizing knowledge for recognition in other contexts, focusing on The Magic Circle offers

¹³⁷ The introduction to *Shaping the Digital Dissertation* recounts Finger’s experiences in creating a video essay on Vilém Flusser and multimodal thinking that accumulated over 12,000 views, “a readership many of us can only dream of for our written academic work.” Kuhn and Finger, *Shaping the Digital Dissertation*, 4.

in-roads for players of *Level 101* affords opportunities for theoretical applications and criticism of the element in other video games. While *Level 101* does not teach games criticism or game studies explicitly, it provides potential avenues for learning to recognize an often unseen theoretical element of games – The Magic Circle – that is present in all games. This enacts Mary Flanagan’s theory of *critical play*, a “reworking of contemporary, popular game practices”¹³⁸ to “challenge ideas, beliefs, and social expectations and subsequently transform them in their work.”¹³⁹ By actively reworking traditional applications, engagements, and treatises of play into a metatextual and experimental game world, World 3 will put pressure on game studies and play studies’ approaches to this nebulous and theoretical concept.

Educational Games / Serious Fun

Level 101 also contributes to the genres of educational games and serious games, leveraging these as anchors to further bridge the creative/critical divide. Here, I address what Carly Schuler highlights as a primary downward trend of educational games in the late 1990s and early 2000s, a lack of innovation in educational game development and design. As mentioned in Chapter 1, I do not foresee *Level 101* as a panacea for game studies, nor for educational or serious game design. I know that my use of asset-flipping, deployment of programming based on freely available C#/Unity tutorials ensures that *Level 101*’s look, sound, and even some of its gameplay will feel comparable to other video games developed with these same assets; in other words, not all of this project is innovative.

But, its blend of critical theory, focus on the medium itself, and framing for the classroom context provides potential for innovation beyond more typical educational video games. And,

¹³⁸ Mary Flanagan, *Critical Play: Radical Game Design* (Cambridge: MIT press, 2009), 2.

¹³⁹ Flanagan, *Critical Play*, 4.

following in the footsteps of Gee, Koster, and Schuler, *Level 101* was also designed with fun in mind, gameplay that would provoke a sense of wonder and entertainment along the path to education. Keeping the development solely relegated to scholarly audiences would have meant elevating the rhetoric of the game's writing to reach my academic peers, at the same time minimizing the focus on fun at the heart of *Level 101*, the bright nature of the game's design. This focus on fun within the classroom is key, outlined in a brief case study from the game's deployment in my Summer 2018 course. While I discussed most of the playtesting in Chapter 2, I wanted to note one more playtesting segment from ENG 142 that highlights some of *Level 101*'s contributions for educational games.

For the Summer asynchronous version, students had to complete weekly write-ups; each week, students chose to respond to one of several different prompts with a 250-word written report. During the Adventure Game section above, one student elected to write about their experiences playing through both *Zork!* and this *Level 101* prototype:

I tried both games and I sucked! I found it amusing how confused I was. I was really only confused with the "Zork" game. I didn't know how to command him. I said "go into the house" and it said it couldn't like it said it couldn't do anything else I said. I then started using commands from the command sheet and it said the same thing, that it couldn't. I eventually just gave up. As for Mr. Justin's game, I actually had fun playing it, even though I died. It was fun making decisions and seeing where they lead. I do not consider myself a gamer. I am a person who plays videos games. They're entertaining sometimes, but I can go without. And, I will give up on a game if I was to lose after maybe [sic] twic(unless its a fighting game, I really like fighting games for some reason).

Without being a formal playtest report, this student's experiences and commentary reveal that the project did supplement *Zork!* as intended. It did not replace the student's experience playing through the historical game (nor the student's justified frustrations with the obtuse *Zork!*). The student also expresses a bit of surprise that they "actually had fun playing it, even though [they] died," suggesting that my focus on keeping *fun* within this game project was effective. That said, the student did not comment much here on what they learned, simply focused on their experience. Additional playtesting and follow-up questions would be needed to discern more about the student's play experience.

Alternative Dissertations and Playable Scholarship

Perhaps its clearest contribution is building on the recent efforts of those scholars developing alternative dissertations and playable scholarship. My dissertation is a playable one, a ludic dissertation, following in the footsteps of other alternative dissertations that bridge the gap between the academic silo and the creative processes of critical-making: A.D. Carson's *Owning My Masters*, a rap album as dissertation; Amanda Visconti's digital dissertation entitled *Infinite Ulysses*; Anna Williams' podcast dissertation *My Gothic Dissertation*; Steve Wilcox's dissertation, a portion of which was argued through an accompanying game, *Allergies & Allegories*; and Nick Sousanis' aforementioned *Unflattening*. Wilcox's game-based dissertation "is a web-based game that utilizes multimodal rhetoric to train players to recognize the social, cultural, and emotional experience of life with a serious food allergy." This game's ethos of playable scholarship is similar to my own as we both utilize the medium of the video game to advance knowledge, but my primary contribution is turning that focus inward (to understand the medium) as well as outward (through deployment in educational contexts). As another example, Carson states that *Owning My Masters* is "a rap album that is the text of the dissertation; so

rather than it being about rap, or it being about spoken word, it's actually done through those particular modes of presentation," and indeed, Carson's project has become the very first academic peer-reviewed rap album.¹⁴⁰ Likewise, Visconti's *Infinite Ulysses* was archived in July 2016 having reached 24,000 unique visitors, and 1,168 annotations from 775 unique user accounts;¹⁴¹ Williams' podcast dissertation has since been featured at MLA, in Edinburgh University Press, and *The Guardian*.¹⁴² In challenging what the futures of academic writing can be, Julia Morani succinctly writes that "these dissertations radically flout the conventions of academic writing by arguing their theses aurally and visually"¹⁴³ – I follow in my peers' footsteps here by presenting my own dissertation that argues its thesis through interactivity and play.

Elsewhere, Wilcox similarly calls for what he terms "praxis games," that is, "games created specifically for players to enact, embody, or realize a theory, lesson, or skill using the qualities of context, practice, and experience" – taking the abstract and making it tangible through play.¹⁴⁴ Praxis games could easily be called playable criticism, critical games, serious games, purposeful games, or playable scholarship. This aligns with what other scholars like Stephanie de Smale, Eric Zimmerman and Katie Salen Tekinbaş, and others articulate, that designing games – even prototypes – affords deeper understandings of the medium while being a

¹⁴⁰ Caroline Newman, "A.D. Carson On His First-Ever Peer-Reviewed Rap Album, Spring Shift And Fall Courses," *UVAToday*, August 20, 2020, accessed February 25, 2021, <https://news.virginia.edu/content/ad-carson-his-first-ever-peer-reviewed-rap-album-spring-shift-and-fall-courses>

¹⁴¹ Amanda Visconti, "About," *Infinite Ulysses*, archived July 2016, accessed February 25, 2021, <http://infiniteulysses.com/about>

¹⁴² Anna Williams, "Press," *My Gothic Dissertation*, accessed February 25, 2021, <https://www.mygothicdissertation.com/press>

¹⁴³ Julia Molinari, "What Makes Our Writing Academic," *DoctoralWriting SIG*, August 22, 2017, accessed February 25, 2021, <https://doctoralwriting.wordpress.com/2017/08/22/what-makes-our-writing-academic/>

¹⁴⁴ Steve Wilcox, "Praxis Games: A Design Philosophy for Mobilizing Knowledge Through Play," *American Journal of Play* 11, no. 2 (2019): 157. <https://www.journalofplay.org/sites/www.journalofplay.org/files/pdf-articles/11-2-Wilcox.pdf>

critical reflexive practice. *Level 101* sits within this heuristic, a prototype praxis game for a larger project that afforded me a more intimate understanding of the medium I study, teach, and play in.

Writing in 1984, Chris Crawford was critical of stagnant video game development and its increasing commodification, which in many ways only intensified in the decades since. However, in developing the project, I am also more convinced than ever of the medium's potential for critical praxis and playable scholarship. More recently, Crawford announced that he was stepping away from further development on interactive storytelling, expressing a dissatisfaction with the project's progress and what he foresaw as the public's probable critique of the finished project. While Crawford takes a narrow focus on interactive storytelling (indeed, separating it from "current game design,")¹⁴⁵ I understand the impetus to set the project aside if it does not reach its full potential as one envisions it (or, for any reason). In fact, there is an underlying theme throughout the development of *Level 101* of shifting tactics and design approaches to render the abstract idea I have held in my head of the game, as discussed in Chapter 2. I return to de Smale's point about prototypes of video games being both valid and significant as steps to the next iteration. Held in conjunction with Wilson's conception of praxis games – video games that attempt to manifest abstract ideas into not just tangible artifacts, but playable ones – I view this prototype of *Level 101* as a successful humanities experiment in visualizing game studies concepts, a success as an act of critical-creation in and of itself.

Level 101 is also experimental, but it is driven by research and aimed at disseminating knowledge via play and discovery. As a product of alternative scholarship, it advocates for new forms of scholarly endeavor, particularly ones grounded in play. It is designed with fun and

¹⁴⁵ Chris Crawford, "Why I Am Ending Further Work On Interactive Storytelling, *Erasmatazz*, 2018. Last accessed March 9, 2022: <http://www.erasmatazz.com/library/interactive-storytelling/why-i-am-ending-further.html>

engagement in mind (again, drawing on Koster's *Theory of Fun*), rather than falling into the rote assessment-driven edutainment model of educational games from the 1990s and even early 2000s. By drawing upon research, methodologies, and philosophies from multiple disciplines, *Level 101* encourages players not just to learn, but to play, learn, and then apply that knowledge to the vast field of video games surrounding them. I devote the conclusion of this dissertation with a critical, personal reflection exploring the potential that this experimental and playful project holds for planned revisions and next stages of *Level 101*.

CONCLUSION: PLAYING WITH LUDIC DISSERTATIONS

I began this project, conceptually, back in Fall 2016, the first semester of my PhD Program.

During the course of this dissertation project, my plans grew from a narrowly-focused educational game-syllabus into a larger project on game design elements into an even larger project with different worlds grappling with laying bare invisible ideas at the heart of video games. In many ways, this is the nature, and folly, of both game development and dissertation writing: scope creep, otherwise defined as an increasingly large scope of a project that exceeds the planned timeline, resources, or capabilities of the creative team. As my plans for the project grew, my own development efforts could not keep up with the plans.

To recap, the initial plan consisted of:

- World 1: History
 - 5 levels
- World 2: Design
 - 5 levels
- World 3: Play
 - 5 levels

As the prototype phase comes to a close, the project consists of:

- Title sequence
- Menus
- Introductory level
- World Map
- One history lecture

- One history microgame
- One design lecture
- One design microgame
- The current written report

The finished prototype is a much larger project than the initial 1-level ‘playabus’ I had created back in 2016, but also a much smaller project than the 3-world/15-level game I proposed for my comprehensive exams and dissertation proposals. Some of this is due to developing the infrastructure to connect these varied levels: the menus, title sequences, transitions between stages, and a larger World Map stage that marks progress when a level is completed.¹⁴⁶ Yet, as noted in Chapter 3, this project serves as monument to the promise of praxis games, playable scholarship, and ludic dissertations, turning abstract ideas into playable and tangible experiences. As this phase of the project comes to a close, I have come to realize that each primary world has the potential to be parceled out and developed individually. Each of these worlds, once created in full, deserves its own focus, critique, and editorial revision in turn.

Levelling Up: Revisions to Level 101

Further, my future goals for some of the worlds have evolved and grown with my own experiences working, teaching, and learning as a graduate student. My history world plan, for instance, is unwieldy in its current form. When I initially pitched the project, I rationalized its large scope by pointing out that the scope of the medium is, itself, massive, a medium that encompasses AAA-studio games and 30-second microgames, virtual reality projects and online games with a short shelf life. The practical experience of developing this project has fostered a

¹⁴⁶ Modified after Unity tutorials from the built-in Unity tutorial (<https://learn.unity.com/>); James Doyle (<http://gamesplusjames.com/>); the Brackeys team (<https://www.youtube.com/user/brackeys>); and others.

critical, personal reflection as I look back on the past five years of *Level 101*, and the next five years of the project.

When I initially planned *Level 101*, I actively avoided making a political, critical game. I wanted to create and develop an educational game that was focused very closely on the medium itself. With hindsight – this was a foolish wish. As a white male with an inordinate amount of unearned academic privilege, I have an obligation to use my platform, voice, and skillset to not only be critical of problematic elements in game studies/development/education, but highlight the work of marginalized creators, particularly women, folks of color, international developers, and independent writers. Because this project’s scope has already crept large enough, my plan is to refine the project after the dissertation defense. What emerged out of my own research and work during the dissertation’s lifecycle is a vested interest in uncovering stories and contributions of minoritized creators or those whose contributions have been vastly overshadowed by hegemonic and now-canonical landmark games. In a later, informal playtest conducted in 2021, one educator wrote “my bias here is that, when teaching Games History, I’d rather have my students play *Pong* and *Tetris* and *Zork* for real, rather than assign an educational game simulating them.” This feedback was instrumental in helping me think critically about the feasibility of future game sections as well as I continue to work through the potential that video games hold as forms of alternative scholarship to disseminate lessons in a playable format.

My future plans for the history section of this game, then, are to refine its scope to focus more tightly on independent and grassroots creators of the 1970s, and create a playable history of their contributions that provides an alternative way of understanding video game history. This approach would scale back the scope, and be more 2-Dimensional, which is within my current development skills. Trying to emulate the scale and experience of any sort of AAA game without

the resources befitting such an endeavor would fall flat in its rendering, even through the use of asset-flipping. Put another way, I recognize that continuing to work individually, or in a small team as I outline below, affords me the freedom to design the kinds of educational, critical games that may not have large audiences, but will be meaningful in their creation and deployment.

As noted in Chapter 3, I plan to move World 3 from the Planning to Development stage. In this regard, much like the development of the prototype thus far, I am planning to deploy the iterative design model in continuously designing and playtesting it as development proceeds. I am also excited about the form the world may take. Playtesting early versions of the *Level 101* prototype had a profound impact on the project's development after each playtest, and I look forward to deploying it in future classrooms. Similarly, the plan for World 2: Design is to continue its Development phase, and begin playtesting early versions of each level as they are generated. The present plan for continued development on World 2 is not as drastic as World 1. However, I do want to refocus some of the playable critique and educational goals of World 2 to be in line with the critical focus outlined above. Crucial elements like Avatars or Representation deserve to be critically unpacked in much the same way as Time and Space in a playable, educational way. To accomplish this may lie beyond my current skillset, even where my programming and development capabilities may be in the next five years, necessitating the kinds of collaboration that are available after finishing a solitary, individual dissertation experience.

Collaborative Avenues

I'm deeply invested in collaborating with additional creators and scholar-makers on each section of the game. In all other avenues of my academic career, I have actively sought out collaborations and team-based projects. These range from co-written publications to team-driven research initiatives like the MSU Graphic Possibilities Graduate Research Workshop, developing

syllabi in conversation with students and colleagues to participating on service committees. This dissertation experience is, by necessity, an individual effort. Each of my committee members provided light feedback throughout its development, and as highlighted elsewhere, I have shaped the project with feedback from academic peers, individual playtesters, and even undergraduate students.

But, like so many video games, this project has the potential to grow in new ways with additional people bringing specialized skillsets, fresh perspectives, and unique experiences. I am confident that some of my undergraduate students who are pursuing degrees in game design have the capacity to far outpace me in programming, to say nothing of experts with 5, 10, and 15 years of working in game design & development. *Level 101* grew slowly over the course of several years, and I am excited to see how quickly it might grow with even one additional collaborator in the next several years.

To fund these additional collaborators, I also plan pursue development of the project through larger grant and funding opportunities. Over the last five years, *Level 101* has been supported by several grants and fellowships available to graduate students at Michigan State University. Additional grants will allow me to equitably pay my collaborators, and create funding opportunities to work with undergraduate & graduate student game designers/developers, even external programmers.

Future Supplementary Materials and Classroom Deployment

In whatever form *Level 101* takes in its next stages, I hope to include brief, actionable educational packets alongside these future iterations of *Level 101*. Taking a cue from Central Michigan University Press's "Scholarship and Lore" series, which requires an educational packet designed to help adopt their educational games into the classroom. As outlined in earlier

chapters, I initially designed the game portion to have somewhat broad appeal: engaging for undergraduate students as well as academics. Approaching the game project as three smaller games, rather than a much larger and comprehensive game, can open up additional points of entry for educators looking to deploy *Level 101* into their classroom. For instance: broad humanities courses may be less interested in the Design or Theory worlds than they are the history section. This educational pack can include sample lesson plans for a few different contexts and audiences (introductory literature course; graduate-level seminar in serious games). Each lesson plan will introduce a sample course with an overview of its structure, aims, student body, and purpose. The document will continue with a brief outline of learning objectives, requisite materials/programs needed, supplementary readings, and an explanation of how *Level 101* may fit into this particular classroom. Finally, the lesson plan will end with a learning activity, assessment, and a portable pedagogy plan for different situations (lack of internet access; limited playtime in a course; asynchronous/synchronous; etc.). These lesson plans will not be applicable to every context, but they will hopefully inspire the kinds of approaches to alternative scholarship and critical-making that I think will be necessary for the next generation of students, designers, thinkers, and makers. Without getting too far into the potential for plans post-dissertation (and falling once again into the scope-creep trap), additional potential components of these educational packs could include resources for getting started with critical-making and game development or brief, recorded playthroughs of the game itself.

These proposed educational packets and supplemental materials are just that: proposed, planned, and ephemeral as of now. I look forward to bringing this game project to a wider playtest audience, to understanding more what works and what can be improved. As discussed in previous chapters, sections of this game have only been deployed to two courses, reaching a little

over fifty students. Brian Winn and Carrie Heeter note that for educational games, “Playtesting not only helps designers refine the game mechanics, but it can also help resolve conflicts among pedagogy, content, and gameplay by moving disagreements from theoretical stances to demonstrated success or failure of design concepts.”¹⁴⁷ Winn and Heeter’s findings only cement the need for additional playtesting of *Level 101* in additional educational contexts, as well as further playtesting through the refinement of the project.

Deploying this project to more classes will also, hopefully, inspire more learners to think in new ways about the way the world can *be*. My own project was directly inspired by three interrelated elements: 1) reading scholarly comics, particularly Sousanis’ *Unflattening*; 2) initially being unable to find similar scholarly video games; 3) the academic freedom to create something digital, prototypical, different for a final project in a graduate seminar. I wrote in Chapter 3 about Chris Crawford’s step away from interactive storytelling, which I understood completely – still do. But, what I find deeply inspiring about his initial project, as well as so many of the game studies scholars I have read deeply and written about here, is that they all inspired my own project in different ways, as they have done for so many others.

Idealistic as it may be, my hope is that if *Level 101* is deployed in additional classrooms, some student or teacher will come across it, and be inspired in the same way I was by the work of Sousanis, Crawford, Gee, Anthropy, and others: to make something better than my game; to play other games more critically; to create an alternative thesis/dissertation/project that generates even further innovation. This project was borne of a desire to see something new, to design something different in my academic program, to play with what the dissertation could look like,

¹⁴⁷ Brian Winn and Carrie Heeter, “Resolving Conflicts in Educational Game Design Through Playtesting,” *Innovate: Journal of Online Education* 3, no. 2 (2006), n.p.

and to reach the students at the heart of my work. I hope that its creation will inspire others to play with similar modes of alternative scholarship, game-based learning, and praxis games.

APPENDICES

APPENDICES

This appendix presents a segment of planning documents used to guide the development of *Level 101*. Each section varies in completeness and structure, reflective of the development process over the project's lifetime. As highlighted elsewhere in Chapter 2, these planning documents serve as documentation of the project's playbook: its initial plans, its growth and hurdles, and as record of how I worked through the project.

APPENDIX A: Planning Documents for Level 101

Appendix A demonstrates the high concept of each planned world, along with in-progress design goals for individual levels. Appendix A also contains expected learning outcomes and planned core mechanics for specific stages. World 1 is the most complete in this regard, while World 3 is still within the Planning stages, as discussed in Chapter 3 and the Conclusion.

Module 1 Planning Documents: “History of Video Game Forms.”

Critical Goal: *Introduce players to major movements in video game history through interconnected levels that reflect the forms of the video games.*

Initial Concept: Each stage will reflect a unique video game format, offering a combination of direct lecture on significant game developers and games in a given period of video game history alongside critical play designed to emulate at least one significant video game mode during this same time frame.

- Planned Levels:
 - 1-1: Early Video Games (1960s: Spacewar! Tennis for Two)
 - **Player Experience:** Exploratory
 - **Core Mechanic:** Moving a single paddle, moving a single spaceship and shooting
 - **Theme:** Black and white, barebones aesthetics
 - **Core game loop:** Beat the computer, read from the golden tablet, earn two of two golden tablets
 - **Learning Outcome:** *Understand the historical origins of video games and understand their context in the broad history of games*

- **Player Task:** Players will play through a simulacrum of Spacewar and tennis for two
- 1-2: Arcade Games (1970s: Pong, Space Invaders, Pac-Man)
 - **Player Experience:** Joyful
 - **Core Mechanic:** varies: paddle-game, shooting enemies, avoiding enemies
 - **Theme:** Colorful, 8-bit, "retro"
 - **Core game loop:** Beat the computer to earn a golden tablet, earn at least two of three golden tablets.
 - **Learning Outcome:** *Understand the historical impact of Pong, understand proliferation of video games in 1970s, demonstrate knowledge of arcade games, and differentiate between different styles of arcade game genres.*
 - **Player Task:** Players will watch, learn about, and play at least two main types of arcade games: sports, shooter, action)
- 1-3: 2-Dimensional Platformers and Adventure Games (1980s: Super Mario Bros., Legend of Zelda, Dragon Warrior)
 - **Player Experience:** Active, Adventurous
 - **Core Mechanic:** Varies – Platform-jumping, hack-and-slash adventuring
 - **Theme:** 8 or 16-bit, colorful, exciting
 - **Core game loop:** Explore each section, find at least two of three golden tablets at the end of a level.

- **Learning Outcome:** *Understand the historical impact of Super Mario Bros., demonstrate knowledge of proliferation of video games, compare historical positioning of early video games, arcade games, and 2-D platformers/adventure games.*
- **Player Task:** Players will watch, learn about, and play at least two main types of 2-D games: platformer, adventure, and RPG
- 1-4: 3-Dimensional games (1990s-2000s: Doom, Super Mario 64, etc.)
 - **Player Experience:** Action-packed, frenetic, freeing
 - **Core Mechanic:** A) Shoot enemies and survive the level. B) Explore the 3-Dimensional space with jumping
 - **Theme:** 3-Dimensions, bright, colorful
 - **Core game loop:** Explore each world to find 2 of 2 golden tablets.
 - **Learning Outcome:** *Understand the historical impact of 3-D video games like Super Mario 64, understand the formal differences in 3-D games, understand the rise of "Console Wars" in a global context, apply this understanding to movement in 3-D environment.*
 - **Player Task:** Players will watch, learn about, and play two main types of 3-D games: 1st-person shooter and 3-D Platformer
- 1-5: Mobile Games (2000s-present: touch-based interfaces, ARGs, VR, etc.)
 - **Player Experience:** Familiar, immersive, kinesthetic
 - **Core Mechanic:** Use hands/stylus to interact with touch-based interfaces in three games.
 - **Theme:** Immersive, 3-D space.

- **Core game loop:** Find two of the three golden tablets in the 3 worlds.
- **Learning Outcome:** *Understand the historical trajectory leading to contemporary/present video games, differentiate between historical modes of interactivity, critique developing modes of interactivity*
- **Player Task:** Players will watch, learn about, and play two of 3 main types of modern mobile games: touch-based, ARG, VR

Module 2 Planning Documents: “Game Design.”

Critical Goal: *Introduce players to fundamental elements of game design through a series of five interconnected levels through a deconstructive mode of instruction.*

Initial Concept: Each stage will introduce one key element of game design, offering a brief definition of this element before offering players insight into the various ways in which this concept pervades the video game form by showing them in the same stage in new iterations. This chapter explicitly draws from the comics text *How to Read Nancy*, the game studies text *The Game Design Reader* and the pedagogical text *Understanding Video Games*.

Planned levels:

1. Rules within video games (constraints on controls, success/fail states, scoring, etc.)
 2. Space (visible/unseen space, imagined space, player-space vs creator space, etc.)
 3. Time (player time, game time, digital time vs real-time, etc.)
 4. Systems (mechanics interacting together, player actions/reactions/effects, etc.)
 5. Interactivity (input, control scheme, avatar interaction, logic sequences, etc.)
- Structure:
 - 2-2: Space (visible/unseen space, imagined space, player-space vs creator space, etc.)
 - **Player Experience:** Exploratory
 - **Core Mechanic:** Jumping, running, and interacting with objects to find gems and reach the goal
 - **Theme:** Bright, colorful, and repetitive of 2-1 through 2-5.

- **Core game loop:** Jump from platform to platform, move through the level, and find golden tablets.
- **Learning Outcome:** *Understand the design element of space and recognize different versions of how space manifests within video games.*
- **Player Task:** Players will play through a standard 2-Dimensional platformer.
- Problem:
 - How many modifications to make?
 - 3-5? Should be standardized across the levels.
 - 3 visible, point out several invisible.

Module 3 Planning Documents: “Play”

Critical Goal: *Introduce players to the historical origins, critical investments, and visual manifestations of **play** as a concept.*

Initial Concept: Each stage will build upon the other in a scaffolded method, introducing players to early concepts related to play before complicating the concept, highlighting how pervasive it is, and providing skills to begin analyzing and critiquing issues of play within video games.

Planned levels:

1. Origins of play (Ancient, natural, theoretical, etc.)
2. Key traits (Huizinga’s magic circle, play as mode of interactivity, etc.)
3. Mode of learning (learning to play, learning through play, learning by playing, etc.)
4. Mode of communicating ideas (play experience, identity, representation, meaning, etc)
5. Mode of critical inquiry (playing to interpret, play as interpretation, etc.)

APPENDIX B: Level 101 GameDev Journal

This appendix presents a segment of intermittent game development journaling from October 2018 to January 2022. I kept a handwritten journal outside of this digital, typewritten journal, including a few drawings of the project's structure. These are the only entries from the handwritten journal included in Appendix B due to the freeform and often illegible nature of my personal writing.

The format of each entry varies from line-by-line updates to more personal reflections on the status of the project; the language is often colloquial, reflective of my process of internally working through problems, and reflective of my own thinking more broadly. Some entries even include life updates befitting events that happened to me outside of the game: birthdays, committee work, celebrations, and even a brief account of the beginning of the COVID-19 pandemic. Likewise, the journal's entries do not capture every date that game development occurred, only when notable events or sections occurred. For instance, one of the latest entries on January 4th, 2022 details an unexpected resolution error that occurred when exporting a final build, but the previous entry within the journal was September 8th, 2021: progress occurred between these two dates, but I simply did not catalog every event between these entries within this digital journal.

Many of these entries will not be helpful to every reader, but they do account for the growth and development of the project as well as me as a programmer, researcher, and educator. They also demonstrate sustained progress on the project, as well as the ways I addressed different hurdles, including program switches, troubleshooting, learning C#, hardware malfunctions, and dealing with a global pandemic.

1. 10/24/2018: Learning/Working with Unity for the first time.
 1. Instantly seems more powerful than Construct 2/3.
 2. Useful tips:
 1. Components in left side in Inspector
 2. Tilesets:
 1. Window > 2D > Tile Palette
2. 12/1/2018: Unity is TOO powerful for me, currently. Returning to Construct 2
 1. Tutorial Stage Alpha
 1. Turn each house into a separate layout.
3. 12/3/2018
 1. Tutorial Stage Alpha
 1. Determined a more effective way to create houses (smaller layouts with the same event sheet)
 1. Currently stymied by exiting house on a point relevant to object, rather than an X,Y coordinate. If the object gets moved, I need to move the X, Y coordinate, whereas if I exit based on object, the object can be moved.
 2. Fixed!
 1. Issue was that Player Object was too large, so upon spawn, would instantly overlap with the Door Object, and create a feedback loop. Shrunk the Player Sprite, and it works now! Player spawns on Image Point which is 100% below the origin of the Door (about 250 pixels below)

4. 12/6/2018

1. Tutorial Stage Alpha

1. Ran into a bug with dialogue, where a spacebar should appear on start of layout, disappear on spacebar push, then reappear 2-3 seconds later.

1. Bug: Spacebar just appears and disappears 1,000x a second.
2. Cause (after 3 hours): event was triggering every second that Variable was true, instead of just once.
3. Solution: add condition that Event will trigger only ONCE while true.

2. Notes for next session:

1. Buttons should flash when pressed
2. NPC Dialogue (eventually)

5. 1/3/2019

- From Alison McMahan's "Immersion, Engagement, and Presence" in Mark J.P.

Wolf's *The Video Game Theory Reader*:

- "Users respond to virtual guides and virtual pets in much the same way they respond to the direct address of newscasters on TV." (78)

1/23/2019

- James Paul Gee, notion of semiotic domains in "What Video Games Have to Teach Us" -- gives rationale for Level 101 vis a vis learning genres and learning parts of games to understand the whole

2/8/2019:

- Include/integrate knowledge databases into the game like the 'civlopedia' in the *Civilization* games or the codex in *Mass Effect*. -- Breuer and Brente

- Construct 2 is feeling limited. How do I reach those learning genres, have players understand the whole?

7/15/2019

- Moved BACK to Unity, moving through the Learn Unity tutorials
- Need to learn how to play in window, not in maximize on play.
- Skills learned so far:
 - Moving objects, creating terrain, adding assets, movable objects, connecting objects (switch/door), damage/health, triggers, virtual inventory/picking up objects, UI, parent-child relationship (keep things organized), dialogue boxes (canvases), Interact (on button 2D, on enter, etc.), make sure to end events (on enter/on exit).
 - 3D walkthrough: planes, terrain painting, working with ProBuilder, how to create events in 3D Games, pivoting, mesh, hazards, DEATH VLUME
 - Mesh: triangles arranged in 3D space to create the impression of a solid object. A triangle is defined by its three corner points or vertices.
 - Creating shapes!!!
 - Create a pool: dip the terrain, then place a "pool" of acid in the dipped space ("acid" is just a flat square that fills the space).
 - Materials, Shaders, Textures.
 - Level of Details, Missing shape geometries
- Feedback for the player:
 - Audio/visual.
 - Dialogue boxes

- Questions:
 - Differences between Float/String.
 - ProBuilder: necessary?
 - Allows for the editing of meshes...textures that can be mapped/pasted on to objects.
- 3D Printing of game design elements.
- Moving to LIB computers for work: laptop simply couldn't handle the processing power effectively.

7/24/2019:

Developed Master Design Document further

Laid out each level premise

Developed learning outcomes

Developed Player tasks

Developed Gantt Chart to help with Game Design Development

Different Phases

Keep track of stages of each game

Updateable for when new steps are necessary

1. i.e. In designing Tutorial level 2.0, I realized I need a method for Save States.

3. Worked on Tutorial Level

1. Designed first map layout
2. Developed Goal, Task, Interactive Measures

4. Goals for tomorrow:

1. Start developing Tutorial Level in Unity
2. Find Asset Package

10. 7/25/2019:

1. The first major hurdle has been that my laptop simply cannot handle the developmental capacity of Unity. I bought it 4-5 years ago, intending it to be something that could process digital work, and thus far, has sufficed. But, Unity is a powerful game engine, and to proceed further, I needed to find a workaround. Luckily, the MSU Library has an incredible space for such a project: the Digital Scholarship Lab, which has powerful computers WITH Unity on it.
2. The second major hurdle, the one that concerns me today, is that all of these computers...have Unity 2018 installed...while all, ALL, of the tutorial builds from Unity Learn (the educational arm of Unity) require Unity *2019*. Terence O'Neill, head of the DSL, informed me that these computers might be able to be upgraded to Unity 2019 in the next wholesale upgrade, but for now, I'm switching gears to finding the right assets for each of the levels (or, at least, assets that will suffice).
 1. The developers who are making these assets and releasing them for other developers are incredible, doubly so for those folks who release their assets for free (saints, they are). This is a tremendous amount of work, and it definitely does not go unnoticed.
3. I also want to be sure I give proper attribution wherever and whenever I can; citations don't just end with writing, but extend to all creative endeavors.
4. Today's struggles:

1. Literally navigating the program. I downloaded and imported my first asset package, which has proven to be tricky to start with, and then difficult to actually make anything happen.

2. Helpful links:

1. Brackey's video on navigating assets.

<https://www.youtube.com/watch?v=on9nwbZngyw&list=PLPV2KyIb3jR6TFcFuzI2bB7TMNIIBpKMQ&index=1>

2. Gary Thomas' series on Sprite Editing:

<https://www.youtube.com/watch?v=6P1ivCvofuk>

5. Today's successes:

1. Learned how to import assets, and actually integrate them into the game.
 2. Learned about sprite animations and sprites in general.
 3. Didn't give up.
 4. Kept moving forward.

11. 7/29/2019

1. Weird issue where player_sprite didn't show up in scene view (meaning, the view that allows me to manipulate it within the space...)

1. Solved by just...deleting and re-starting. 2hrs' progress only took 5 minutes this time.

2. And, I think I streamlined the animation?

2. Player animations:

1. Exit time in transitions: 0

2. Transition Duration (under settings): 0

3. Very easy to get distracted with all of the different components and tasks you have going on.
- Need to give physics to background, I think
 - SUCCESS: I figured it out!
 - Added tilemap collider 2D to tilemap. This automapped physics collision to tiles without me doing it individually.
 - Sprites landed on TOP of the sprite, rather than on the actual plane. I offset the Y-axis by -.5 (to bring it vertically lower), but this was just a little too low, so lowered it by -.25, and BOOM. PHYSICS.

Movement:

Had to begin to learn C# for movement

See <https://www.youtube.com/watch?v=dwcT-Dch0bA> for more details.

Left/A = -1

Right/D = 1

Sprints and stops, sprints and stops

Learned a lot of C# in a short period of time, but I ran into a scripting issue.

I'm missing some minor bit that isn't letting me attach functions to a specific bit of coding.

What I mean is, my jump doesn't work as intended.

Need to proofread and try again in the A.M.

Much better day overall!

7/31/2019

Terence was able to get me an early copy of Unity 2019 before the rest of the library computers got it: found here:

[[Even though the library computers have more advanced versions of Unity now, I have removed the filepath originally included in my notes – Justin, 2022]]

Started the Udemy C# 2D course

Learning C# right from the get-go.

Statements

Variables

1. Each variable is of a particular TYPE
2. Each variable has a NAME
3. Each variable contains DATA
 1. FLOAT has decimal points (f goes on the end)
 2. BOOL = Boolean (True/False)
 3. STRING
4. Semicolons DECLARE variables; we initialize and assign variables;

4. Update:

1. Sequence that happens once per frame.

5. If, else if, else

6. namespace

1. class

1. methods/functions

i. statements

7. Encapsulating – placing functions into "capsules" of related functions
8. Refactoring – reorganizing for readability
3. Scripts
 1. Code, essentially
 2. Need to be attached to objects
4. Sprites
 1. Collected from Bitmap Images
 1. Bitmap Images: 8 pixels by 8 pixels
5. Game Objects are composed of components
 1. Components are made up of properties
 1. Properties:
 1. Values
 2. References
6. Function:
 1. [SerializeField] creates fields to be interacted with in Inspector
7. State = Action of Process for Behaviour
8. State Machine assumes only one State at a time
9. Conditions (requirements) to transition from one state to the next
10. Scriptable Objects are a class that lets us store data in standalone assets
 1. Do not need to be attached to objects
11. Float: number stored in decimal point format (?)
12. Method types: Public vs private
 1. Private is only in same class of code

2. Public is across all code
3. Private by default without a modifier (I.e. public)

13. Return types

1. Void = nothing

13. 8/8/2019

1. Did not get into the lab to develop all this week until today, and even then, late-start to the morning. I took a day off yesterday for some self-care and recharging of my batteries, and then was on-campus but preoccupied Monday and Tuesday.
2. Array: Stores into a variable, multiple elements of the same type.
3. Programming begins at ZERO, increases in increments AWAY from zero.
4. Learned how to use Arrays to call up specific elements of game components, such that players can:
 1. Choose A, B, or C, and have that correspond to different screens.
 2. Make meaningful choices.
5. Seems like there's a way to make it so IF (GetKeyCode) MouseClick, THEN ____, rather than on button-press.
 1. Questions:
 1. How to include a save-state?
 2. How to include items that carry from one state to the next?
 3. How to integrate a mouse click?

14. 8/12/2019

1. The Digital Scholarship Lab at MSU is currently updating all of their computers to the Fall 2019 shared image...meaning, I'll have access to Unity 2019 on all computers, BUT, am unable to use the Lab all week.
2. Taking this as a sign to move forward and make marked, significant progress on other tasks, both related to Level 101 and outside of the dissertation:
 1. Conference papers
 2. Article revisions
 3. Fall prep for teaching
 4. Book projects in progress.
 5. Dissertation Proposal Defense.

15. 8/15/2019

1. I passed the Dissertation Proposal Defense!!! Which is a mouthful.
 1. Really, this was a delightful experience. I met with my committee, gave them another brief run-down of the project's origins (Fall 2016, first semester of PhD, AL 891, video game *as* syllabus), and then gave them a report on my progress with Level 101. I discussed my proposal, and expressed my concerns about adequate access to technology.
 2. Suffice it to say, my committee is comprised of absolute rockstars who are wholly supportive of my project and my needs for the project. They were enthusiastic about me moving forward, and offered to help me get better hardware to develop this project on so that I am not reliant on the Digital Scholarship Lab. The DSL is great, but not reliable, and certainly not portable.
2. I took the rest of the weekend off to recharge my batteries and celebrate.

16. 8/20/2019

1. Picking back up with Level 101.
2. Developed a draw.io graph of my current plotting with the text game.
3. I have a more-or-less complete frame of a text-based game. It's not perfect, and it's not elegant, but it works.
4. Color themes: color.adobe.com
 1. 1-1 Color theme:
 2. RGB 140, 140, 136
 3. HSV 67, 3, 55
 4. CMYK 0, 0, 3, 45
 5. LAB 58, -1, 2
 6. RGB 38, 38, 37
 7. HSV 56, 4, 15
 8. CMYK 0, 0, 4, 85
 9. LAB 15, 0, 1
 10. RGB 89, 89, 88
 11. HSV 56, 1, 35
 12. CMYK 0, 0, 1, 65
 13. LAB 38, 0, 0
 14. RGB 217, 215, 204
 15. HSV 50, 6, 85
 16. CMYK 0, 1, 6, 15
 17. LAB 86, -1, 6

18. `RGB 13, 13, 13`
19. `HSV 0, 0, 5`
20. `CMYK 0, 0, 0, 95`
21. `LAB 4, 0, 0`

5. Loop: event that repeats until ended.

1. For Loop
2. Stuff to keep in mind:
 1. Don't use single letters if possible. Unclear what they signal later.
3. For Loop:
 1. For (int I = 0; I < something; I++)
 1. ++ increase by one.
 2. { // do these things }

6. `/*` = COMMENTING OUT, `*/` Commenting IN

7. Actual progress update:

1. Added in text, colors, and some increased functionality.
2. Ported over most of the Wooden Door pathway. I do not yet have variables set for TORCH, WOODEN DOOR, or PIT, etc, but I do have a path way that works.
3. I need to actually upload the lecture for the Adventure Game Genre on Golden Tablet 1, but hey, progress! (2-3 slides should do it)

17. 8/21/2019

1. I began the next project from Udemy on the Math Wizard UI...and promptly got derailed with organizational work and with volunteering for the 2019 Teaching Toolkit Tailgate in the MSU Hub.
2. Level 101 development:
 1. Learned how to anchor points, including text
 2. Learned how to create a script to load next scene.
 3. Learned how to cycle through scenes AND to re-load the scene.
 4. Figured out how to display text and have it populate to the screen.
 5. Not entirely sure the function will work with my adventure game yet, but, I'm seeing the connections.
 1. Ex: the text-based game uses button-presses, not mouseclicks. The button-presses are in an array. There's a pretty sizable cognitive leap (for me, at least) in trying to blend the two scripting processes together in a way that functionally works.

18. 10/28/2019

1. "Promptly got derailed with [project I took on that I shouldn't have]" is probably the most concise theme of dissertation progress over the last two months.
2. This is my first day back working on my Diss in the DSL since August 21st, apparently. I actually need to figure out where I left off and what I was working on. Looks like...Math Wizard UI, but I also know that I started making progress on my text-based level.
3. I will note, I sat down and wrote several hundred words FOR level 1-1 today, which I feel proud of.

4. In between 8/21 and 10/28, I did an index for a book project, presented at two conferences, began teaching again, and sent off a few abstracts.
5. Oh, I also started serving on a new planning committee & a subcommittee. And a few other things (Graphic Possibilities workshop, grad committee, etc).
6. I need to get back into the swing of things, so:
7. Goal: Work on Level 101 3x a week in the DSL, and outside of it 2x a week.
8. We'll see if I can keep up that commitment!

1. I am re-watching a few of the Udemy videos to remind myself of where I was in the progress of the game, and my own learning.

9. Reminders:

1. Game design
 1. Player experience, core mechanic, theme, core game loop

10. Musings:

1. Learning programming and coding when I'm not familiar with this style of creation is rather difficult. Because I'm primed for research and for writing, some of the skills associated with programming are pretty easily translatable, but not all.

19. 11/4/2019: "Block Breaker"

1. Working on learning "Block Breaker"
 1. Currently, Udemy seems to be having trouble loading? Which, could also be MSU's internet (though, unlikely given how fast everything else is)
 2. Working on Udemy's mobile app
2. Core game design:

1. Player experience (quick reactions)
 2. Core mechanic: breaking blocks
 3. Theme: Blocky, colourful
 4. Core game loop: smash all blocks without letting ball drop in order to progress to the next level
3. Camera:
1. Shows perspective based on units (1,1) (-1,-1)
 2. Orthographic -- No matter how far they are, that's the true image
 3. Perspective -- Adds perspective
 4. Orthographic Camera: size is half of height (eg. Size = 3, 6 total world units)

20. 11/5/2019: "BB pt 2"

1. Rigid Body
 1. Dynamic: subject to gravity
 2. Kinematic
 3. Static
2. Collision:
 1. Allows objects to actually collide and interact
3. Needs a "Lose" collider (and a "win" collider)
 1. Collision event
 2. Trigger event
4. TRIGGERS AND EVENTS
 1. IF-THEN
5. String functions should only be used in very specific instances.

1. These hard-wire/hard-code functions into our code.
2. "Game Over" scene --> if this gets changed, then our function doesn't work as intended.
3. Never want to put a number into code except if it is a 0, 1, or 2
6. Vector 2: x/y
7. Vector 3: x/y/z
8. 10f, 4f = 10, 4 (f=float)

21. 11/7/2019

1. Differential is distance between objects
2. SO.
 1. Because I am working on "public class BALL", right, I don't need to explicitly state that I am working with OBJECT if I'm in that class.
 1. i.e. In working on public class BALL, I can simply say "transform.position" which refers to, directly calls up, the object of the ball.
3. Functions must be written exactly.
 1. If $\neq$ if.
4. Terminology
 1. Prefab = Prefabricated templates that can be deployed
 1. Can include any number of assets: camera, canvas, parents, etc.

22. 11/11/2019

1. Audio terminology
 1. Audio Listener - "hearing the sound"
 1. Typically attached to the camera

2. These are attached to objects

2. Audio Source - "Playing the Sound"

3. Audio Clip - "The Sound"

23. 11/21/2019

1. Getting back to it! Woof. 10 days.

2. I've been observed twice since the 11th, sent off a book proposal (fingers crossed), and given a Diss. Talk at the DH Locus. SO.

3. Trying to get back into the swing of things.

4. PlayOneShot: plays the entire sound before playing the next one

5. Play: plays the immediate sound which can cut off a previous/ongoing sound.

6. PlayClipAtPoint: plays audio clip after object has been destroyed, BUT, needs position of object BECAUSE it plays a 3-dimensional sound (WHAT)

24. 11/23/2019

1. The following is a series of handwritten notes detailing some of the organic game design of the project as well as the dissertation process.

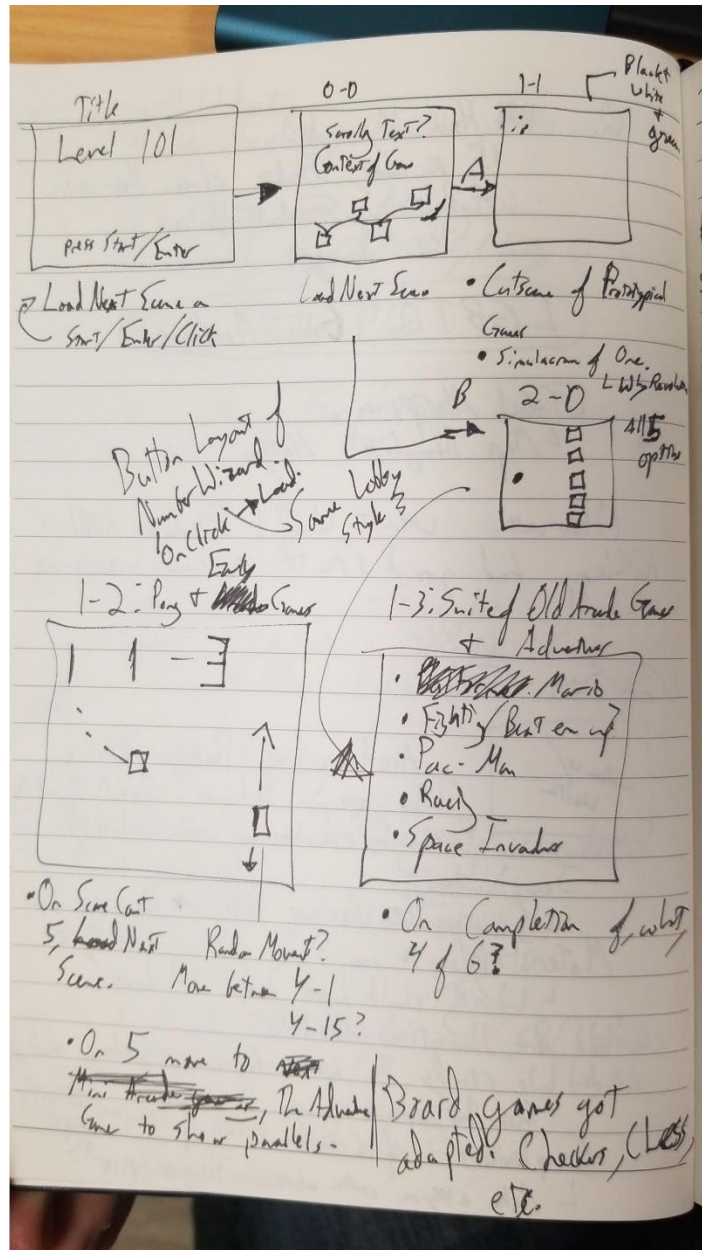


Figure 5: Page 1 of 3 for handwritten notes on 11/23/2019 detailing early planning for World 1

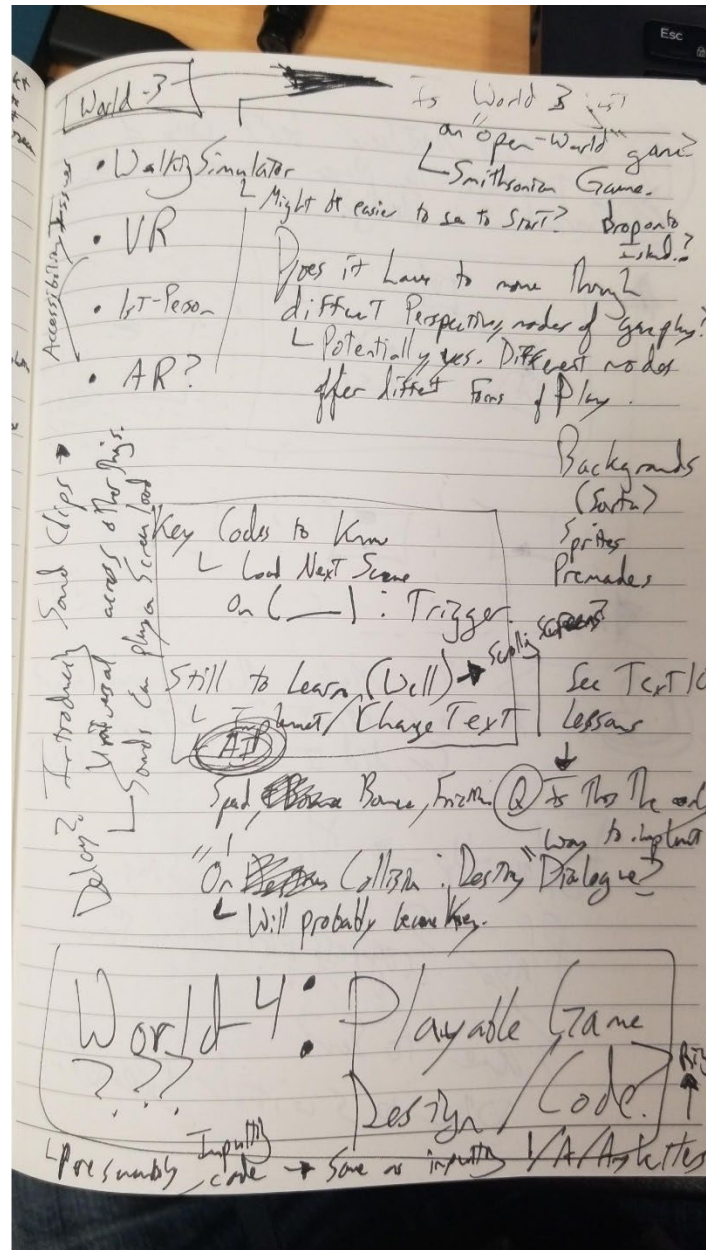


Figure 6: Page 2 of 3 for handwritten notes on 11/23/2019 detailing early planning for World 3 and an unmade World 4

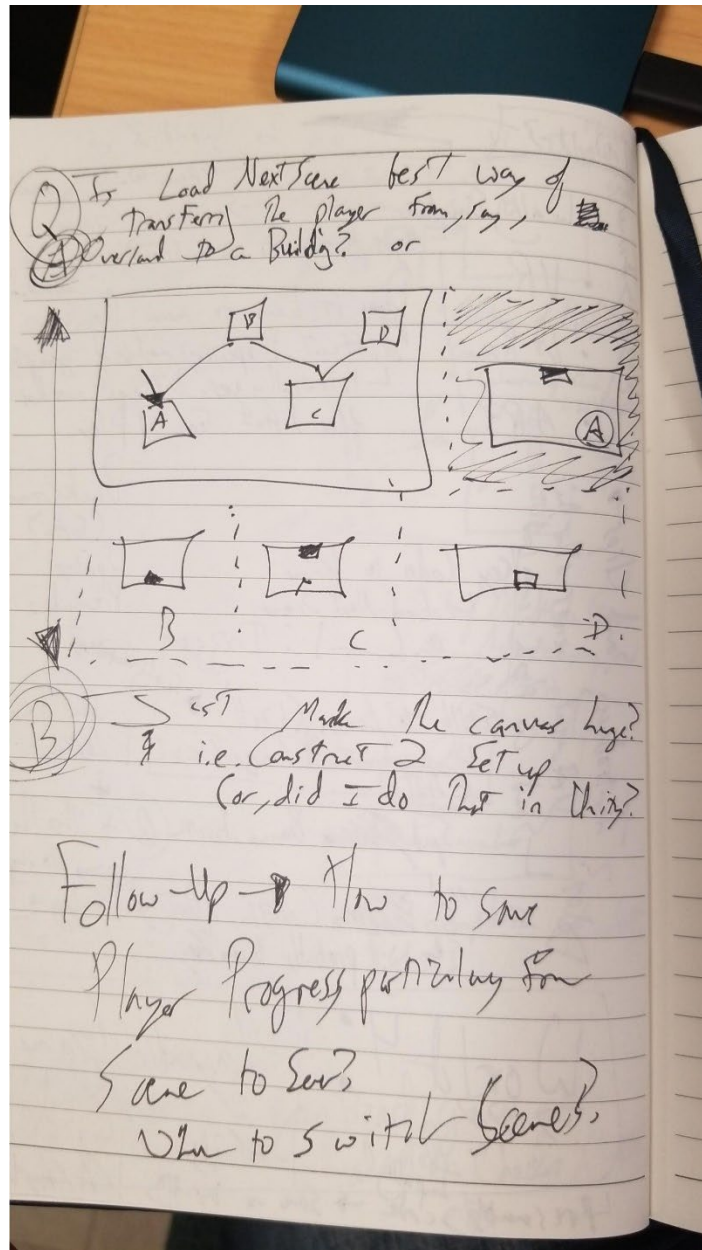


Figure 7: Page 3 of 3 for handwritten notes on 11/23/2019 detailing early planning on gameplay.

25. 11/26/2019

1. Worked very briefly on the project today. Made progress on "Brick-A-Break"

26. 11/27/2019 (My birthday!)

1. One thing I've noticed is that there is an audio issue in my game as a result of following the video's issue.
2. The audio clips provided need an ambisonic audio decoder. Ambisonics can be used with 360 degree videos, so somehow, on import (or in the code), my game now reads these 5 audioclips AS ambisonics. It's not a big deal, but one that is nagging nonetheless.
3. Figured out how to LoadNextScene based on destroying a number of blocks.
4. Working to add scores to the game!
5. Int = integer
6. Singleton Pattern --> Approach to keeping game statuses persisting from one scene to the next (DontDestroyOnLoad)

27. 12/2/2019

1. Barely any time to work on *Level 101* today with grading, lesson-planning, and other commitments, but I'm making time for it later at night.
2. Udemy has a bug. If I use the Destroy(GameObject) phrase, I need to implement the following...preceding it:
 1. gameObject.SetActive(false);

28. 12/3/2019

1. Instantiate objects (creating? Odd term).
2. To create an explosion effect, we essentially create an object (block), attached a particle effect that triggers on block destruction, then destroy THAT particle effect.

1. So, it's not just one thing. It's "If Block is touched by ball then trigger block destruction; if block is destroyed, then trigger particle effect. If particle effect is triggered, then destroy it after 1s."
2. I think.
3. NOTE: It's looking like I need to SerializeField whenever I want to introduce an object into a code?
4. NOTE: I'd really like to talk to a game programmer about Unity. Maybe reach out to Beth?

29. 12/4/2019

1. Learned how to add damage to objects
2. Affordance:
 1. Coined by Perceptual Psychologist James J. Gibson
 2. "Affordances provide strong clues to the operation of things"
 3. i.e. Visual clues to tell the player how something works

30. 12/5/2019

1. I have always been a game designer, though I have not thought of myself as such until very recently. When I was growing up, I would create "hacks" of games, made up "imagination" games, pretend and such.
 1. "Midnight Sun"
 2. Complex game dealing with checkers, chess, and other pieces.
 3. Hacked version of "Fool."
 4. Gundam version of Mageknight steeped in Heavy Gear
 5. Making games for class projects (ENG 201: zombie stand-off).

6. Learning games.

1. Early forays with edutainment
2. Gamified reading (Accelerated Reading --> Gaming the system)

31. 12/9/2019

1. Scripting thoughts: Is this just as simple as re-tooling the Adventure.cs gamescript and implementing that such that Unity...what, pulls from the different text documents I have, and puts them into...chat windows? Or, is there an easier/more common version?

32. 12/10/2019

1. We will cache components and items that are constantly getting called (say, once every frame or whatever) so that the computer isn't constantly going back and forth back and forth)
2. Udemy: "For game design, first ask 'How can I change what exists to be more fun, more engaging, more challenging?', rather than 'what new features can I implement?'"
3. In other words, what I can I tune before implementing?
4. Variables = lowercase letters first
5. Methods = capital letter first
6. Finally finished the "Block Breaker" section of the course!
7. Instructor hangouts: Rick & Ben are talking about Block Breaker, and how part of their design philosophy revolves around the digital space being nigh-perfect (that, in reality, everything has texture, has imperfections, has flaws; not so in, say, a digital block we just created).

33. 12/11/2019

1. Starting the Laser Defender project
2. Create Gameplay Screens
3. Create Core Game Design
4. Assets to create laser defender
 1. Player asset
 2. Enemies
 3. Background
 4. Bullets
 5. Sound Effects
5. For now, I want to start with the pre-packaged assets, for sake of trying to understand more of the program and jumping in to the learning.
6. Kenney.nl --> free assets for use
7. Aspect Ratio: 9x16 is more mobile friendly
8. Add Canvas
 1. Change from constant pixel size to "Scale with screen size"
9. Add Sprite
 1. Create Component "Sprite Renderer"
10. Input.GetAxis() allows us to call upon the axis settings of our projects which already correspond to a lot of directional input
11. Time.deltaTime -- makes the game framerate independent (no matter how fast/slow your computer is, always runs at same framerate)
12. Viewpoint to Worldpoint
13. "What feature next?"

1. Feature areas:

1. Core

1. Player movement (done)
2. Player shooting (next)
3. Player Health (need damage first; 4th)
4. Enemy Movement (grouped with e; 3rd)
5. Spawn Enemy Waves (grouped with d; 3rd)
6. Enemy Health (need damage first; 4th)

2. Secondary

1. Score
2. Enemy Shooting

3. Polish (fill in as we go)

1. Visual Effects
2. Sound effects
3. Menus/screens
4. Content/tuning

14. Coroutine:

1. A method which can suspend (otherwise known as yield) its execution until the yield instructions you gave it are met. Example:

1. When player gets to zero health, start the *KillPlayer* coroutine:

1. Trigger the death animation
2. Yield (wait) for 3 seconds (or until animation ends)
3. Restart the level

- i. The YIELD is super important here.
- 2. SO. The StartCoroutine ****IS**** IEnumerator.
- 3. IEnumerator is a CoRoutine. Typing that out is Calling it, is Starting it.
- 4. Wait, no.
- 5. So, we set the Start up earlier. Has to be in "curly brackets," and then it will run.
- 6. THIS is calling up the coroutine.
- 7. IEnumerator is the class.
- 8. REVISIT CLASSES AND METHODS AND THAT HIERARCHY

15. 12/12/2019

- 1. Implemented game object shredder

34. 12/13/2019

- 1. Learning about enemy pathing
- 2. Video suggestion: write a code flow (pseudocode)
 - 1. // if not yet reached last waypoint then...
 - 1. // MoveTowards() target waypoint
 - 2. // check if we've reached the target
 - 1. If so, increment target waypoint
 - 2. If have reached last waypoint
 - 1. // Destroy enemy gameObject

35. 12/18/2019

- 1. Wrapped up grading for the semester earlier in the week and over the weekend, WHICH MEANS, I haven't gotten to do much class work in a few days.

2. Couple that with syllabus planning for the new semester, juggling other projects, and trying to revisit old ones...and, yeah. Just haven't made as much progress as I'd like.
3. Today, worked on WaveConfig, and reconfigured the script to be a bit more streamlined. Condensed some of the scripts in WaveConfig, EnemyPathing, and EnemySpawner to be more direct.

36. 1/6/2020

1. 2020!!!
2. Took a break over winter to recharge after a long semester. Also applied for funding for longer term vision of the project.

37. 1/7/2020

1. Learned more about co-routines
2. Learned about "Do while (looping)"
3. Create one DamageDealer script, apply to all prefabs that will deal with damage.
4. We will serialize a damage variable to make it independent on these prefabs.
5. Reminder: Type/Class has UpperCase, variables have lowerCase.
6. Learned how to implement health and shooting and damage
7. Currently working on enemy shooting. Adding a shot counter to count down

38. 1/8/2020

1. `if (!damageDealer) { return; }`
2. Allows us to say "if there is no damageDealer present in script, return to top."

39. 1/9/2020

1. Adding audio!
2. Task: conduct an audit of what audio you will actually need.

3. I managed it! This was a really good successful day for me.
4. At one point, I tried to put together a demo and splice a few of my, well, demo games together. And, it didn't work well. Part of that was being in a rush, and part of it was just being maybe 2 lessons away from things connecting the way they were designed to.
5. Today, however, I was able to accomplish these Udemmy challenges really quickly and effectively! I understood the task and was able to complete it!
6. My goal for this week has been to program for roughly 90 minutes each day. I'd like to get more done, but with it being the first week of a new semester, I needed to lesson plan, teach, lesson plan and teach again, set up the D2L course shell...etc. I'm happy with getting 90 minutes done each day so far. It's not enough, but that habit is necessary.

40. 1/10/2020

1. When creating menu/level-loading:
 1. using `UnityEngine.SceneManagement`; up in top
 2. Delete pre-existing stuff.
 3. Create public methods.
 4. To avoid donking up prefabs, right-click the object in your scene, and select "unpack prefab completely"

41. 1/11/2020

1. Wrapped up some of the scene-loading
2. Created death animations

42. 1/13/2020

1. Tying scenes together
2. Created death function so that on death, there is a delay and then the game over screen pops
3. Adding music (Singleton function creates fluid music across scenes [might be useful for multiple scenes in a row with no cutscenes/lectures]. Unsure as to whether this function...allows for multiple tracks.
4. TextMeshPro: Have to make sure to add TMP namespace to top of script sheet

43. 1/16/2020

1. Update: Singleton allows persistent objects.
2. Finished Laser Defender!*
1. *sorta. There is an issue with the Build Settings that causes the resolution & text to be super messed up. BUT. The overall game is completed.
3. I'm choosing to move on at this point for two reasons:
 1. Unfortunately, other work calls. Teaching, lesson planning, and other research/committee obligations.
 2. This isn't my project. I have ownership over it, but really, it's the Udemy project. So, at a certain point, I will port over that code and those functions, build my own shooter, but for now, I'm satisfied to have completed it.
 3. Took me a little over a month of 1-2 hours...about 3x-4x a week. Not a great work-time-balance.

44. 1/27/20

1. Life update: SO! I'm finally back to work.

1. Increasingly, I find myself wrapped up in the tension between learning how to program (Udemy, Unity, these demo games, etc.), wanting to start Level 101 proper but not feeling quite confident about my proficiency yet, and having to complete all my normal obligations (teaching a brand-new course, Graphic Possibilities, committee work), alongside of trying to present & publish (co-editing a book, trying to make progress on another co-edited book).
 2. Undergirding all of that is a desire and need to try and get something published in a journal. I have...several, drafts of articles that need to just be revisited and sent out, but I keep finding ways to procrastinate on them.
 3. Couple that with more deadlines, new opportunities, and just trying to live life, and I find myself just gently putting out small fires before they turn into big ones.
 4. It's really not bad, but I'm looking forward to a time & place where I at least feel comfortable enough to actually start on Level 101.
2. More musings:
1. What I'm constantly learning is that it is **remarkable** that anyone has made video games...ever.
 2. They're incredibly complex artifacts, consisting of moving programs and functions that all must, more or less, interact without getting in the way of one another.
 3. I understand how older games got made (to a degree). Taking something like *Pong* or even *Space Invaders*, as examples, these games are comprised of a finite amount of code, and a finite amount of events and actions to account

for. They're not perfect, but given my current knowledge, I can at least see the amount of effort put into their composition.

4. Which is to say nothing of the actual ludic qualities, their designs, their affordances, their artwork/soundtracks/narratives, and their player experiences.
5. Musings aside, this Udemmy program is really helpful.
6. There are still some (many [so many!]) things I don't know yet that I'm hoping to learn.

1. I still don't quite know how to effectively include text and chat throughout a game. Would love to learn how to include Guideposts (Super Mario World's speakerboxes, as an example).

2. I don't really know how to create, say, cutscenes.

7. Plus side: I GOT A GRANT TO GO DO ARCHIVAL WORK AT THE STRONG MUSEUM OF PLAY!!!

3. Editorial note: This did not happen due to the COVID-19 pandemic.

45. 1/28/2020

1. First day of trying to do double sessions. Which, still isn't much, but, it's a start.
2. Also, I have to present a demo of *Level 101*, in some form, to the Game Studies Guild on Feb. 12. It might be time to just buckle down and get something done on it.
3. Update:
 1. I've started it. Sort of.
 2. Boy. Creating everything, ground up, without an instructor, without a step-by-step process is...daunting, to say the least.

3. But, tonight, I was able to create a mock Title Screen, create a button (well, repurpose my Scene Loader script), and have music play on load.
4. Goals for tomorrow:
 1. Create a Game Design Document for Demo.
 2. Create a tutorial/game setup screen with moving/interacting dialogue functionality.
 3. Create a game lobby that connects to multiple scenes.
 1. These scenes should eventually be the history/arcade games.
5. Goals by end of week.
 1. Implement dialogue.

45. 1/29/2020

0. Update:
 1. Started Game Design Document, aka, my Jurassic Park Journal.
 2. Going to Lesson Plan and Grade before I diss. I should probably do that in reverse, but I'm worried that once I start programming, I won't want to stop.
1. Pause notes:
 1. DIALOGUE NOT WORKING??!?!?

46. 2/1/2020

1. Fixed it!

47. 2/3/2020

1. <https://imgur.com/a/eVEEhru> -- Incredible pixel art background! Too much for me, though. Good inspiration.

2. Trying to work from at least 8:30am-12pm on Level 101 on Mondays and Wednesdays. Minimum.
3. Currently developing some art for Level 101. And by developing Art, I mean, poorly creating pixel art of a photo of Houghton Lake.

48. 2/4/2020

1. Hey! It's my mom's birthday today!
2. Added a loading coroutine (I will never spell that right on the first try), so that there is a short splash screen on starting the game, then it goes to the title screen.
3. Wants:
 1. "Wake Up": Play light music until player hits Continue, and then it fades to white, then fades to next scene.
4. Need:
 1. Address dialogue bug in 0.3.
 1. [Test to see if I fixed it]Dialogue is tied to Start Button. But, all of it is housed on the Continue button.
5. Musing:
 1. Two days of 3-4hrs in the morning, and I feel like I've made more progress than in the past 3-4 weeks, knowledge and production-wise. Feels good to be making my own strange, slow, simple thing.

49. 2/5/2020

1. Worked for 4 hours, and have been getting stuck in the pong level
2. Completely stymied by a background+camera issue
3. Eventually got it fixed, but totally derailed me for a couple of hours

50. 2/7/2020

1. I'm trying out two new online videos.
2. 1st is making Unity 2D Pong Game in 20 Minutes by Tanay Singhal: Unity 2D Pong Game in 20 Minutes
3. The other is Pong in 4 minutes by MikeGeigTV: Updated: Pong Made in Unity in 4 Minutes
4. Anyways. I'm trying to find a video that is more directly applicable here. Singhal is really clear, and seems like he's coding smarter, not harder.
 1. MikeGeig made it work, and it works fine, but doesn't have some of the components that I'm looking for (just yet).
5. Two important lessons:
 1. `Time.timeScale = 0;` This function will freeze the time
 2. `enabled = false;` disables the script
 1. Enabled is inherent to ALL scripts! This will stop updates, and maybe entire script?
6. FINISHED a pong-clone. It ain't perfect, but it's got functionality.
7. Still to do:
 1. Implement text
 2. Implement a way to move to the next scene
 3. Implement a scoring mechanic

52. 2/27/20

1. Long time between typed updates
2. Handwritten ones in Jurassic Park journal.
3. Short: Pong level is completed and finished, skeleton-wise.

4. Two main goals:

1. Implement text from text script (and create a prefab to do so).

1. Text Dialogue itself
2. Button to move through
3. Window that moves and wipes away after being used.
4. One that can be called several times throughout a game.

2. Implement a start button for the Pong game.

1. I think the stuff being tied to GameManager stinks. It doesn't feel intuitive.
2. Should be able to click a button that essentially:
 1. Instantiates objects
 2. Starts the direction and rotation of the pongball.

53. 3/17/20: First time touching the dissertation since Coronavirus

1. Things have gotten weird, but I'm back to trying to work on this project.
2. Trying to jump back into things isn't taking as much time as it used to. I'm becoming more fluent in C#, more fluent in my own game design, and more fluent in Unity.
 1. Which is weird.
3. Immediate Level 101 goals.
 1. Spawn game objects as clones and NOT as the assets
 2. Destroy game objects on score
 3. Enable Textbox Window et al
 4. Load 2nd script.

4. Coming up on about 8 months of truly giving this a go, and about 1.5 months of making MY project.

1. It's slow going, but rewarding.

54. 3/19/20

1. I've started reaching out to forums and gamedev communities more. I'm posting on the Unity Help forums to get some insight into 1-1 problems, and I've joined a small gamedev community on Discord, run by James Doyle (a gamedev teacher).
2. Currently, the Unity help forums have been the quickest way to get help, which is really rad and exciting. I'd like to get to a point where I can help troubleshoot some of that stuff.
3. My plan is to shelve Pong (1-1) and World 1 for now, to make progress on World 2. I think I need to skill up to get further in World 1, which is a very video game-centric way of learning and gaining experience.

55. 3/25/20

1. I definitely hit a wall with Pong. Am starting James Doyle's course on 2D platforming, which I hope to use for World 2 and some of World 1.

1. Importing pixel sprites

1. 16 pixels per unit for Retro-style games.

1. 8 -- NES style games.

2. Compression: none

3. Filter mode: point (no filter)

4. Sprite mode: Multiple

1. Makes sprites disappear (because unity doesn't know where sprites are)
2. We need to chop the sprites out.
5. Slice multiple:
 1. Slice by cell grid
 2. 32x32
 3. Padding of 1 on x (to account for the sprite sheet being 132 x 32, i.e. 128+4 x 32).
 4. Apply
 6. Click arrow to grab first sprite image in black window
 7. Drag to SCENE
 8. Rename to Player
2. Working on adding player movement.
 1. Float moveSpeed.
 2. Public Rigidbody2d [name]
 1. Drag player object in
 3. [name].[Rigidbody2d component aka gravity/velocity/whatever] =

 // what we can do is call components of Rigidbody 2d, including mass, gravity, etc.

 // we are creating a new Vector2 to replace the extant original one.

 // we want our x-value of our new Vector2 velocity to be equal to movespeed

 // we want our y-value to be original, hence the .y

// need to multiply velocity by player input so that it is not independently
rocketing off

4. So, we need to also add a variable for the jump so that it can be called.

5. If(Input.GetButton[same/down/up]("Jump")

1. GetButton = held down

2. Down = on press

3. Up = on release

6. James' DevTip:

1. Increase gravity scale on platformer body.

1. This way, we come down much faster.

56. 3/31/20

1. Change rigid body to continuous so that player doesn't go THROUGH the game on
update

2. Add Physics Material, call it "Slippy," and decrease friction to zero

3. Added an empty object to player with a bool, and then CALLED that Transform as a
component, which is super interesting.

1. Our bool is based on whether the player's ground check empty object is in line
with the ground and only on that particular layer.

2. SO. We call the Layermask (as part of that physics Bool), and establish it as a
variable which we can slot in/assign.

1. These layers can be checked at the same time, so we can add platforms
into the mix.

4. Adding animations

1. Have sprite clicked
 1. Go to animation window
 2. Drop-down menu, create new animation clip
 3. Drag-drop animation sprites in one by one
 4. Try out :10 apart
2. Go to the animation sprites
3. Animator
 1. Right click boxes
 2. Add transitions
 3. Have transition clicked
 4. Modify transition duration to be zero
 5. Has exit time (no)
 6. Add parameter to transition in animator
 7. Add condition to transition in Inspector
4. At this point, we've done everything we can in the interface. Our code doesn't know what to read this as, so we need to change the code.
 1. If we add a PRIVATE Animator to the script, that will automatically attach the animations already attached to that sprite, even if it doesn't show in the Debug view.
 2. Down in Update, we set these:
 1. `anim.SetFloat("name of Float anim", value of the float);`
 2. `anim.SetBool("name of Bool anim", value of the bool);`

3. BUT, need to mirror these. Can do so with adding new transitions and animations, OR, use `Mathf.abs` to get the absolute value, rather than the negative value attached to movement with new transitions.

5. Adding a camera

1. Could drag and drop this to the player, which follows them, even when they jump
2. OR, offer a different way so that we have more control over the camera.

57. 4/1/20

1. `MathF.clamp` to keep the camera positioned between specific X & Y coordinates
2. Creating tilemaps and adding physics (don't simply use the tilemap collider whole-cloth for an entire spritesheet, as this creates an infinite number of collisions behind the scenes and will slow the game down). Instead, use a composite collider in concert
 1. Add Tilemap Collider 2D, add Rigidbody 2D, add Composite Collider 2d
 2. Go to Tilemap collider, then Used by Composite
 1. This changes lines, but sometimes the player-sprite can move too fast, and move THROUGH one of the lines
 3. Go to Composite, then change geometry types from OUTLINES to POLYGONS.
 1. Makes a SOLID object, not just an outline of an object.
 4. Go to Rigidbody, change body type to Kinematic.
 1. This takes away the gravity scale and keeps the object in-place within the air.

5. Go to Tilemap itself, then tilemap renderer, then change sorting layer (under additional settings) to World (tiles)
3. Make sure to make prefabs out of everything (obvi)
 1. Add in
4. Made good progress, both in this and in life-stuff!
 1. ENG 342, zine projects, etc.

58. 4/2/20

1. For spikes and other sprites, make them triggers (interactable)
2. Public static SCRIPT instance
 1. Private void Awake() { instance = this; }
 1. This allows us to call the instance of that script all over, rather than go "FindObjectOfType" every time.
 2. See James Videos Section 6
3. One really interesting point of creating a game is thinking about what you want the game to do, then think about the front-end visual OR end-result effect, and then trying to parse out what that looks like behind the scenes logically, then actually creating the function, then going back to the front-end to make sure it works, and then going to the GAME to see that it plays the way you want, and repeating this logic-loop forever.
4. UIController:
 1. Switch
 2. Case 3, 2, 1, 0
 1. Affords counting in a different way. When X, change to Y.

3. Changed max health to 6, added 3 more cases for half-health visuals (instead of using decimals or something).

59. 4/3/20

1. Important note: We can't directly change component values, but we can read out component values.
2. I.e. `theSR = GetComponent<SpriteRenderer>();`
 1. `theSR.color.a = ____` DOES NOT WORK because Unity doesn't want us directly changing this. But we can ACCESS this, then change it by DECLARING a new color value.
 2. Unity reads color values on a scale between 0 and 1, not 0 and 255.
 3. Change something to be transparent by putting in the color values (new `color(____, .5f);`
3. ANIMATION
 1. For the most part, we can have NO exit time
 2. However, sometimes we want an exit time
 3. On the hurt animation, even though the transition is only .25, we built the animation for .5 seconds
 4. On the hurt transition back to idle, we change to HAS exit time
 5. Exit time of .5

60. 4/7/20

1. Effects creation process
 1. Drag one frame into inspector
 2. Create animation

3. Add frames to animation
4. Add one extra final frame to both end of animation and at one second mark
5. Go to end of animation
6. Record
7. Turn sprite renderer off
8. Stop record
9. Add destroyovertime script
10. Set to .5
11. Make sure it is referenced properly in the game object scripts

2. Creating enemies

1. Drag frame of sprite into game
2. Create empty child object (so it is at exact position of sprite)
3. Un-child the empty
4. Drag sprite into empty as a child
 1. This whole process allows us to move the sprite without moving the object within the world
5. Add animation to parent
 1. Do not add frames to this animator
 2. Hit record
 3. Go to sprite
 4. Go to :05
 5. Drag Frame #2 into the SPRITE RENDERER
 6. :10, Drag Frame #3 in, and so on.

61. 4/8/20

1. MoveCount/MoveTime, waitCount/waitTime
2. Random.Range(moveTime *.75f, moveTime * 1.25f)
 1. Allows for a more natural-feeling game
 2. Increases immersiveness
 3. Animation: dope-sheet for the actual frames, use curves to control the actual time movement.
3. Tags
 1. If one doesn't exist that we want to call, just create it (i.e. "Enemy")
 2. We create the tag on any object, doesn't matter
 3. We **add** the tag to the object that has the collider (not always the parent)
4. If you create a value (say, a float) inside of a statement, it will only be accessible *within* that statement.

62. 4/14/20

1. Creating a world menu map
 1. Think -- Super Mario 3
 2. Smart move: a playable menu
2. Need to create new menu choice items.
 1. Developed!!!!
 2. I've been working on learning pixel art (some), so I can create things that I didn't have before.
- 3..GetAxis = smooth acceleration from origin to speedpoint (0 to 1)
- 4..GetAxisRaw = instant 0 to 1

5. Circuit board overworld
6. LateUpdate()
 1. Happens **after** all of the other Update Cycles.
 2. i.e. Camera can always follow the player.
7. PlayerPrefs -- simple way to store information from level to level
 1. Cannot store a bool
 2. Can store string values
 3. So, we can have it store numbers instead of a bool
 1. 1 = true
 2. 0 = false
 4. PlayerPrefs.HasKey (HasKey is how you check whether there is anything stored IN the PlayerPrefs)

63. 4/15/20

1. Raycast Target on panels will make them clickable.
2. Potential future issue:
 1. Rather than de-clicking Raycast Target, I simply put the fadescreen above the menu items in the prefab. If that's an issue, move down, and de-select the Raycast Target box.
3. Potential future issue:

64. 4/17/20

1. Created more enemy AI
2. Created Doors & Switches
3. Will be starting off the next time with a challenge: create a "Slammer"

65. 4/23/20

1. Spent all yesterday trying to make the Slammer work. It wasn't.
2. Finally figured it out, enough, at least.
 1. This isn't perfect yet, so I want to spend the rest of the day trying to finetune it, and head a bug off at the pass.
3. Somebody on the Games Plus James discord gave me a piece of advice that struck me as being quite profound:
 1. "it's code, not poetry. it's beauty is in the result, not the journey ;) " Lokk
 2. This is fundamentally different than how we approach things in the Humanities, I think.

66. 5/7/2020

1. Finished tutorial from GamesPlusJames
2. Slammer -- not working right still. Revisit.
 1. Push Platform 2 flush up against wall

67. 5/12/2020

1. Finished the dialogue tutorial, and now I feel confident enough to move forward! I've got some working functionality, so I'd like to push way forward on getting Chapter 2 developed.

68. 5/20/2020

1. I've started moving faster through the levels, and hooked up functionality enough to get a brief demo out to writing group.

0. 5/21/2020 -- Feedback from first playtest

1. Bugs:

1. Words are off the screen on the left-side & right side.
2. Porting created odd issues.
2. Likes:
 1. Music
 1. Upbeat during the levels
 2. Sped up during boss fight
 2. Art style
 1. Light, clear.
 3. Positive reinforcement of feedback
 4. Structure:
 1. Easy to follow & proceed
 2. Variety of tasks (jump, attack enemies, platforming, finding a switch, boss sequence).
 3. "Move closer!" was a great no-stakes way to teach movement.
 4. Learning and applying as you go.
3. Suggestions:
 1. Dialogue:
 1. More asides, more thought-processes to make it easier to read.
 2. More moments for interaction within the lecture to break up the dialogue (up/down choices, yes/no -- some kind of agency)
 3. Have a label in the corner for "who" is speaking.
 4. Can you replay the dialogue? (Whether in a "Did you get all that?" or just replay the dialogue levels.)

5. Make the dialogue consistent, particularly with quotation marks.
2. Feedback
 1. Boss flash when it is hit
 1. "Player flashes when they're hit"
 2. Make lessons appear after a certain number of deaths.
3. Level
 1. Make moving platform larger.
 2. Make frog enemies smaller.
4. Overall
 1. Instruction/control screens.
 2. Summary screen/reflection screen after level completion
 3. Maybe a quick lecture from Prof Wig?

70. 5/22/20

1. PLAYTESTING Suggestions:

1. Dialogue:
 1. More asides, more thought-processes to make it easier to read.
 1. Have asides pop up as chat bubbles?
 2. Place the asides into the chat bubble (use additional script files)
 2. More moments for interaction within the lecture to break up the dialogue (up/down choices, yes/no -- some kind of agency)
 1. Try to find a text adventure video. Or an RPG video.
 2. Old Level 101 build, with the dungeon?
 3. Have a label in the corner for "who" is speaking.

1. Brackeys dialogue system?
4. Can you replay the dialogue? (Whether in a "Did you get all that?" or just replay the dialogue levels.)
 1. Replay the level
 2. "Lecture" item somehow that enables a replay or maybe just the full text dialogue of the lecture.
5. Make the dialogue consistent, particularly with quotation marks.
 1. See 1.i.3
2. Feedback
 1. Boss flash when it is hit
 1. Apply same code from Player Health Controller
 2. PROBLEM: The Boss Battle Object doesn't have a Sprite Tenderer attached to be modified.
 3. Potential Solution:
 2. Make lessons appear after a certain number of deaths.
 1. Add internal counter.
 2. When boss kills player 3-5 times, have a new version of Justin appear.
3. Level
 1. Make moving platform larger.
 1. Add an additional platform.
 2. Make frog enemies smaller.
 1. Shrink by 20% at least.

2. ISSUE: must also adjust the height of the animation.
 3. Solution: Adjusted entire Transform.
3. JW:
 1. Add a sign that indicates FLYING EAGLES.
 - i. SOLUTION #1: Find/make a pixellated sign.
 2. Stretch vertical platform before bounce pad to have this sign.
4. Overall
 1. Instruction/control screens.
 1. Just add these before levels.
 2. Create title screen for each level
 - i. Similar to Summary Screen
 - ii. Or just an animation?
 1. Black Screen
 2. Fade-in of "Level 2-1"
 3. Fade-out
 4. Fade-in to Level start
 3. Pixellated keyboard icons.
 - i. ESC = Pause
 - ii. ENTER = Moving through conversation
 - iii. T = starting conversations (when appropriate)
 - iv. Arrow keys and space bar
 2. Summary screen/reflection screen after level completion
 1. Gems collected, etc.

2. If Gem #1 is collected, appear on title screen.
3. 2 solutions:
 - i. Create a new Level Completion Scene. This might need to be unique for every level.
 1. This also seems over complicated. Smarter, not harder.
 - ii. Create a sprite with text and symbols that autcounts when a gem gets collected.
 1. This should be easy enough to do.
3. Maybe a quick lecture from Prof Wig?
 1. New Screen with recap lecture loaded.

71. 5/28/2020

1. Updated a few bugs.

72. 6/1/2020

1. Updated a few bugs.
2. Backed up my folder.

73. 6/2/2020

1. Managed to implement the chat bubble sign, as well as an activated sign sprite.
2. Need to fix the Level Select Issue.
 1. Is this because I went through and messed with the placeholders on accident to clean them up? May just need to start that module over, re-build it from scratch, and hook up the levels differently.

3. Modified the SunnyLand tileset, as an exercise, to see about changing it from grass to Lava.

1. The colors need to be flipped. I put lava on top, but it would make sense to be the interior, and have the "magma," the dark blue/purple, be what the players walk on top of.
2. Snow & ice would be easy as well. Snow is different shades of white outlined by blue, then interior is dark grey.

74. 6/4/2020

1. Prepare a movie cinematic/playthrough of the game for accessibility.

75. 6/5/2020

1. Created artwork for the last world menu
2. Modify as you go:
 1. Sunrise -- Daytime -- Sunset -- Moon
3. Why shouldn't the pong level just be one scene after another?
 2. That's...that's a lot of scenes.

4. NOTES ON PRESERVATION

1. Already, I'm going back to old builds, and remembering that I made them with old versions of Unity.
2. Even if Unity continues supporting these, at some point, they may not.
3. Outputting this to a Raspberry Pi 4, with an attached SSD, at least ensures that it can be hooked up to most any monitor.
4. This provides a stable preservation model. Nintendos and Ataris and even the Brown Box are all still stable.

5. Chalkboard update:

1. Went back and reviewed what I'd created for Udemmy
2. The Text 101 game runs off States. So, it doesn't properly load in text like most folks do that I'm seeing, but instead, moves players through different "states" of the same game.
3. That...that I could see working with Pong, oddly enough, but probably wouldn't be particularly helpful right now.

76. 6/22/20

1. I haven't worked on the project for a little over two weeks for three reasons:
 1. I've been working to my SyFy Channel edited collection
 2. I've been working to get some other articles out the door
 3. I went back home to Iowa for a funeral
2. Sadly, dissertating doesn't mean stopping other work or ignoring life, and I have a rough time trying to balance everything. Some week's I'll be in a good rhythm of working on something for 1-2 hours and moving on, and other weeks I need to do "whole-ass one thing" as Ron Swanson might say. Last week was one of the latter.
3. So. I think it's time for a reassessment of what I still need to get done by end of summer to have one chapter completed.
4. ALSO -- I re-opened my dissertation project, and couldn't find my asset library. Turns out, I had just uploaded it to my OneDrive and forgot. *sigh*
5. At this point, I'm proceeding full steam ahead with trying to finish Chapter 2 by the end of the summer.
6. Chapter 2:

1. Dialogue for all 5 chapters.
2. Signs with dialogue
 1.  Wood sign panel, not just chat bubble
3. UI feedback that shows the gems.
 1. Gems give additional feedback on pickup.
 1.  Pop-ups? Animations? Cut-scenes?
4. This is also the point that I need to make sure I'm satisfied with these five points. Update: I think NOW I'm satisfied.
 - 2-1: Rules (constraints on controls, success/fail states, scoring, boundaries, etc.)
 - Learning Outcome:
 - Critical Conversations:
 - 2-2: Space (visible/unseen space, imagined space, player-space vs creator space, etc.)
 - Learning Outcome:
 - 2-3: Time (player time, game time, digital time vs real-time, etc.)
 - Learning Outcome:
 - 2-4: Mechanics (core gameplay, player actions/reactions/effects, conflict, feedback [visual, audio, rewards]. etc.)
 - Learning Outcome:
 - 2-5: Representation (Avatar, enemies, symbology, stand-ins, etc.)
 - Learning Outcome:

Future levels:

Representation

Feedback (visual, audio, haptic, etc)

REFLECTION:

I have to refamiliarize myself not just with what I was doing the last time I left off, but with Unity, game design, and C#.

8/18/20

WELL. The very next day after my last entry, 6/23/20, my wife and I face some pretty frustrating and difficult rental issues. Nothing we couldn't manage, but it resulted in us moving out of our 100-year-old Gothic apartment building on 30 days' notice, moved across the state, and have not been able to work on the dissertation since.

HOWEVER, I was able to meet with my co-chairs this week and last. In these meetings, I sent over a working demo of my game, and made an aggressive timeframe for the dissertation.

8/20/2020

Apparently my pong clone doesn't work? Inputs not hooked up any more...

Anyways. Bought a pong clone on Unity Assets.

Much cleaner.

Much more effective.

Needs some work to have a mini lecture set up beforehand.

Going to try and clone the game as-is, because porting over Johan's pong game will mess up mine.

Cloned over! Now just need to modify.

PRO-TIP: Zip game, then move.

8/25/20

Coding thought: Insert variable into "TextBoxManager"

[int = Student Interjection]

If int = student interjection, open new chat bubble

[Student chat bubble]

[Student choice]

Press T-button to talk.

Primary Goals for week of 8/25:

Hook up Level Select

Connect level 1-1 together. 4 Scenes.

Lecture

Instructions

Game

Results

Level Select

9/8/20

I've been making progress over the last two weeks, just didn't put it down here.

Hooked up levels that exist currently

Developed a structure (see right) for how each level should, in theory, be constructed.

Goal for the week is to wrap up Pong, move on to integrating Tetris.

9/9/2020

Finally hooked up Pong in the way it should be (more or less).

The issue was that the original code primarily featured a Quit button or a Restart Game button. It didn't have any options for connecting to other levels.

I added in a Next Level button and a Return to Map button, but they didn't work the way they should.

After being stumped for 3 working days, I realized that the issue was in the creator's code.

Upon game completion, a Finish UI would pop up with the buttons.

When that happened, `time.scale` would drop to 0

What this means for my function is that my `FadetoBlack` function would never run. It was forever frozen at 0!

When I changed that to 1, meaning, full time, I realized that the game would run in the background because it didn't get disabled. OOPS.

Solution:

On Finish UI appearing, disable game objects

BOOM. No need to mess with time, right?

WRONG.

NEW PROBLEM:

Restart game would reset everything, but, not give the ball any physics.

NEW SOLUTION

Modify reset button to just reset the scene. Not ideal, but, a good diss is a done diss. :)

PROBLEM

Loading program doesn't quite work right.

SOLUTION:

Simple bool "isLevelToCheck"

Worked

IAMTHESMARTTESTMANALIVE.GIF

8/5/2021

I realize I did not update the digital gamedev journal here as often as I should have between September 2020 and August 2021, but I handwrote updates in my paper notebook.

In the past year, I have:

Drafted, revised, and revised again all three written chapters of the diss.

Written several articles/pubs.

Sent off the syfy book

Prepped forthcoming course on comics.

Oh, and Job Market

30+ applications

3 requests for more info

No interviews

Prepped for upcoming 2021-22 job market

Current goal: polish current alpha into something submittable for Central Michigan University Press

Immediate tasks:

Polish Overlay map.

Revise and replace Justin avatar with new avatar.

Playtest again all the way through.

Export again for upload and peer review.

OLD note: Level Completion "screen"

- Move "Level Completed" movestate to end of Summary
- Need the Chalkboard or some other icon
- If Gem #1 gets grabbed, it's turned off.
 - Turns "on" for Chalkboard.
 - Track # of deaths?

8/9/2021

Drafting, playtesting, revising, and iterating again.

Replaced Justin sprite with Professor Bailey sprite

Imported as 36px/unit, works well with scaling.

Revising overworld UI to have differently colored and numbered levels.

Grey for World 0

Blue for world 1

Red for World 2

Yellow for World 3

Can't remember how to import assets for painting on UI i.e. tilesets.

Remembered. AND they can be batch uploaded/customized/imported.

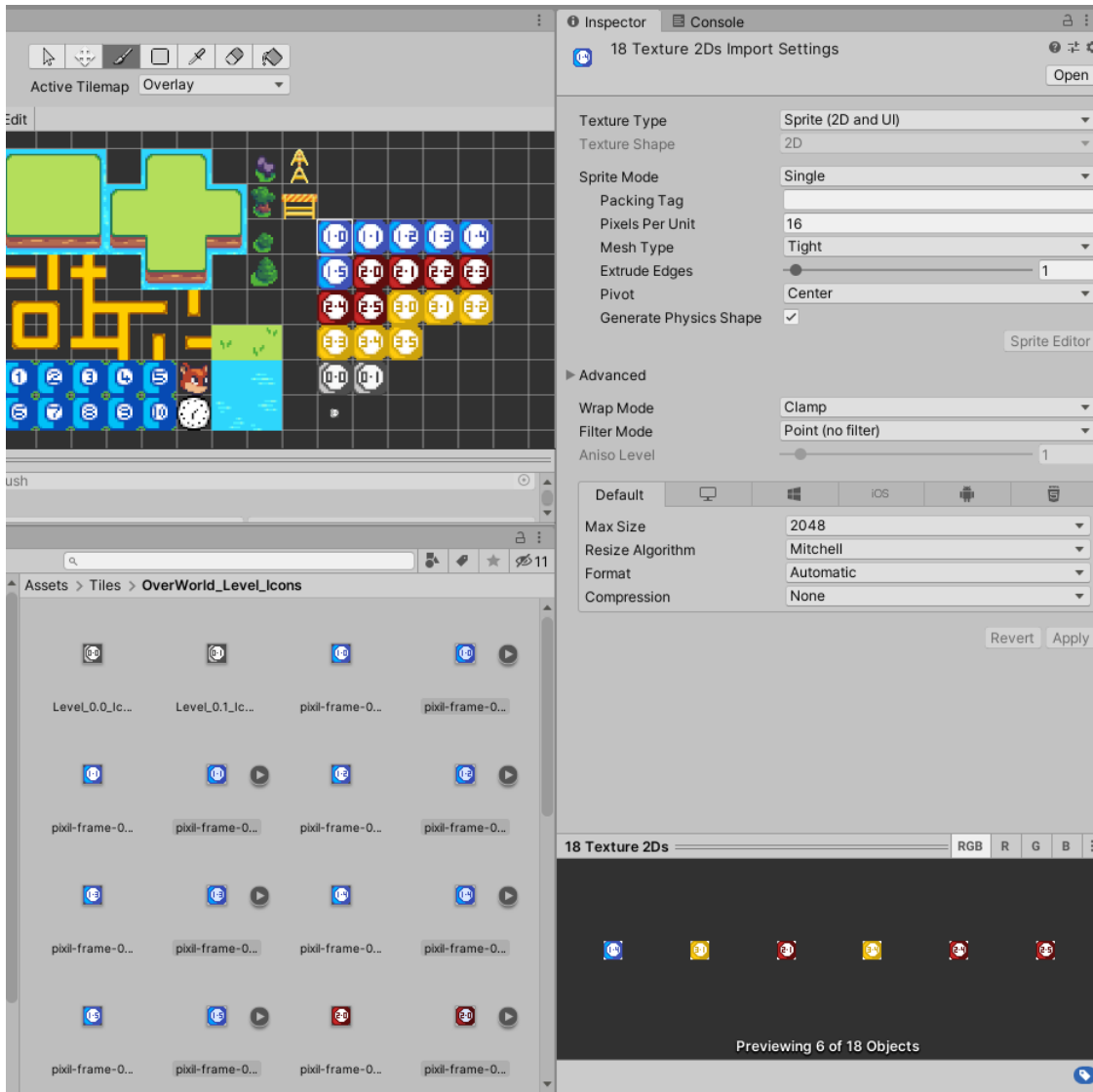


Figure 8: In-progress screen taken from Unity during development of *Level 101*'s level select screen. Note the various sub-menus for importing, selecting, and modifying sprites.

Sprite (2D and UI)

16ppu

Point filter

No compression

WELP. I exported the build, uploaded it to Itchi.io....and forgot that I updated the naming conventions of my levels.

01 --> 001. I needed something more expansive to account for the increased screens I'm including for the various levels.

000 - loading screen

001 - main menu

002 - instructions

003 - lecture

So, my loading screen...goes to an old name. And does not connect.

TASK: Make sure...all...level connectors have the proper names.

Estimated time: 30 minutes.

Current list of Scenes:

00_Loading_Screen

001_Main_Menu

002_Instructions

02_Level_Select

03_First_Lecture

04_Intersection_Lecture

9/8/2021

Working on World 3: Walking Simulator.

A few major choices:

Do I simply work with a comprehensive prefabbed 3D exploratory environment, and customize that?

1. OR
2. Build my own 3D environment, and go from there?

1. Thinking I'd rather opt for this.
2. While I'm more than content to modify and flip assets for some of my other games, I think this needs to be something I build myself. What I might do is to start with a prefabbed scene, and then customize it from there.
3. One of the major experiences I want to enact is a Low-Polygonal (low-poly) environment, emphasizing the gameplay and the wonder of exploring a 3-D world.
4. Music should be light, melodic.
5. Gameplay will be exploratory. Several paths that lead players to different kinds of walking sim interactions with critical stakes embedded and delivered in different ways.
 - i. Would love to have a climbing exercise. Climb, receive another text bit.
 - ii. Maybe something with swimming, or diving.
 - iii. Simple picking up a ball and throwing it into a circle, or throwing it up and catching it.
2. My biggest hang-up is thinking through the differences in working 3-Dimensionally vs 2-Dimensionally within Unity.
3. Create a block == Apply physics, makes sense, and then, I believe, apply text-mesh?
 1. Need to revisit Unity's in-house 3D game creation tutorial.
4. On the other hand:
 1. Option 3: use the LEGO Microgame experience?

1. This seems like a strange grey area for development & copyright licensing.
2. Confirmed. Can't use other images, even if other people give you permission.
3. Seems like a great way to teach some game design, but is not conducive to asset-flipping or actual game design & publishing.

86. 1/4/2022

1. When I exported the last build, I apparently did three things majorly, majorly incorrectly.
 1. Exported it at 960x600 instead of 1920x1080. This caused the dialogue and UI to go off the (significantly smaller) screen. More importantly, this caused the build to be unplayable. The Next Level button was **also** off the screen; it was unable to be seen, and therefore, unclickable.

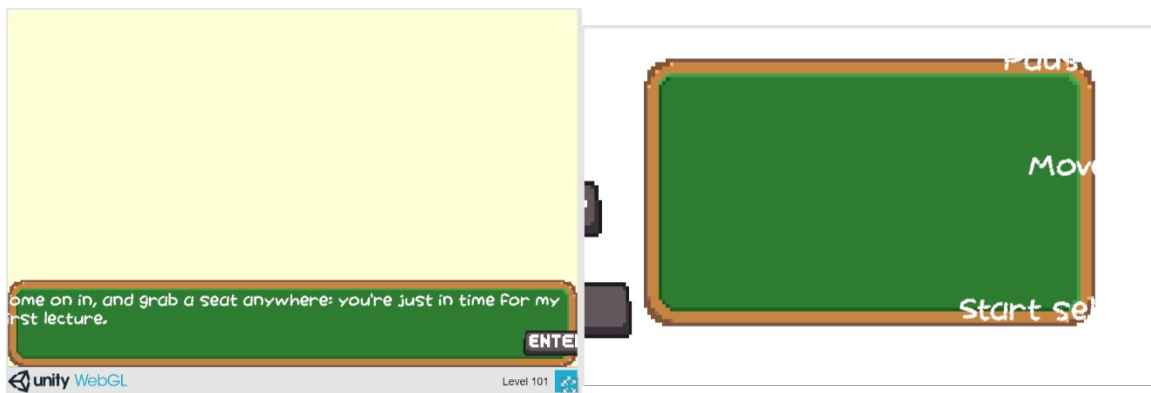


Figure 9: Screenshots of bugs found within *Level 101*'s menus and lecture sequences.

2. My best guess is that I exported a very old build at that resolution, for some reason, and Unity kept those settings.
3. But, in playtesting to see what else was amiss, I stumbled onto a broken asset in the very next stage!

4. I changed out the sprite to increase representation and decenter my own whiteness, but in doing so, I apparently didn't transfer over all of the asset connectors that are present in the lecture sequences.
5. The next step is to replay through what levels are present, triple-check that the entire thing is as bug-free as can be.

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