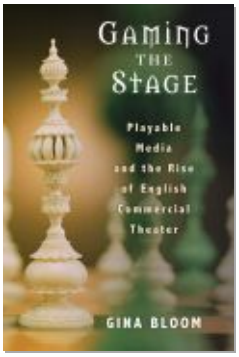
Epilogue: Participatory Spectators and the Theatricality of Kinect



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EPILOGUE | Participatory Spectators and the Theatricality of Kinect

The strong historical connection between games and theater that I have traced throughout this book has been all but forgotten in the study and making of games today. Yet not *entirely* forgotten. Links between games and theater can be felt quite palpably in the emergence in the past decade of performing arts–themed games that turn their users into rock musicians, hip-hop dancers, and celebrity vocalists.[1] These *mimetic interface games* eschew multibutton controllers, engage players' bodies in the activity represented on the screen, and emphasize the physical space of play.[2] In the game series *Just Dance*, for instance, the user mimics an onscreen dancer, and the user's bodily movements are communicated to the game's software through a simple handheld remote—or, in the case of the Xbox 360 version, via a Kinect camera, whose motion sensors read the location of the player's joints to help the software detect player movement. Because they do not require a steep learning curve, devices complex to master, and significant investment of player time, these games and the platforms on which they are played have initiated what Jesper Juul describes as a trend toward "casual" video gaming and, thus, also a broadening of the demographic for videogames.[3]

Juul and other scholars have argued that one of the main emphases of such games is their sociality. Mimetic interface games tend to be played in groups, with users sharing the same physical or virtual space, and players usually engage socially with each other around the game in addition to interacting with the game screen itself. But these games do more than transform the game space into a social space; I'd argue they also turn it into a theatrical space. In mimetic interface games, the ludic interaction is not only between player and screen or among players, but among players, screen, and nonplaying spectators. The theatrical doesn't preclude the social; in fact, as I've argued throughout this book, theatrical transactions can be understood as social transactions. But conceiving of the sociality of these games in theatrical terms sheds new light on their design

principles, their broad appeal, and the gameplay experience they produce. Mimetic interface games are different and more inclusive than many other videogames not only because of the simplification or elimination of a complex controller and the extension of the playing field into the room where gameplay occurs, but also because the games facilitate the transformation of bystanders into vicarious players. If in the early modern period, as this book has shown, the theater was a gaming platform, then in today's living rooms and public leisure venues, games are becoming theatrical platforms.

What will it mean for the future of gaming and for theater if games become, once again, a medium for theatrical production and reception? To explore the theatricality of mimetic interfaces in videogames, and particularly the ways these interfaces encourage vicarious spectator play, this Epilogue will focus on a gaming device that, in my view, has the most theatrical affordances: Microsoft Kinect. Kinect was first created for use with the Xbox 360 console and subsequently updated for the more dominant Xbox One. Microsoft also released a Software Development Kit that allows developers to create Kinect programs that can run on a Windows PC. Regardless of the console used to play them, Kinect games, I maintain, promote theatrical forms of engagement among users. Indeed, Microsoft heavily emphasized this potential in their marketing of the peripheral, particularly in their initial, much anticipated launch of Kinect in 2010. Plenty of software has been created for Kinect since that time, and yet, with few exceptions, the commercially released software made for Kinect does not manage to realize the theatrical potential of the peripheral. Although the marketing of Kinect games regularly highlights spectators watching others play, in fact the design of most Kinect games does not promote spectators' cognitive and emotional investment in vicarious play. The result is that software for Kinect has rarely taken advantage of the feature that most distinguishes Kinect from other gaming peripherals: its capacity to turn gaming into a theatrical event. To demonstrate the Kinect's theatrical affordances, I turn to a case study of a game that I have been involved in developing at the University of California, Davis's ModLab: *Play the Knave*. The game's theatrical dimensions extend beyond its thematic content, Shakespearean theater, to the experience that users—both those who play directly and those who watch play—have of the game's mimetic interface. Because of the way *Play the Knave* is designed, it manages to actualize the Kinect's theatrical affordances, encouraging vicarious spectator play.

THE THEATRICAL AFFORDANCES OF THE KINECT

Whether or not theater was on the minds of Kinect's designers, it was most certainly on the minds of its promoters. When Microsoft launched its much-anticipated controller-free motion capture system for gameplay, it did so through a stunning theatrical spectacle that, notably, borrowed its conventions from immersive theater and its keynotes from Shakespeare. The 2010 event for the Electronic Entertainment Expo (E3), held in the Galen Center in Los Angeles, was a collaboration between Microsoft and Cirque du Soleil.[4] Everything about the event was rooted in techniques from contemporary immersive theater.[5] For instance, before audience members entered the arena, they were given white ponchos to wear over their own clothes, a costuming of the audience that has interesting echoes with Punchdrunk's *Sleep No More*—a site-specific immersive theater adaptation of Shakespeare's *Macbeth* that has been running in New York since 2011—where audience members are inducted into the immersive theater experience by donning white masks. Like the masks, the ponchos signal to spectators that they will be active participants in the theatrical event—they are now costumed and ready to play—but at the same time these costumes create a group identity for the audience, uniting individual spectators as part of the whole, and distinguishing their group from the show's actual, paid performers. Indeed, the costuming of the Cirque du Soleil performers was radically different from that of the audience, for the former were dressed as island inhabitants. They wore fanciful headdresses and colorful beads, their torsos in brown one-pieces so as to resemble nakedness. Their faces were painted and their bodies adorned with flowery or leafy garlands. Some played drums, and when they moved, they would crouch or walk on all fours, often erupting into "primitive" dances. As is usually the case in immersive theater, audiences entered a performance in medias res. As they took seats on bleachers or perambulated around the arena floor, they could watch Cirque du Soleil acrobats perform physical marvels (Figure 21).

For its immersive setting and narrative about a breakthrough technology that allows gamers to play without the disruptive mediation of a physical controller—as Microsoft announced, "you are the controller"—Kinect took inspiration from an imaginative topos that has been tapped by scientists and science fiction writers interested in nanotechnology: the island. History of science and game studies scholar Colin Milburn has observed that nanotechnology repeatedly takes place on islands, figured as a magical

place where inhabitants play with nature to produce all sorts of wonders and where all is presided over by a figure who is (sometimes explicitly, often implicitly) the character of Prospero from Shakespeare's *The Tempest*, along with his sidekick spirit, Ariel.[6] The narrative of magic and discovery so often associated, in fiction and in science, with islands was crucial to the story Microsoft told about Kinect in the E3 show and through the video they released of the event. As spectators enter the space, they walk across and around digitally enhanced pools meant to resemble blue water, which magically appears to ripple when touched. Cirque du Soleil performers literalize their identities as islanders by occupying these pools to perform the kind of virtuoso and seemingly impossible stunts for which the company is known, while audience members congregated around the "shores" of the pools to watch and applaud these almost magical manipulations of the human body. But as is always true in immersive theater, the lines between audience and performer, between receiver and creator, are constantly blurred. Audience members seem to need no formal prompting to assume their roles in what quickly turns into a staging of the colonial encounter. Clearly amazed at the curious and incredible sights around them, the audience gawks and points at the islander performers, who respond in kind, gazing curiously at the visitors, occasionally treating them like gods to be adorned with garlands or involved in rituals/performances. And as in the imaginative island world of nanotechnology, all is presided over by a Prospero-like figure and his spritely assistant. The latter appears to direct some of the performance scenes on the arena floor, meandering around the action and gesturing with his arms as if helping to orchestrate it. But his place as assistant to the grand magician becomes evident when the lights dim and an old magician takes center stage alone, standing on a rock and waving his arms dramatically to cue the show proper.

Although clearly much of the aim of this spectacular event was to show audiences a good time and get everyone talking about Kinect, Microsoft's emphasis on audience participation and its invocation of Shakespearean drama suggest that this was not just spectacle for the sake of spectacle. One effect of the show—whether or not it was the intent—was to foreground Kinect as a theatrical technology in which spectators are as much a part of the gaming experience as players. Kinect, Microsoft's show suggests, is the kind of gaming device that welcomes spectators to play vicariously. This inclusion of the audience into the gaming experience expands upon the mission and effect of mimetic interface games, as these have been discussed by others. Technologies like Kinect target users who don't have the patience, coordination, or will to learn to operate complex controllers. Nin-

tendo had opened up this market with the introduction of the Wii system, and with Kinect, Microsoft positioned itself as an improvement on the Wii, claiming to get rid of the object controller entirely. As media scholars Steven E. Jones and George K. Thiruvathukal observe, the Wii system's design, marketing, and distribution explicitly targeted families in particular, aiming with the simple controller and low-energy-use machine to bringing gaming into every living room, to be enjoyed by the whole family. This was a market that Nintendo, which began as a playing card company, knew well how to reach.[7] Jones and Thiruvathukal rightfully point out that Microsoft pursued the same market with the development of Kinect, which was meant to help Xbox compete head-on with the Wii in the newly discovered, or perhaps more accurately, *re*discovered domestic gaming market. But this view of mimetic gaming platforms as rediscovering "social" and "casual" gaming tells only part of the story. I would argue that Kinect, more successfully than Wii, simultaneously rediscovered the deep *theatrical* roots of social gaming, expanding the game experience beyond the players to include vicariously playing spectators.

The connection between social gaming and theatricality is explicitly taken up in the E3 show. Those who witnessed the event live or in later broadcasts have tended to focus on its spectacle, meant to amaze and immerse, much like the technology being introduced. Jones and Thiruvathukal argue that the Microsoft show perfectly encapsulated the rhetoric around Kinect as a gaming peripheral that could offer the dream of total immersion, turning "your living room into a sublime, transcendent game space, realizing the fantasy of cyberspace or the holodeck."[8] To be sure, parts of the show seem to suggest this sort of total immersion model of gaming. The show's central narrative tells the story of a time-traveling boy, who stands in for the evolution of gaming controllers. The white adolescent actor, dressed in safari clothes, enters the arena on the back of an elephant, while the announcer intones:

> Since the dawn of time, humanity's long journey has lead us to countless discoveries. Objects along our path have projected our way forward, but the ever-more sophisticated inventions introduced ever-more complex languages for humans to master in order to communicate with machines. With each leap forward for civilization, more people were left behind. But our quest has now taken us to a completely new horizon. History is about to be re-written. This time, human beings will be at the center and the machine will be the one that adapts. After five million years of evolution, might the next

> step—the next object—be the absence of an object? Is it possible that the future of humanity is humanity itself?[9]

After dismounting, the boy enacts this narrative by slowly climbing up a series of boulders on the stage, pausing on each to pull out of his bag the next generation of game controller and play a short game on the giant screen before him. When he arrives at the top rock, he begins to reach into the bag again for another controller (what looks like a Wiimote), but then hesitates and decide to confront the screen with no controller at all. As he stands atop what is now a giant lit-up logo for Xbox, he goes on to showcase dramatically how he can control an avatar with his own bodily movements.[10] The screen then drops to reveal the set for a living room, complete with a happy, modern, white nuclear family (mom, dad, son, daughter). They beckon the traveler enthusiastically, and he crosses over the threshold of the set, moving from his natural, primitive setting among the islanders to immerse himself in the family's living room game space, where he and they play some games for Kinect together.

Although the show presents its gamer characters as immersed, it hardly seems to emphasize a myth of total immersion or sublime transcendence. In fact, the show uses the presence of spectators—fictional and actual—to complicate this myth and to question not only how but *where* immersion in gaming happens. Despite the magical marvels around them, the E3 audience was constantly reminded of the conditions of their immersion, of their status *as* an audience, and of their complex and blurred relationship to the gamers represented onstage. That reminder is literally held over their heads when they enter the performance venue. Dangling high above them during the preshow entertainment is a living room couch, upon which is seated another modern, white nuclear family—mom, dad, and preadolescent son (Figure 22). Like the actual audience in the arena, the family gawks and points at the wonders below during the preshow entertainment. Thereafter, they continue to operate as audience stand-ins or models.

The son character, in particular, serves as a bridge between the performers, the audience, and the technology on display. When the Prospero-like figure waves his arms to begin the show proper, he cues a procession of natives, who parade into the space, moving through the audience, but stopping at the now-lowered couch to pick up the boy who waits excitedly holding a green ball. A group of natives hoists him above their heads and carries him toward the stage. As they set him down, he throws the ball out into the audience, and then is helped onto a boulder onstage by the "Ariel" character. Both watch as the ball gets thrown about in the audience for a

few moments, finally landing in the hands of a young, white woman (not one of the hired performers) who looks to be a professional in her early thirties—hardly the demographic for the Xbox of the past. Ball in hand, she is shepherded by natives onto the boulder next to the boy, her audience poncho removed to create a parallel and bond between her and the young actor from the couch. And as "Prospero" stands above on a rock, his arms outstretched to show he is still directing the magical event/ritual, the natives offer their dance to the young woman, who stands self-consciously but solidly with "Ariel" and the modern boy from the couch. The symbolism is clear: the boy who had been a fictional audience member on the couch represents the gamer demographic of the past while the young woman from the actual audience represents the market Kinect aims to capture with their new technology. Notably, both are personations of a theater audience. Featured here in its diversity, the audience is fictionally and literally being welcomed *into* the technology. Indeed, as the woman holds the green ball—a simplified version of the Xbox icon—Microsoft intimates that with Kinect, it is putting the Xbox into the hands of theater audiences, in all their gender and age diversity.

The significance of the audience was more than symbolic in the E3 show, which went on to display explicitly the role of participatory spectatorship in the Kinect gaming experience. The central part of the show involved the onstage family playing a series of new Kinect games on their large television. Although on one occasion, a member of the family played alone in the room, the rest of the time, gamers played before an onstage audience. It was clear that although certain games were targeted toward a particular demographic represented by the family—Dad sword-fights, Mom does yoga—the rest of the family were to be active spectators for all the games. The fictional family and their friends cheered on the players, turning to each other occasionally to indicate approval or surprise. Onstage spectators also mimicked the game players' actions, leaning forward and sideways and jumping up when the game seemed to call for those bodily actions. The husband and children even meditated peacefully on the floor while mom tried out the yoga game. To be sure, Microsoft was presenting the Kinect as a *social* gaming apparatus, one well suited to family gaming; but the concept of sociality doesn't fully describe the phenomenon on display in this show and in other Kinect advertising, which repeatedly represents gameplay as enjoyable for gamers as well as for those who watch them from the couch.[11] The point is not only that Kinect's technology is so simple that anyone in the family can use it, or even that Kinect brings the whole family together. It is that Kinect games are not only fun to play but

fun to watch. If they create connection/Kinection within social groups, they do so by drawing spectators cognitively and emotionally into gameplay.

Although later advertisements will draw on this point as well, it gets made clearly and spectacularly in the E3 show, which represents vicarious play by spectators onstage as well as in the arena at large. While the family plays and watches games inside the framed stage, the natives from Cirque du Soleil remain below on the rocks, excitedly observing the ludic action and notably making movements with their bodies that show they are responding to the game much as the players do. When mom steers during a driving game, her family stands around her in front of the screen as if in the same car, mirroring her responsive gestures to the game—but so too do the native dancers below. Their vicarious play is even more remarkable in light of their distance from the gaming scene. Fictionally, they inhabit some faraway island where no one has ever seen videogames; but literally, they also stand far away from the screen, spatially aligned with the audience in the arena (Figure 23).

Perhaps even more interesting in light of my argument in Chapter 3 about the bird's-eye view in the early modern theater, the fictional family on the couch suspended from the arena ceiling also shows signs of vicarious play. Although the couch boy—who had been bodysurfed away when the show proper began—appears to have been lost somewhere inside the gaming world onstage, his fictional parents stay on the couch for the rest of the show, fully engaged in the ludic action far below them. Whether or not members of the venue audience noticed them, Microsoft didn't want them forgotten. The video Microsoft made of the launch event repeatedly cuts to shots of the suspended spectator family to show their reactions and their continued investment in the games.[12] Microsoft's video gives the couch family as well as home viewers a bird's-eye view of the staged games below, but shows that their distance need not preclude their active engagement. The suspended couch spectators, about as far above and away from the stage as one can imagine, are just as invested cognitively and emotionally as those who are right onstage playing physically. The couch family models the spectator behavior that, I would argue, Microsoft was trying to craft and inspire with its Kinect technology. If Wii encouraged moms, dads, girls, and others not usually recognized as part of the gaming demographic to come into the living room and play, then Kinect was taking things a step further, offering a gameplay experience for literally everyone, even those who don't want to engage physically. It doesn't get any more inclusive than that.

Microsoft's inclusion of spectators gets driven home in the culminating

moments of the show, when the stage clears and yet another fictional boy—the boy who has been part of the gaming family onstage—mounts a giant ball insignia for Xbox. As he waves his arms, echoing the earlier gestures of the Prospero-like figure who began the show, the audience's white ponchos are turned into screens to reflect the arena's green, blue, and red lighting. With his gestures, the boy appears to direct both the surging music and the audience-created light show below him, directing, that is, the event's spectators. In a final symbolic moment, then, Microsoft underscores the way spectators are being orchestrated by this new gaming technology and its players. Whether they want to or not, the audience, simply by watching, has been actively inculcated into gameplay.

SPECTATORS AS PLAYERS, PLAYERS AS SPECTATORS

The technology for Kinect may be novel, but its design principles and marketing strategy hark back four hundred years to the beginnings of commercial theater. The Kinect usefully showcases the argument that I've been making throughout this book about the early modern theater as playable media designed to encourage spectators' vicarious gaming. That idea is writ large in the show Microsoft staged to announce Kinect, but it is also an idea that appears to have driven the very design of Kinect and similar gaming peripherals. Mimetic interface games retheatricalize gaming by harnessing human movement, putting bodily gestures at the center of the gaming experience. It isn't at all surprising that Wii and Xbox consoles helped usher in a slew of games about the performing arts. There is arguably a natural connection between these gaming platforms and the performing arts: both encourage creative expression through bodily movement and, I have suggested, both refigure play as a kind of performance for an audience that plays along. However, the theatrical potential of Kinect remains unfulfilled largely because the designers of games for it have not recognized what theater entrepreneurs in the early modern period knew well: that spectators are an untapped market for gameplay. Peripherals like the Wiimote and the Kinect have tremendous theatrical potential, but the commercial software that has been created for them takes little advantage of the hardware's theatrical affordances.

A case in point are the music games *Rock Band* and *Guitar Hero*, which invite their users to be rock stars. The controllers in these games are shaped like musical instruments, which users manipulate to play a selected song. The game screen presents musical notation, and users are supposed to

press a corresponding button on their controllers as if they are playing the required note on an instrument. When players are successful, the game's speakers emit the musical note that is part of the prerecorded song. As ethnomusicologist Kiri Miller puts it in her fascinating account of user experience, players "reconstitute a recorded song by adding performance," essentially "put[ing] the performance back into recorded music, reanimating it with their physical engagement and adrenaline."[13] Miller observes that *Rock Band* and *Guitar Hero* are "deeply theatrical, by design" and tend to bring out the performer in everyone. Even players motivated by scoring points put on a show, knowing full well that gesturing like glam rock musicians will not contribute directly to the outcome of their game.[14] Performance matters to everyone who plays. In this way, the games are "stitching recorded musical sound and performing bodies back together."[15] But what precisely is the audience's role in this performance?

Miller recognizes the presence of audience members in certain gaming contexts, but though she is fundamentally interested in the performance qualities associated with these games, she only rarely interviews audiences or theorizes their forms of participation. This is not a failure of her study, but rather a natural repercussion of the games at the center of it. In discussing the most theatrical contexts for gameplay—public bar nights where *Rock Band* is played by groups of patrons, much like karaoke—Miller observes:

> The game nights brought out rock-star physicality in some performers, but it's worth remembering that apart from the occasional singer who turned to face the crowd in the rest of the bar, virtually all players had their backs to the audience—an audience that was only occasionally paying attention in any case. While playing in public still had the power to inspire some performance anxiety and adrenaline, bandmates were mostly playing for each other and themselves.[16]

In other words, in its most theatrical playing contexts, *Rock Band* is more of a social outlet for players than it is a theatrical event in which spectators participate. This is arguably true for all of the commercial games that have thus far been produced for the Kinect. None has realized its theatrical potential because, although game designers are incredibly skilled at getting users to feel like the avatar performers they mime, no one has figured out how to harness the spectator investment Kinect-based games are arguably capable of generating.

There are a number of reasons for this, though paramount among them

is what we might call the *schizospectatorship* of mimetic interface games: the presence of multiple but incompatible audiences during gameplay. My term is inspired by composer R. Murray Schafer's concept of *schizophonia*, the division between played and heard music that emerges with the invention of technologies for playing recorded music. *Guitar Hero* and *Rock Band* may, through performance, reconcile the schizophonia of the digital age, as Miller maintains, but they fail to reconcile its schizospectatorship. In commercially produced mimetic interface games, the live, human audience that watches gameplay from the sidelines is associated with but clearly separated from, and superseded by, the digital audience that is built into the game's software. Motion capture games, including *Guitar Hero* and *Rock Band*, prioritize the digital, prerecorded audience over the ambient one, thereby depleting the ambient audience's agency and sense of investment in the game. This is a consequence of their design, not of the circumstances of their use. Dance, singing, and musical instrument games code "correct" performance right into the software, challenging players to achieve it through their gameplay. Through scoring and through visual and aural representations of an onscreen audience, the games tell players when they have performed well. Even if in social scenes of play, users may ignore digital feedback, playing for their own pleasure or sometimes charged by the pressure of an audience's eyes and ears, the screen constantly reminds players and their ambient audiences that the ultimate arbiter of performance quality is the machine. And because they cast the machine as the ultimate authority, these games stop short of fulfilling the theatrical potential that Microsoft imagined and portrayed when it introduced Kinect.

But the strong historical links between gaming and theater that Microsoft tapped into through Kinect can be fulfilled. My evidence is *Play the Knave*, a Kinect-enabled game I co-created with colleagues and students at the University of California Davis's Modlab.[17] The game invites players to design and star in a Shakespeare production. After selecting their dramatic text and a particular scene from it, or writing their own script, users choose a theater stage for their production (3D background), costumed actors to take on the character roles in the scene (avatars), and background music (sound design). Once the screen has transformed to reflect these production choices, between one and four users enact the scene, karaoke style. They are invited to recite the scrolling lines, using their bodies to move their avatars onscreen (Figures 24 and 25).[18] Unlike commercially produced Kinect games, where digital avatars are models for players to follow, *Play the Knave* allows users to control their avatars directly; instead of the player

mimicking the avatar, the avatar mimics the player. The scene (onscreen action and the player's voice) can be recorded and the video produced then downloaded by the user to be watched, edited, and/or shared. Future plans include developing a server to facilitate even more extensive forms of collaborative production, including allowing players to share and edit each other's scripts. Additionally, a user might record the part of one character in a scene, upload that to the server, and then have a friend or stranger download that scene to play the other character in it.

There is certainly much that could be said about how Shakespearean drama and theatrical performance are presented in *Play the Knave*, a concern I have begun to address elsewhere.[19] But given *Gaming the Stage*'s larger interests in theorizing and historicizing spectatorship, I focus in this Epilogue on the impact of *Play the Knave*'s design on audiences and especially on the game's capacity to make spectators feel like players. For the past several years, I have been working with graduate students and undergraduate interns to research how audiences respond when *Play the Knave* is installed in theaters, public spaces, and classrooms, the longest-term installation having been at the Stratford Festival in Ontario for three months in the summer of 2015.[20] One of the findings from research at over two dozen installations is that spectators of *Play the Knave* play vicariously. Even though players face the screen and turn their back on spectators, as is the case in other Kinect games, audiences remain actively invested in what is happening in the game space. They watch both the screen and the players intently, taking pictures and video of both. They laugh when players do funny things. They mime actions they want players to do. They call out suggestions, correct players' pronunciation of Shakespeare's lines, and encourage the players to alter their movements. Sometimes, they collaborate to make performances of other players better. For instance, when a player is particularly nervous about speaking Shakespeare's lines, a member of the audience sometimes volunteers to speak the lines from outside the playing space, freeing the player up just to gesture. And, of course, spectators laugh when players do funny things, and they usually applaud at the end of a session of gameplay.[21] In short, they do all the things that Microsoft dramatized audiences doing with Kinect in the E3 show, and more.

This engagement, or rather this *production*, of active spectators who play along vicariously is an outgrowth of *Play the Knave*'s design and specifically its ability to reconcile the schizospectatorship that is found in other Kinect games. To be sure, there are all sorts of tensions that the game recognizes and perpetuates through the copresence of digital technology and ambient,

physical bodies in space. But because *Play the Knave* doesn't prioritize the digital spectator, it makes lots more room for the ambient one. The most obvious way this is facilitated is through the absence of a scoring mechanism within the game. The game's software simply does not judge the players. There is some prerecorded audience applause that automatically plays when users finish a scene, but this digital audience response is canned, with approval in no way connected to a player's actual performance. Many beta testers have asked for some sort of scoring mechanism, sometimes claiming that *Play the Knave* doesn't feel like a game without that. Setting aside their overly narrow definition of what constitutes a game—a definition that has been thoughtfully problematized by theorists of games and challenged by independent game designers[22]—it's worth noting the effect of denying players a machine-generated score. Because the machine does not give players feedback on their performance, they either judge it for themselves or seek judgment from other human observers in the ambient space: their playing partners or spectators. And these other audiences are empowered to give such feedback because their views are in no way superseded by the authority of the machine. In *Play the Knave*, the job of evaluating player performance is outsourced to the live, physical audience in the room, just as is true in actual theater.

Another reason *Play the Knave* encourages engaged spectatorship is because the game's design allows for a certain degree of glitchiness in the avatars, which results in a theatrical disjunction between the player and avatar. These glitches appear because *Play the Knave* gives users extensive control over the movements of their avatars. Unlike in most motion-sensing dance games, where the avatars move regardless of what the player does, in our game the player animates the avatar. The trade-off for giving more creative freedom to players is that that they sometimes misunderstand, forget, or ignore that they are working with a digital object, expecting the screen to work like a mirror. And so they make gestures that do not map effectively onto the avatars, which players then perceive as glitchy.[23] This trade-off is undoubtedly the practical reason commercial gaming software for Kinect does not allow players to control their avatars more fully; the resulting animation is unpredictable and can provoke discomfort and even revulsion in users, what is known as the *uncanny valley* effect. Kinect's ability to read and render accurately the complex motions of the performer's body is limited in part by its motion capture technique, which, especially when involving a single camera, generates significantly weaker data than that of more elaborate and costly motion capture systems; the latter are

able to reflect back many more subtleties of performers' movements by using multiple cameras and by having users wear expensive gear and/or body suits.[24]

Serious artists interested in using motion capture technology in performance tend toward these more complex systems and away from the single-camera Kinect setup and, subsequently, there has been little research on the theatricality of Kinect, despite scholars' interest in how the uncanny valley produced by motion capture performance affects understandings of a performer's embodiment and selfhood.[25] I want to suggest, however, that these technological "limitations" are, in fact, key to Kinect's theatrical affordances. Glitches in the animation help to transform a session of *Play the Knave* into a theatrical event. When the avatars move in ways users don't expect, the game underscores the extent to which the avatars, though largely controlled by the players, are separate entities whose movements are governed, ultimately, by the machine. Players, their full immersion interrupted, come to feel like spectators of their avatars. This is quite an odd sensation. Users describe feeling simultaneously like player/producer *and* spectator/receiver of their own digital performance. A repercussion of turning players into spectators is that they become even more firmly aligned with the actual spectators in the gaming room. No one has total control over the avatar. And when spectators see players made into spectators, the latter are better able to imagine themselves as players.

In using a Shakespeare theater game to drive home my book's argument about the connection between games and theater, I do not mean to suggest that this connection is specific to early modern drama, plays, and theatrical culture. For although *Play the Knave* is certainly *about* Shakespearean performance (in terms of content and theme, it is a game about putting on a play), I hope to have shown that its theatricality is less a function of its subject matter than of its design—a design made possible because of the theatrical affordances of Kinect itself. The significance of that technology can be appreciated by comparing *Play the Knave* to other games about Shakespeare, as I have done elsewhere in a study of a range of other games thematically concerned with Shakespeare's life, drama, and theater.[26] *Play the Knave* is useful because it showcases how spectators can come to feel like players, regardless of whether they physically participate in the core gaming experience at hand. Ludic interaction can take many forms. This kind of inclusion of spectators, I have argued, has a long history and has served theater's development. To be sure, the current landscape for gaming and for theater is very different than it was in the sixteenth and seventeenth centuries. Today, commercial theater doesn't compete quite as directly with games as it once

did. A Venn diagram of consumers of videogames and of theater probably wouldn't show a sizable overlap between these forms of entertainment, or at least not to the degree there was in early modern London. But just as building gaming concepts into theater was a boon for early modern dramatists, performers, and audiences, so building theatrical concepts into gaming has been a boon for the gaming industry today. Kinect, which was an instant success when it was released, proves that today's gamers are keen to perform and to watch others perform. They are keen to become theater participants. If anyone is uncertain about perpetuating the theatricality of mimetic interface games, it appears to be the developers of gaming platforms and of software for those platforms. Indeed, in October of 2017, Microsoft announced that it would no longer manufacture the Kinect camera, opting to invest in technologies like the HoloLens that mediate the player's digital world through headsets and glasses.[27] Kinect's inventor Alex Kipman may eschew the VR label to call Microsoft's new line of products "Mixed Reality," but this technology has much more in common with traditional VR than it does with Kinect.[28]

Scholars of theater, performance, and media have elegantly defended VR technologies, reminding us that the body doesn't disappear during the VR experience, as is often assumed. VR can offer the player a quite intense and, media scholar Mark Hansen argues, even privileged perspective on embodiment.[29] But if VR is opening up new worlds for game players, it is simultaneously closing down older worlds for game spectators. VR may, in effect, evince the antitheatricality of our age. The next generation of gaming peripherals may have the power to return players to a deeper understanding of their embodiment, but this technology also threatens to cut players off from the ambient space their bodies inhabit during gameplay, a space that can include other bodies. VR headsets require the player to be blind and often deaf to their ambient audience so that they can be "immersed" more fully in the game world they wish to enter. As a result, it's hard to take any pleasure in watching someone else play a VR game, except perhaps to laugh as the player stumbles around the ambient game space, trying not to bash into walls. More sophisticated gaming devices may please hard-core gamers who demand ever better graphics and less lag between their movements and the machine's responses—in short, greater immersion in the gameplay experience. But if the history of games and theater is any indication, detheatricalizing games risks alienating a sizable market: the spectators who take comfort and quite a bit of pleasure in playing vicariously. Their capacity to do that is largely a function of their ability to share with players the same virtual *and* ambient space.

When it introduced Kinect, Microsoft asked us to imagine a world where humans were at the center of interactive gaming. That world already exists. It is called theater. And for centuries, everyone has played. As Microsoft contemplates the future of playable media technology, here's hoping they remember that sometimes the most innovative ideas are those that catch up with the past.