Medium of gameplay

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Medium of gameplay

by

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Program of Study Committee:
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Introduction
In 1962, a group of students at MIT, including Steve Russel, developed a game in which players controlled the speed and direction of two ships and fired torpedoes at each other. This first interactive computer game was called Spacewar!. Over four subsequent decades of production, two indelible features have reasserted themselves as encompassing elements of video games: audiovisual and gameplay. Audiovisual elements are those features that formalize a game's graphics and music, of which whose individual forms can be examined and critiqued through means of its existing arts. On the other hand, gameplay (a new and ambiguous term) is often criticized as a primitive understanding of the experience, critics noting that cinema does not require movie “watch” nor literature require book “read” to be formally described.

Despite the criticism, gameplay as a term has gained acceptance in popular gaming vocabulary, generically understood as the player experience during the interactions with a game. Among designers and theorists, definitions more widely vary.

Sid Meier: A game is a series of interesting choices. (Rollings Adams 200)
Andrew Rollings and Ernest Adams: Gameplay is one or more causally linked series of challenges in a simulated environment. (201)
Katie Salen and Eric Zimmerman: Gameplay is the formalized interaction that occurs when players follow rules of a game and experience its system through play. (303)
Jesper Juul: Gameplay is the interaction between rules, the game tree, the players pursuing a goal, and the players' personal repertories and preferences. (199-200)
Richard Rouse III: A game's gameplay is the degree and nature of the interactivity that the game includes, i.e., how the player is able to interact with the game-world and how the game-world reacts to the choices the player makes. (xx)
There is a reason for this difficulty in definition. No single entity embodies the perceptual conceptions of gameplay. One cannot independently examine an element of gameplay without examining them all. But in order for the gaming community to engage in a meaningful discussion about gameplay, a set of defined and specific terms needs to be agreed upon. Gameplay's form – its equivalent of color, line, shape, and texture in composition – need to recognized and understood.

Imagine discussing da Vinci's *Mona Lisa* or Mozart's *The Marriage of Figaro* without understanding their unique languages of form. Words like color, line, and shape would not exist in discussions of painting. Nor would words like melody, harmony, or timbre exist in discussions of music. Through these forms, artists transpose an experience onto and into the audience. Without knowing the language, much of this cognitive and emotive communication is lost, merely leaving the audience with statements of instinctual like or dislike with no means of expressing why. Understanding an art's form allows for conversations and exploration of that art can exist and thrive. Artists can expand and manipulate a medium's form to evoke various cognitive and emotive responses or to communicate a simple message. But the sense of form and its relationship with the audience precedes the meaningful innovation.

Likewise, once a lexicon of gameplay is understood, video game fans and critics can better communicate and express a game's composition. Game theorists and developers can better explore the relationships between a game's formal structures. Innovation will no longer be largely limited to a game's audiovisual elements but instead will extend into the game
experience as a whole.

As society and culture continue to evolve in its institutions of science – changing basic notions of material, thought and play – a coherent language describing virtual experiences grows increasingly important. This language must accommodate the integration of art, technology, and person to discuss and affect the future of this new interaction. That said, my formal definition of gameplay is:

   Gameplay is the unique multidimensional interaction between the player and game.

Although this definition may appear only semantically different to the prior, the definition transposes a formalist understanding of film onto the video game medium. By directly enveloping the player, the game, and their relationship, the definition can more precisely and accurately understand player experience in terms of: narrative, temporal, spatial, mechanical, and ludic elements. Establishing such a definition, allows for a coherent dissection of gameplay's constructive elements, which will be outlined in the body of this paper.
Narrative Elements in Gameplay

The defining characteristics of a narrative – character, plot, theme, etc. – are well known.

These elements are common to any narrative, whether in a novel, a play, or a film. But understanding narrative can get confusing as you delve into the common concepts of what a narrative must be. In the study of narratives, theorist Mieke Bal provides us a definition from his book *Narratology*:

A narrative text is a text in which an agent relates (‘tells’) a story in a particular medium, such as language, imagery, sound, buildings, or a combination thereof. A story is a fabula that is presented in a certain manner. A fabula is a series of logically and chronologically related events that are caused or experienced by actors. An event is the transition from one state to another state. Actors are agents that perform actions…To Act is defined here as to cause or to experience an event. (5)

Or more simply, and in regards to video games, a narrative is the dramatic structure contained within a game. In this paper, I will consider these definitions interchangeable, however, temporal elements will be evaluated independently from narrative, acknowledging that they heavily influences but do not require dramatic structure. Furthermore, narrative differs from story in that story is the dynamic player-experience defined by static narrative elements.

As opposed to many popular definitions for narrative in relation to video games, this definition purposefully ignores the division between interactive and non-interactive elements of the game's content. Even though these elements are said to “exist in inverse proportion to one another” (Rollings Adams 113) and a game's dramatic structure may portray both elements concurrently, it is irresponsible and inaccurate to place interactivity and narrative at
a polar ends of a continuum. The more you have of one does not imply the less you have of the other. Narrative does not have to come at the expense of play, interactivity, or active participation.

**ROLE OF NARRATIVE**
A video game is a form of participatory entertainment. This participation is not participation in the sense of playful interaction, but in regards to immersive participation. Films and novels create an impressive depiction of reality, so much so that “we open ourselves to these illusory environments that are 'as real as the world' or even 'more real than reality’” (Murray 21). The willing suspension of disbelief is the act of participants suspending their critical faculties to believe that the created fiction is reality. The better an artifact supports the illusion, the more observers become participants, building a heightened sense of presence and immersion in the fiction (Rollings Adams 58) thus enriching the experience. The “willing” mental state to suspend disbelief engenders the participation.

Likewise, narrative elements in video games construct the foundation for the willing suspension of disbelief to occur. According to Richard Rouse, players expect to open themselves to the reality of the fiction; they expect to be immersed by the medium.

Once players get into a game, they are progressing through various challenges, they have a good understanding of the game's controls, and they are role-playing a fantasy. They have forgotten that they are playing a game at all, just as a film audience may forget that they're in a theater or a book's reader may become completely swept up in the lives of the characters. (12)

When players become completely engrossed, and consequently unaware of the medium, the
experience elicits and endorses emotional responses. Players as participants experience emotions, such as fear and surprise in *Halo: Combat Evolved* (Bungie Studios 2001), disgust and pride in *Oddworld: Abe's Oddysee* (Oddworld Inhabitants 1997), glory and shame in *Top Spin* (Indie Built, Inc./Power and Magic Development 2003), and wonder in *Myst* (Cyan Worlds 1993) (Lazzaro 6). Imaginative immersion made by such elements becomes the experience.

Narrative further acts as a catalyst for players to engage themselves in the game by framing its actions and events. Narrative gives purpose to play. Imagine playing *Max Payne* (Remedy Entertainment Ltd. 2001) without its narrative elements. The character Max Payne would no longer be a troubled cop warring against internal and external foes in his sinister New York City; he would become a simple mannequin existing in empty world. Much of its audiovisual elements, its encompassing notion, and its “big picture” idea of what the world is becomes erased. The gameplay would become solely “weapon statistics hanging in the air” and the “endless repetition of the act of shooting” (Remedy Entertainment Ltd. 2001). Even though play would continue to exhibit activity focused on the mastery of skills, causing play to become entirely goal-oriented, the experience would be insignificant and ultimately unsatisfying. Players’ psychologically higher needs of growth would simply not be met. Without narrative, players are without context; without context, players are without meaning.

In addition to meaning, narrative gives *meaningfulness*. In other words, narrative elements imply a broad message or theme about life, society, or human nature; and thus give players a valued experience. “Greater complexity and depth give the video game designers more
opportunity to embody a message, world-view, or philosophy into a game in the same way these elements can be incorporated into novels and films” (Wolf 6). *Hamlet* has a theme of the impossibility of certainty. *The Adventures of Huckleberry Finn* has a theme of the evils of racisms and slavery. Narrative in video games is no different. *Sanitarium* (DreamForge Intertainment, Inc. 1998) is narrative of a psychological thriller in which a man stricken with amnesia struggles with his inner demons to discover his identity in the end.

The narrative moves between the character's perceived reality of the asylum grounds and his hallucinations. Within these hallucinations, the narrative appropriately recasts the main character into that reality, such as a four-armed alien cyclops and a god-like stone warrior; but on closer examination, the character is, in fact, recast as a representative of his own ego. These new roles are the manifestations of the different aspects of his identity – his past, his courage, his strength – needed in order to overcome the obstacles to his freedom.

By this, *Sanitarium*’s narrative is a quest for identity and truth. As players become drawn into the narrative of madness and personal salvation, they undergo a like transcendence with the character of self-creation and acceptance. Its narrative, exposes reality and searches for truth. Janet Murray, in *Hamlet on the Holodeck*, most successfully explains the purpose of narrative: “Eventually all successful storytelling technologies become 'transparent': we lose consciousness of the medium and see neither print nor film but only the power of the story itself...We will only think about what truth it has told us about our lives” (26).

**STORY STRUCTURES IN NARRATIVE**

Much of our (Western culture) literary tradition can be said to stem forth from Aristotle and
his Poetics. Written in 350 BCE, Aristotle's Poetics aims to explain the nature of poetry by classifying it into its different genres and components. Even today, several ideas discussed resonate in our drama, literature, film, and games. However, with the advent of interactive storytelling, these ideas are quickly becoming obsolete, or, in the very least, passé. Chris Crawford writes:

The experience of interactive storytelling differs substantially from that of a conventional linear story. A linear story “runs on rails” from start to finish in the most powerful and expeditious manner possible. The interactive storytelling experience meanders through a dramatic universe of possibilities. It lacks the sense of directed inevitability that gives conventional stories such power. It is like a butterfly flitting across a meadow, not a hawk plummeting down on its prey.

A discussion of dramatic structure as a journey of exposition to denouement would seem somewhat absurd at this point. Whereas in the past, designers of stories (writers, directors, designers) controlled the pacing of the story, interactive storytelling enables the observers to be the storytellers.

Regardless of the loss of absolute control, interactive storytelling in video games aims to merge the designer's story with the player's story. Customarily, game designers use a number of different techniques to tell their story, as categorized by Rouse: out-of-play narrative, in-play narrative, and external narrative. Keep in mind that a game may use only one or all three story structures.

Out-of-Play Narrative
Out-of-play narrative is perhaps the most common narrative delivery in video games (possibly because of its similarity to storytelling in other media). Rouse defines four different
methods used to tell a game's story outside of its play as:

- **Cut-Scenes**: Film-like sequences in games, which commonly use techniques from cinematography. Cut-scenes are essentially short films interspersed in a game connecting narrative and play.

- **Text**: Printed words in games that describe the story in prose or directly give players objectives. Texts may “fill the entire screen and then flip to another as necessary” or may “scroll by at a slow enough rate that players have time to read it” (Rouse 207).

- **Images**: Sequential art (or comic-like art) in games, occasionally decorated by text or audio. Normally images use comic book techniques to establish a scene's setting and/or its participants or to recapitulate a narrative passage that players have just participated.

- **Audio**: Spoken dialogue or other sounds occurring during non-interactive periods in games. Audio commonly is presented over other visual information, such as “maps, dossiers, or a list of objectives” (208).

As a somewhat controversial structure, the non-interactive nature of out-of-play narrative is questioned by designers as an appropriate method to communicate their stories. Consider the phrase *interactive entertainment* as the formal reference to computer and video games; it follows that computer and video games are interactive merely by definition. However, out-of-play devices disrupt the interactive experience with a non-interactive one.

A game's non-interactive experience removes players as participants and replaces players as spectators. For instance, when people go to a movie, theater workers never stop the film or bring up the house lights (211). Video games, contrarily, often push and pull players unnaturally in and out of their immersive experience. Once players have become captivated and involved in a game's quick moment-to-moment actions or extended observations, calculations, and deductions (Adams), they are forced to relinquish control of the play so that
the designers' story can exist. And after the portion of the designers’ story is expressed, players must reengage with their prior focus. This continual change causes the overall gaming experience to be quite jarring.

On the other hand, segregating story and play can cause the experience to be more accessible to players who are familiar with this type of storytelling, having grown up with it in television and movies. In fact, out-of-play narrative devices have been “so prevalent that they are now an accepted gaming convention, and players have come to expect them” (Rouse 211). These devices can provide wonderfully rich narrative experiences provided by designers. But dangers do lurk in their non-interactive natures, ultimately hurting player storytelling, acting as an “easier” means of moving players' story forward.

**In-Play Narrative**
Numerous methods exist for designers to tell their stories during a game's play. A game's in-play narrative delivers its story entirely from a player's actions and reactions within and to the fictional world. *Half-Life* (Valve L.L.C. 1998) is not a great game because of its story; but it is a great game (or in the very least, acts as a revolutionary step in the first-person shooter genre) because of how it presents its story. From the opening moments of the game to the final showdown, “players never lose control of their character, Gordon Freeman, even if he's locked in an observation room, stuck in a tram car, or thrown in a garbage compactor” (Rouse 212). Its story is communicated through a combination of the characters' actions and interactions, and comprehensive and coherent level settings.

In David Bordwell's book *Film Art*, he calls attention to characters as being agents that
function as causes in a narrative. He states “characters in narratives are not real people (even when the characters are based on historical personages, as with Napoleon in War and Peace). Characters are constructed in a narrative” (51). Likewise, narrative is constructed by its characters. More accurately, narrative is constructed by its actors – an abstraction above characters.

Although literary and film theories can explore much of the aspects in actors from video games, they restrict an audiences' role to that of a passive participant. In contrast, players actively participate in determining the direction of the actors and the relationships between those actors within the confines of a game's mechanics. Players assume the persona of an avatar – “a visual representation of the player's presence within the game-world” – or an actor – “a character distinct from the player, with its own personality, characteristics, and to some extent, mind “(Gard). From their personae, players dictate through their play how non-player characters respond, thus shifting the narrative direction and narrative interpretation.

For example, Façade (Procedural Arts 2005) is a prototypic interactive drama in which players become involved in the “high-conflict dissolution” of Grace and Trip’s marriage, two longtime friends. During an evening get-together at their apartment, the couple begins to skirmish as accusations condemn. Players' action and inaction partially determine how the story unfolds between the actors. Many experiences end with the player offending either Grace or Trip to the point where Trip forcibly removes players from the apartment, or the couple manages to reconcile somewhat, telling players that they need to be alone. However, it is wholly possible for players to push the couple into rediscovering their love, or pulling
the couple apart with one character leaving the other, typically revealing a secret, such as an affair, withheld from the others involved.

Even minor and superficial variants in actors' behaviors and responses to players influence the narrative interpretation. For instance, Fable allows players to explore moral and ethical choices by immediately awarding good or evil acts with points. Killing monsters or saving villagers earns good points; committing a crime or killing an innocent person earns evil points. These points ultimately determine responses from non-player characters, albeit the responses do not influence the narrative direction. However, the responses do influence narrative interpretation. Consider Will Wright's, designer of SimCity (Maxis Software Inc. 1989) and The Sims (Maxis Software Inc. 2000), argument that video games are perhaps the only medium that allows us to experience guilt over the actions of fiction characters. A movie audience can always pull back and condemn the character or the artist when they cross certain social boundaries. But in playing a video game, players choose what happens to the characters. Although players may be directed by the values established by the designer, the decision always belongs to the player. The act of decision affects the experience's understanding. In a sense, a player's character is a part of his or her psyche.

Although players may fail to uncover all of the story by not conversing with certain actors or not witnessing certain behaviors, they see patterns in their observations and cognitively create the missing elements in order to construct a more explicit and complete understanding of the narrative (regardless of its accuracy). This phenomenon of observing the parts but perceiving the whole is called closure, or reification from Gestalt psychology. Scott
McCloud, in Understanding Comics, states:

> All of us perceive the world as a whole through the experience of our senses. Yet our senses can only reveal a world that is fragmented and incomplete. Even the most travelled mind can only see so much of the world in the course of a life. Our perception of “reality” is an act of faith, based on mere fragments. (62)

Among literary theorists, this phenomenon is known as “reader response” in which the activity of engagement immediately involves the audience at an individual level. Murray explains:

> We construct alternate narratives as we go along, we cast actors or people we know into the roles of the characters, we perform the voices of the characters in our heads, we adjust the emphasis of the story to suit our interests, and we assemble the story into the cognitive schemata that make up our own systems of knowledge and belief. (110)

Any dramatic movement structured by in-game narrative occurs primarily in the minds of its players, as their narrative interpretations are reconstructions from imperfect information. The experience thus is compelling and unique between individual players.

**External Narrative**

Many video games, especially those games that are or were limited by technology (or technical skill), use external materials to tell their stories. Game manuals, graphic novels, audio cassettes/CDs, and other material independent of the games themselves may accompany games in order to communicate the designers' stories more effectively. Some materials deliver back-story and context for players, leading them to the point where the game begins. Some materials, such as the classic *Wasteland* (Interplay Productions, Inc. 1988), use paragraph books, “where the game would play for a while, and then when players
got to a storytelling juncture they would be instructed 'Now read paragraph 47’” (Rouse 216).

Because these materials exist outside of a game's play, similar to a game's audiovisual elements, external narrative is not strictly a component of gameplay, albeit influencing the overall gaming experience. That said, there are few materials included in video game boxes that do manage to impact gameplay meaningfully. Although not entirely a means for creating augmented reality, such material can blur the line between in-game and out-of-game experiences. Even though this referencing of external materials may be a form of copyright protection, when done in context to the gameplay, anything as simple as a magazine or book that players or player-characters would come across during play, its interactions between the real-world and game-world increases. In effect, external narrative has the capacity to eliminate the fourth wall psychologically.

Consider Majestic (Anim-X 2001) as an extreme case of external narrative, so much so that at times the narrative occurs or appears in-play. The Electronic Arts game was one of the first alternate reality game (as augmented reality) based on Majestic-12 shadow government conspiracy theory. The game was played by phone, email, AOL instant messenger, fax and by visiting in-game websites connected to the game. The deliberate disintegration of the line between material reality and virtual reality causes players to question their presence in relation to the game and its gameplay.

**EVENT STRUCTURES IN NARRATIVE**

As aforementioned, the designers' loss of perfect narrative control empowers players as active storytellers in their game experience. Even with such participation, designers continue
to define significant portions of players' stories by outlining narrative structures for play to occur. By defining episodic experiences, players undergo game events to establish progressive accounts from their independent choices.

Like scenes in plays and films, these structures fundamentally describe “what happens, when it happens, what order it happens in, and what results” (Bateman). Lee Sheldon illustrates three forms of this structure: linear narrative, multi-linear narrative, and non-linear narrative. This organization will serve for our discussion.

*Linear Narrative*
Traditionally, storytelling is predominantly linear. “The story starts at A, proceeds from obstacle to obstacle until B is reached, then in the same manner to C, all the way to the end” (Sheldon 299). The structure tells a story through language, imagery, sound, or a combination of the prior. A quick look at the narrative range in *The Longest Journey* (Funcom Oslo A/S 2000), *Max Payne*, or *Psychonauts* (Double Fine Productions, Inc. 2005) shows that linear structure is capable of a pleasurable and meaningful narrative experience. Nonetheless, this structure can eventually causes gameplay to become unnatural and frustrating due to its largely passive nature.

![Figure 1: Linear structure is the simplest narrative form.](image)

*Fahrenheit* (Quantic Dream 2005) (known as *Indigo Prophecy* in the United States and Canada) restricts players to a space that contains limited peripheral play until the completion
of the primary action. That action closes the current scene and opens a new scene, where the narrative continues. For example, in the opening scene, how players choose to escape the diner, where the main character has violently stabbed a man to death in the restroom, dictates what clues are available in future scenes for the police detectives, and how the patrons recall Lucas. But the narrative structure demands that players transverse all steps.

This method is the popular “python” approach (or what Roberta Williams used to call the “string of pearls” model) used to increase the feeling of non-linearity in a linear structure. The approach provides players a limited degree of freedom within a series of story steps until the story converges back to its main path, leading to the next series of story steps, and so on. The approach combines linear and nonlinear narrative structures. Regardless of its non-linearity, the python approach remains strictly linear. Linear structure clearly limits players in exploring a game's dramatic structure.

*Multi-Linear Narrative*

Similar to linear structure, multi-linear structure gives players progressive paths through a narrative; but unlike the prior, the structure gives players choices of how the narrative unfolds. That is, a story starts at A; but instead of proceeding immediately to B, the player chooses how the story ought to progress by selecting a variant of B (B1, B2, B3, etc.). Again in the same fashion to a variant of C, until the end, this also may have alternatives. The progression of A to B to C is retained, but there is an inclusion of choice and the elimination of a golden path. It bears mentioning that branching can be more extensive than alternative endings.
By allowing players to influence the game's narrative, players then directly interact with and explore the dramatic structure. In *Indiana Jones and the Fate of Atlantis* (LucasArts 1992), a single branch point is located at the beginning of the game. Once players begin to follow one of three paths that run parallel to each other, they are locked into it until the game's conclusion, where the three paths converge. In *Titanic: Adventures out of Time* (CyberFlix 1999), alternative endings reinvent real history. One ending has World War I averted, the communists in Russia are squelched and never seize power, Adolf Hitler becomes a famous artist, and World War II never comes to pass. Another ending has World War I averted but Hitler come to power in Germany in 1927; Germany uses the additional years under Nazi rule to develop the atomic bomb and eventually starts World War II. “Each ending is equally interesting” (Sheldon 303) because players' choices shift the conclusions in a meaningful way. However, even with the availability of choice, the authorial control is mandated from
the designer.

Non-Linear Narrative
When direct authorial control of the story is translated to the player, gameplay effectively becomes non-linear. Like multi-linear structure, a story starts at A and allows the player to choose how the story progresses by selecting a variant of B, and likewise to C and the entirety of the story. The difference is that the structure does not enforce that players move from A to B to C. Players can move from A to C to B; players can traverse all variant of B (B1, B2, B3, etc.) before proceeding to C; players can traverse a series story steps progressively (A, B1, C1, etc.) before proceeding to a different series; or players can move through a combination thereof.

Non-linearity exists in two distinct forms: web and modular. In both cases, the structure gives players the opportunity to explore the narrative in a customizable fashion. Players navigate through the story almost entirely independent from the designer's directives. I say “almost” because players are confined to context of the gameplay, which is defined partially by the story steps. That is, if players wanted to create clones of themselves in a fantasy game, typically no story step would allow this event to occur because it exists outside of the context of the narrative.
Web non-linear structure is closely related to multi-linear structure. The paths defined by the narrative exist but do not necessarily progress towards the final story step. In Figure 3, D4 has two branching paths; the path to E3 proceeds narratively towards the denouement, and the path to B3 regresses narratively nearly returning to the exposition. *Ripley's Believe It or Not!: Riddle of Master Lu* (Sanctuary Woods, Inc. 1995) was built atop a few huge modules, which externally could be transversed as a web but internally could only be transversed linearly. *Dark Side of the Moon* (SouthPeak Interactive, LLC 1998) follows primarily a web structure although the game contains several two-way choke points that must be completed in order for the player to progress.

Modular non-linear structure removes the predefined narrative paths, giving players complete freedom to explore the game's narrative through a set of story modules. No other structure offers such a high degree of ludic freedom. Like *Don Quixote de la Mancha* or *Star Trek:*
*The Next Generation*, modules (or episodes) make up the narrative experience, which can be variously arranged. Take for example episodes from the first season of *Star Trek: The Next Generation*:

1. The *USS Enterprise* begins its maiden voyage by discovering the mysteries of an advanced station. However, the mission is repeatedly threatened by a god-like being named Q.

2. The *Enterprise* experiences loss of power and is involuntarily in orbit shortly after encountering a new alien threat. It is the first on-screen appearance of the Ferengi.

3. Captain Picard is reunited with his old ship, the *USS Stargazer*, claimed to be given as a gift from the Ferengi. But Picard is quickly lured into the Stargazer's trap.

4. The *Enterprise* heads for the home of Data, where he discovers who created him, reactivates his evil brother, Lore, and encounters the Crystalline Entity that destroyed the colony.

5. A planet with advanced technology reveals itself to the *Enterprise* only to kidnap Wesley Crusher and its other children.

6. A vile tar-like entity composed of pure evil holds Deanna Troi hostage. The crew's attempts of rescue are met with vicious pranks and assaults, killing Tasha Yar.

Although the listed order is correctly ordered (according to the original airdate), an audience is not forced to view them in any particular order to experience the series. Although certain “rules” need to be established and enforced in order for the experience to maintain consistency, the narrative follows no golden path for the story to be enjoyed fully. (1) needs to precede the other episodes, and (2) needs to come before (3) in order for the Ferengi narrative to make sense. It is worth noting that *Star Trek: The Next Generation* is not a perfect example. Despite the fact that individual episodes have functioning story arcs, the full body of episodes does not have an encompassing story arc, needed in order for effective
modular storytelling.

David Freeman created a hypothetical game example to educate how modular structure can function in video games. The interactive nature of modular structure does not remove the meaningfulness of the narrative; it empowers players to seek meaning:

1. After many (gameplay) struggles, you retrieve the pendant that allows you to hear the voices of the dead Elders. The Elders give you a new name that means, “Wing of Time.” This name refers to the fact that someday, you may be able to change the very fabric of time itself.

   The Elders tell you not to tell the people of the village that you can hear them (the Elders). This secret is for you alone. If you tell anyone, you will die.

2. In gameplay, you battle enemies and make your way to the quite ill Shaman, who declares that you are the awaited one—the one of uncanny ability.

   Before dying and joining the Elders, he advises you to keep your own counsel, and ignore the people of the village. Sadly, he confesses that they’ve always treated him quite strangely—he doesn’t know why.

   Having said all this, he dies, his mission in life fulfilled at last. His time is at an end.

3. In gameplay, you perform a unique fighting move and save the village from enemies. People are aghast, for no one has been able to do that move since olden times. To them, you place in the ancient lineage seems likely. You may be the fulfillment of their dreams. They wish the Elders were still around to guide them and tell them for certain...

   And they tell you, if you see the Shaman, or have you already seen him, ignore him, for they expelled him from the village long ago. He always made them uneasy.

4. You discover that the Shamans have no independent existence. They are created by the unconscious dreams of the people. During times of great stress, distrusting their own counsel, they unconsciously weave together a life form called a Shaman out of their own psychic energy, without even realizing they’re doing so. Then, supposedly, they would turn to the Shaman for advice.

Figure 4: Freeman's modular non-linear story develops uniquely through play.

Players can explore the four experiences in any order. And depending on the order, the
dramatic structure changes, although the story remains consistent and coherent. If players experience (3) after (1) and (2), these last two in either order, players live with the secret that you can talk with the Elders, something that the villagers think is impossible. If players experience (2) after (3) and (4), these last two in either order, players understand a tragic quality of the villagers' dreams and the Shaman's existence. If players experience (2) after (1), players find themselves holding a secret from the Shaman. If players experience (3) after (2) and (4), players encounter irony in the villagers' uneasiness with the Shaman, since he was created from their unconscious (Freeman 214). Each exploration of the narrative structure is meaningful. The video game's narrative understanding no longer continues in a linear way, it expands the meaningfulness.
Temporal Elements in Gameplay

“Causes and their effects are the basis of narrative, but they do not occur in a void; they exist in time” (Bordwell 52). Often these elements are overlooked or understood solely in terms of narrative or play – even audiovisual elements alone. But temporal elements are separate qualities requiring an individual exploration. In this paper, I have defined time to mean the experiential passing of events from future to present then past. This definition assumes a linear progression; time is not cyclical even in cases of repeating instances, such as the film Groundhog Day (1993) or the episode “Cause and Effect” of Star Trek: The Next Generation (1992) (Wolf 80). Granted that the series of events within any repeating instance will be identical, however the participants' experiences through the instances create a linear experience in time.

This definition further disregards time in relation to the audiovisual elements of video games. It is not to say that audiovisual components do not consider time; only that gameplay time is unique and separate from audiovisual time. Real-time graphics rendering is not the occurrence of real-time events passing.

ROLE OF TIME

Play is a dual structure. A real-world action assigns to a game-world action, thus creating an experience for players. Jesper Juul, video game theorist, cites this structure more concretely:

If we play a board game such as Axis & Allies (Nova Game Design 1984), all our actions have a double meaning. We move a piece around a board, but this also means we are invading Scandinavia with our troops. In Tomb Raider (Core Design Ltd. 1996), we click the keys on the keyboard, but we are also moving Laura Croft. (141)
In these examples, player performed actions occur in the real-world as real events that correspond to events occurring in the game-world. Because player actions exist in time, since actions do not occur in a void, we can safely say that game events (their causes and effects) must exist in time as well.

Temporal structures in video games work just as time in reality; they keep things from happening all at once. During a game's interludes and interactions of events, time manages the pacing of actions and events by providing points of reference for players to understand their passing. Players then arrange these points into a suitable chronology to make sense of the fictional world's events. While the same malleability of time found in films is available in video games, the medium of the video game often involves the player in the temporal structure, and thus experiences of time can vary greatly between players.

Returning to our examination of the opening scene in *Fahrenheit*, after Lucas returns to his senses from his possessed trance, players are made aware that a police officer is in the diner and may come into the restroom, and the crime scene, at any time. Time motivates players to deal with the aftermath of the scene and flee quickly. Time, in other instances, frames the world order. For example, books in the game *Myst* (Cyan Worlds 1993) inform players of occurrences that happened prior to the players' adventure. Time heightens emotions and guides game flow as a central element of the video game experience.

**STRUCTURES IN TIME**

Any causally linked series of events occurs in time. Cinematic techniques attempt to simulate
the subjective passing of time by changing the pacing of scenes and by what they choose to show and leave out. The depiction of temporal order and duration occur throughout gameplay structures. Flashbacks force players to rearrange the events mentally into a logical order. Collapsed and eliminated time spans remove mundane play actions; expanded time spans emphasize critical play actions. But unlike film, temporal elements in video games are independent from their narrative elements due to player pacing, creating different affecting experiences.

**Real-Time**
The most straightforward use of time in video games is real-time. Game events occur entirely within a span of time that lasts from the beginning to the end at the constant rate. Consider joining narrative and temporal elements. The story starts at A at time \( t_0 \), proceeds to B at time \( x \), then again proceeds to C at time \( y \). The dramatic structure functions entirely independent from the players' interactions. If players are not present for a particular story step, the narrative continues without them. Real-time game events are not limited to story steps. Events can be as simple as non-player characters' behaviors that occur at any specific time within the experience. Prominent examples of media real-time occur in the TV series *24*, where 24 one-hour episodes combine to the events over the course of a day, and the movie *United 93*. Time depiction may involve dilation from an accurate representation of time, such as the passage of fifteen-minutes in the real world equates the passage of one-hour in the game-world. Although the dilation no longer warrants “true” real-time, the experience is nonetheless effectively real-time.
Gameplay in *The Last Express* (Smoking Car Productions, Inc. 1997) is unique in that events happen almost completely in true real-time. The game begins at 7:14 pm on July 24, 1914 and ends at 7:30 pm on July 26. The only time that the game does not take place in real-time is when players sleep or is knocked unconscious. The feature of time in addition to characters having their own agendas and changing their plans as a result from players' intervention causes the game experience to be unique between playthroughs of the game.

More common uses of real-time in the medium function unnoticed in order to make the game-world resemble the real world. For example, day-night cycles in *Fable*. Other common uses combine temporal structures and play challenges to create physical and mental races, such as the experiences found throughout the real-time strategy genre.

Note that although cut-scenes exist disconnected from the play experience as elements of narrative – as they interrupt the gameplay to set the story, to advance a game's events or to present character development – they do depict events in fictional time (in the game-world). During cut-scenes, a game's experiential passing of events from future to present then past occurs beyond the influence of its players, but are consistently depicted through a real-time, true or dilated.

*Trigger-Based Time*
In order to allow players to more fully explore and experience gameplay, trigger-based time partitions game events to occur once a player performs a specific action or enters a particular spatial location, both which occur in the fictional reality. Most typically seen in graphical adventure games, trigger-based time “pauses” dramatic progression within a particular story
step until players perform a certain task. The story starts and exists in A, proceeds to and remains in B only after a critical action is performed, then in the same manner to C. For instance, in *Fable*, players are forced to talk to the character Maze during the “Returning to Oakvale” quest, lest he will endlessly wait in Oakvale and players can no longer proceed through the primary narrative.

Trigger-based time is responsible the majority of events occurring in the first-person shooter genre. Although *Doom* (id Software, Inc. 1993), for instance, is rendered in real-time, its events occur according to players' spatial location; the frequent phenomenon throughout the game called “Monster Closet”, where doors disguised as walls suddenly open releasing a number of enemies, is triggered by players' location. If players were never to come across such locations, triggers for these story events would never occur, thus creating no experience. (Admittedly, play within these events occur in real-time.)

*Turn-Based Time*

Similar to, and arguably the same as trigger-based time, turned-based time divides gameplay into well-defined and visible parts called turns or rounds. These turns give players a period of analysis before committing to any game action. In order to end a turn, players must explicitly make an out of game action to do so. This act of ending one's turn outside of the game differentiates trigger-based and turn-based temporal structures. That is, like trigger-based time, the experience starts and exists in A, proceeds to and remains in B only after a critical action is performed, but turn-based time's critical action occurs peripherally outside of the virtual reality unlike trigger-based time.
Sid Meier's Civilization (MicoProse 1991) (or Civ) spans a time-period beginning near the Stone Age, approximately 4000 BC, to 2100 with space age technologies. Time events occur as turns, allowing players to assume their roles as rulers of emerging civilizations and focus on exploration, war, and diplomacy. Final Fantasy Tactics (Squaresoft 1997) players typically combat no more than twelve characters by commanding their characters singly on the grid-like battlefield. Other games use turn-based time only during specific play sequences, such as combat phases in Fallout (Interplay Entertainment Corp. 1997).

It bears mentioning that not all turns are obviously visible. Time may be divided into discrete turns where characters simultaneously perform their actions. That is to say, the experience may effectively appear as though events occur in real-time, where, in fact, turns are fixed short intervals of real-time. Players may still pause events to evaluate a situation and their future actions. Neverwinter Nights (BioWare Corporation 2002) and Star Wars: Knights of the Old Republic (BioWare Corporation 2003), based on the d20 system, both exhibit such play during combat.

Mind that temporal structures are not mutually exclusive. A game can have multiple structures simultaneously happening, and can swap between structures to change the style of play. The PC game Fallout uses all three structures. Adventuring in town causes one minute of real world time equals one minute of game time, unless players perform actions that take an extended amount of time; world traveling has real-time dilates accommodating the difficulty of the terrain. Combat employs a sequence, or initiative, score to order allies and opponents in the turn. Narrative events occur once players act or arrive in certain locations.
For example, in the middle of a conversation with Killian Darkwater, mayor of Junktown, there is an assassination attempt on Darkwater. This assassination attempt does not occur according to any temporal location within the game's 500 days, but is triggered during the players' first conversation with him. Again, please note that these definitions apply only to the temporal structure, not the graphical depiction.
Spatial Elements in Gameplay

Like temporal elements, space is commonly understood as belonging exclusively to audiovisual structures. But again, gameplay and audiovisual spatial elements are distinct forms requiring separate investigations. For the purpose of this paper, space will be defined as a fundamental structure constituting a set of dimensions in which finite objects are located. That is, space is a sort of “container” holding arranged objects within; these objects can move and act all places through this structure. In the very basic sense, space is where the game takes place. A designated playing field is the space for soccer; the board is the space for Chutes and Ladders. Jesper Juul states that game space is a subset of space in the world, and a magic circle delineates the bounds of the game (164). In the case of virtual spaces, game space is a representation of a subset of space in the world, functioning approximately identical to actual space.

This definition can be expanded to include players. Although they clearly exist in the larger space of reality, games must be observed through thoughts and emotions requiring a viewpoint in the game space. The viewpoint provides players a virtual presence, and inclusion in the definition. Note that the definition does not involve a space's aesthetic qualities; this characteristic gives us the opportunity to examine how space is experienced in the video game medium.

Role of Space

Although much of the visual experience in video games is represented in terms of its audiovisual elements, gameplay carries the responsibility of how those visual elements are
defined and interpreted. Expressly, gameplay dictates how the space is used. Like the role a film director, gameplay defines a spatial experience. Although production designers and location managers provide an aesthetic for real or imagined places for films, any visualization of the artistic and dramatic aspects in those places is defined by the director. In the same manner, gameplay, specifically its spatial structures, visualizes a game's audiovisual elements.

A game's space serves to provide a framework players use to structure their experiences. As players participate they create a model of how the game works. In other words, players perceive the world from a particular viewpoint and cognitively map objects existing within a game's world, assigning various mechanical qualities and spatial interdependencies to better succeed in the space. This spatial attribution occurs intuitively within the rules and interactions of a game. For example, in Tetris (Pajitnov 1985) players can only interpret the space; in Myst the space exists to be explored; in Civilization the space can be arranged by players; in Second Life (Linden Lab 2003) players can build permanent spaces shared with other players.

Moreover, game-space exists as a magic circle. First described by Johan Huizinga, the term magic circle characterizes a game by “standing outside of ordinary life” and “within the boundaries of time and space” (13). By this definition, player experience is an activity protected by the borders of a game's space. Even though the barriers between game-world and real-world are not solid walls but more like screens, selecting and adapting to exchanges, activities kept inside the circle remain permissible.
PLAYER STRUCTURES IN SPACE
Much of player-space, or the viewpoint in the game-space by which players see the world, has been discussed previously in terms of perception, or point-of-view. The three commonly known perspectives offer substantially understandings in how players observe a virtual world, but not so much in how players interpret (and exist in) that world. *Grim Fandango* (LucasArts 1998) and *Psychonauts* both see the world through a third-person vantage; however, players exist in the virtual world entirely different. *Grim Fandango*’s viewpoint observes the avatar from a fixed environmental position, whereas *Psychonauts*’ viewpoint follows behind the avatar. The differing player-spaces cause the experiences of gameplay to be fundamentally distinct.

![Grim Fandango](image1.png)  ![Psychonauts](image2.png)

Figure 5: *Grim Fandango* portrays player-space as a series of framed scenes. (MobyGames)  Figure 6: *Psychonauts* uses a typical action-adventure view, following the avatar. (MobyGames)

Because the prior definitions for player-space do not adequately fulfill the needs of this paper and understanding gameplay (as points-of-view are significantly limiting) the following characterizes an altered account of how the game-space is experienced as a player.
External Space
The grandfathers of the medium, such as *Colossal Cave Adventure* (Crowther 1976) and *Zork: The Great Underground Empire* (Infocom 1980), simulate environments entirely in words. Just as reading a novel, the combinations of words and construction of phrases result in the audience abstractly representing sensible objects, scenes, or emotions, thus creating a sensual experience. Nonetheless, players never exist within this game space. Mark Wolf gives us an understanding of no space from his book *The Medium of the Video Game*:

These games are completely text-based; the scenery, other characters, and the player’s surroundings are present as verbal descriptions delivered as text on-screen, and the player’s replies and requests are typed commands, such as “north” or “open door.” In this sense, there is no on-screen space to speak of; everything has to be imagined on the basis of the descriptions. One could argue that *everything* takes place off-screen. (52)

Because the experience exists independent of the game-space, we can say that players have no spatial structure.

Below is a brief transcript from the game *Colossal Cave Adventure*, which shows player commands as simple imperative sentences (marked by “>”), and game responses as well-defined situational descriptions.
Welcome to Adventure!
...
At End Of Road
You are standing at the end of a road before a small brick building. 
Around you is a forest. A small stream flows out of the building and down a gully.
>enter building
Inside Building
You are inside a building, a well house for a large spring. 
There are some keys of the ground here. 
There is tasty food here. 
There is a shiny brass lamp nearby. 
There is an empty bottle here.
>get lamp
Taken.

Figure 7: A typical transcript of Colossal Cave Adventure gives limited understanding of player-space.

Even with game responses usually written from a second person point-of-view and as a result closely associating the player with the main character, or avatar, the experience is imagined in the mind of the players. This process means that players have no “virtual” spatial structure, existing completely external of the virtual environment.

**Context-Sensitive Space**
As players move into the game-world, a context-sensitive structure tethers players to the environment in relation to the avatar’s location. More simply, the game depicts the avatar moving across either a static or a dynamic background, and “when the avatar walks through a door or off the edge of the screen, the background changes to depict his new location” (Rollings Adams 449). Noël Burch identifies six “segments” of off-screen space: the areas beyond the borders of the visual frame, the area behind the set, and the area behind the camera.
A fifth segment cannot be defined with the same seeming geometric precision, yet no one will deny that there is an off-screen space “behind the camera” that is suite distinct from the four segments of the space bordering the frame lines although the characters in the film camera. There is a sixth segment, finally, encompassing the space existing behind the set or some object in it: A character reaches it by going out a door, going around a street corner, disappearing behind a pillar or behind another person, or performing some similar act. (17)

The interconnected adjacent spaces typical of many traditional adventure games are clear examples of Burch's sixth segment of space, allowing designers to use established cinematic techniques – camera angles, composition, and lighting – to enhance the gameplay experience.

Context-sensitive structuring is the traditional player structure in graphical adventure games. *Grim Fandango* raises the emotional tones of its narrative elements by directing players to interpret the world from a particular vantage point. Each camera movement is carefully plotted by the games' designer in order to enhance the drama. Dialogues are enhanced through close-up shots of characters, blurring the line between cut-scene and gameplay. Exploring the environment is made more interesting by beautiful camera sweeps that add a true cinematic quality to the game. Even action games, such as *Resident Evil 2* (Capcom Entertainment, Inc. 1998), which focus primarily on fighting, stunts, car chases, explosions, and the like, use context-sensitive structure to enhance the emotional tones of its play elements.

*Fahrenheit* makes cleaver use of the player structure, employing dramatic movement and composition to enhance its game-space. The game often splits the player-space into multiple views to show secondary scenes, displaying goals that players must reach or oncoming
threats players must avoid. In its first scene, where the main character in a possessed trance mysteriously murders an absolute stranger, a cop in the diner gets up to go to the bathroom. One perspective shows him slowly walking to the bathroom only to discover the body (and possibly the main character); another perspective depicts the viewpoint in which players control the main character, shows Lucas fleeing the scene in confusion. It is an simple technique that effectively increases the tension in the play.

*Character-Sensitive Space*
As player structure is moved more deeply into the virtual world and begins to form a more intimate relationship with the main character, as *Fahrenheit* sometimes did, players become tethered to the avatar as opposed to the environment in which he moves. This space is called a character-sensitive structure. Keep in mind that the space is still outside of the main character while keeping the avatar (almost constantly) in view.

The spatial structure does not demand any specific vantage point. We are all familiar with the many common tethered perspectives: *side-scrolling*, commonly seen in older video games such as *Super Mario Brothers* (Nintendo Co., Ltd. 1985); *top-down*, where players see the avatar and the world from above; *third-person*, in which players follow behind the avatar in a three-dimensional world (Paul Douglas' *Tomb Raider* (Core Design Ltd. 1998) is one of the best-known examples); and *isometric*, showing players a view the world at a 30- or 45-degree angle from the vertical, looking slightly across the the landscape (Rollings Adams 37). Each perspective focuses on allowing players to see what the avatar is doing (*e.g.* running, jumping, climbing) in relation to the game-space. There can be a certain joy and
excitement to watching one's keyboard or controller commands translated into the character's performance. If done correctly, can players feel as though they are part of the action rather than a disjointed observer. Note that SimCity is not an isometric viewpoint in this particular player-space. The viewpoint ultimately is not tethered to any specific entity, and acts as an independent entity in the game-world. Although players actually see the world on the screen identically, the experiences of perception are distinct.

Second-person view, as mentioned before, is easily identifiable by the use of the pronoun “you.” But as graphics became more and more sophisticated, player-space was moved into the game-world and usage of external space declined. Although occasionally players may experience the game-world through the eyes of a character other than the avatar. Metal Gear Solid 2: Sons of Liberty (Konami Computer Entertainment Japan, Inc. 2001) and Psychonauts are such examples. The perspective is neither first-person nor third-person in that it corresponds to some valid surrogate pair of eyes in the game-world. However, since the perceiving character is effectively tethered to the main-character, the result is that second-person view is character-sensitive.

Point-of-View Space
Point-of-View (also known as POV) is the player-space that is experienced through the eyes of the main character. More commonly known as first-person, this spatial structure builds on the established first-person perspective. Sue Morris, in “First-Person Shooters: A Game Apparatus” states “first-person point-of-view is used very successfully in games, not just in first-person shooters but also in adventure/puzzle games such as Myst or Riven (Cyan/red
Orb, 1997), to create a sense of the player's embodiment within the game space” (89). POV is recognized by many designers to be the most effective way to bring players into new worlds inside of the computer, thereby making them feel, even for brief moments in time, that they are acting in the game-world instead of controlling an avatar who is actually acting. Laurie Taylor explains the identification between player and player-space:

   This connection between the player and the player's position in the game space implies a type of identification, in that the player identifies sufficiently with objects or characters of the game space to function in response to that game space though a self-image that is inserted into the constructs of the game space and then internalized by the player (subject).

Numerous first-person shooters on the market show how popular this entertainment (and its perspective) is.

Vital to the effectiveness of the player-space is how it behaves in the game-space. Assuming the perspective moves, every subtle motion in this structure makes the view from the avatar believable to create the illusion of life in a character never seen. *Doom* features a swaying weapon, giving players the impression of a perspective's ebb and flow while walking or running. *F.E.A.R.* (Monolith Productions, Inc. 2005) strengthens the impression of movement with the viewpoint inconspicuously bouncing up and down. Monolith's game moreover provides a fully-present body for the avatar. Looking down, players can see the silent protagonist's torso and feet; during scripted sequences, the protagonist's hands and legs can be seen. The visual experience of the game-world displays an almost natural method for seeing the world.
Since we fundamentally experience the real-world from our own point-of-view, POV is arguably a more intuitive and natural way to perceive and thus act in the game-world.

Despite claims to the contrary, POV is one of the most unrealistic views possible. The average human has a 120-degree field of view and can detect peripheral movement at up to 180 degrees laterally, but the average game of *Quake* (id Software, Inc. 1996) shows a limited 30-degree view (Rollings Adams 314). The perspectives are grossly dissimilar (but this not discount POV immersive quality).

*Independent Space*

Independent space enables players to move anywhere in the world, and in certain circumstances control the perspective's directional rotations to look at a scene from any direction. Sometimes known as a free-roaming camera (or viewpoint), this perspective disconnects a player's actions on the game-space and the performed actions within the game-space. Because this perspective suggests no immediate tethering to any objects or characters within the game-space, players' behaviors exist unique to themselves and independent from the game-world, although not external. Independent space still exists in the game-world, unlike external space.

Like character-sensitive structure, independent space draws on several vantage points. In fact, all of the aforementioned vantage points of character-sensitive structure have equal counterpart in independent space, only that the structure is not fettered by any in-game object or character. In *Torin's Passage* (Sierra On-line, Inc. 1995), a small yellow handle appears occasionally, on the edge of large scrolling pictures, that allows players to move around in
these pictures without moving the character. *Sim City* and *Civilization* show the game-space from a bird's-eye view independent from its game entities; *StarCraft* (Blizzard Entertainment Inc. 1998) shows its isometric battlefields unconnected from the various ground units and aircraft. The third game in the *Gabriel Knight* series, *Gabriel Knight 3: Blood of the Sacred, Blood of the Damned* (Sierra On-line, Inc. 1999) does not rely solely on fixed camera-angles, but instead grants players limited control of the player-space to move it around to experience the scene from a desired perspective. Regardless of the differing points of perspective, the structure gives players the freedom to analyze and evaluate the space independently from game entities.

Unfortunately with the ability for players to view the world as they desire also comes a game designers' inability to express their narrative through a forced player-space. Designers can no longer strongly direct the sequence of shots to players in a logical progression. Unbalanced change in camera angle can quickly disorient and confuse players, and can cause players to lose interest. Not unlike modular non-linear narrative structure, the designers' limitations can be overcome through creative effort. Players can independently explore their own stories while engaging the designers' story through a game's space.

**WORLD STRUCTURES IN SPACE**

As video games have grown in size and scope, world-space has proportionally grown equally complex requiring individual “levels” to be developed independently. Commonly referring to side-scrollers, first-person shooters, action/adventures, flight simulators, and role-playing games, levels, as a concept, expands across multiple genres. Although exact definitions vary
between them, they share an understanding that these areas are confined geographically.

From this common definition, design is influenced by prior practices, such as interior design and land use planning. Tito Pagán states:

Some guidelines that govern good aesthetic design used by other design professionals include balance, scale, proportion, unity, emphasis, rhythm, and harmony. All designs consist of color, pattern, texture, and style, and if these guidelines are adhered to, the player will feel comfortable in an environment.

However, these principles in creating comfortable and logical areas for players consider only audiovisual elements of world-space. World structure exists as a gameplay component, and although audiovisual elements may influence how a game is experienced, gameplay and audiovisual elements are again situated as distinctly separate entities.

To more fully understand world-space as a function gameplay, Richard Rouse provides a simplistic but effective breakdown. The framework defines world-space in terms of action, exploration, puzzle-solving, and storytelling; this structure will provide the basis for our discussion.

Action
Action is the most apparent component in defining world-space, providing visual cues as to the directional flow of a space. Of course certain genres almost entirely ignore this component to emphasize a game's open, explorable world; but still nearly all games contain some action elements whether it be combative (e.g. shooting, brawling) or maneuverable (e.g. sneaking, jumping, running) in nature. That is not to say that a game's world-space
necessitates any specific action; only that its terrain and architecture facilitate different actions for players to perform in that environment. John Feil and Marc Scattergood discuss how a game's world-space influence player actions.

Within a closed environment, a sniper can find a perch with a commanding view of the rest of the building, giving him a powerful advantage. In a hand-to-hand fight, a stairway can make all the difference in the outcome of a battle. A blind corner along a central pathway is an attractive place to set an ambush. A narrow hallway means a group uses a different formation what a wide hallway or even a large room. (74)

World-space commonly engenders two classifications of action: linear and non-linear.

Linear action refers to a player goes from one room to the next, conquering each encounter in the same order as every other player. Although players may diverge from the linear path, they must backtrack in order to progress in the game. Recall Max Payne. World-space dictates the game experience flow in a straight line. In Punchinello's manor, players have no choice in how to play through the action of the world. They must follow storage through the boiler room through the wine cellar. In other words, players are guided along a path from beginning to end. Granted, each encounter is open allowing players to act freely in the world, but in the end, there is no choice about what action occurs next.
In a linear world-space, players are expected to follow the path, authoring and supporting a linear narrative. (Note that a linear narrative does not require a linear world-space.) However, as stated previously, linear gameplay means less freedom for players, which can translate to players feeling trapped and constrained adjusting to the designers' story instead of their experience.

On the other hand, non-linear world-spaces guide players to customize their unique experiences. In such environments, active encounters may be experienced in different orders based upon players' autonomous decisions. Sometimes players will not happen upon some encounters at all. Phil Co explains:

Nonlinear levels give the player choices. Some of these levels simply have branches or forks at certain locations. The branches could go in different directions, or they could meet up later on. Some nonlinear levels have objectives that require the player character to travel to multiple destination and perform a task. The tasks can be performed in any order and this sequence of the tasks becomes the choice. (Co 126)
The true point of non-linearity is to grant players a sense of freedom in the world-space, to allow players unique experiences under the united vision of the designers.

*Exploration*

With the grand opening of Disneyland in 1955, Walt Disney afforded guests the luxury of choice and change. That is, the hub-like layout of the park connected its five lands with various gates and narrow passages creating a range of possibilities for guests in their explorations (Marling 74). Don Carson states:

> If your desired goal is Fantasyland, you have up to five different ways to get there. You can take the alpha/photo opportunity path, up Main Street, across the draw bridge and through the castle gate. You could enter through Frontierland or Tomorrowland, or you could sneak through either side of the castle by ways of two narrow paths...Multiply this “multiple paths” concept to each and every land, and you can see what a web Disneyland actually is.

At the end of the day, each guest will have created his or her own exploratory experience in the park, noticing seemingly new and different things with every turn, one that is uniquely his or hers. In a like manner, players in a virtual space can become empowered to explore its various high and low roads.

For each player-space, a different awareness of and access to exploration is managed. External space, driven by text parsers and player imaginations, requires players to navigate by typing directions, such as “GO NORTH” and then explore their estimation of the space from the text. Context-sensitive space provides more intuitive means to maneuver a world but still demands players view it from a limited perspective. Character-sensitive, point-of-
view, and independent player-spaces exist internally to the world-space giving directorial
control to players, and in the end offers greater possibilities for spatial exploration,
empowering play.

_Puzzle Solving_
Typically placed at bottlenecks, environmental puzzles slows gameplay as players are
directed through them. And in order to progress further into the game or simply to access a
reward of some kind, players must discover some solution to the confronted puzzle. Some
solutions are obvious and some are not. Puzzles centralized around a game's world-space
occur in two forms: lock puzzles and movement puzzles.

Locks, obviously, are used to prevent areas and things from being accessed too easily. They
can prevent players from going between rooms and areas, or from getting into various
containers across a virtual world. As a staple of the game medium, locks are frequently used
to keep players in an area of interest (primarily related to story-telling or action) until they
find a physical or mental key. What I mean by locks and keys is that locks are any obstacles
that prevent progress and keys are any objects that remove said obstacles.

Some of the simplest examples of locks are “switch-flipping” puzzles found in many older
first-person shooters. In these games, players are required to navigate through a large section
of the world-space in order to flip a switch, which often has no obvious connection to its
reward somewhere else across the world. But having a switch with no apparent effect can
easily discourage players. *Legacy of Kain: Soul Reaver* (Crystal Dynamics, Inc. 1999) and
*Prince of Persia: Sands of Time* (Ubisoft Montreal Studios 2003), along with many other
games, successfully connect activated switches with their effects by briefly illustrating the
link via a cut-scene to assist their players. Switches are often disguised as other, more
contextual obstacles. “For example, *Call of Duty* (Infinity Ward 2003) disguised switch
flipping as placing explosives on anti-aircraft guns...Here the focus is mostly on players
exploring until they find the puzzle, with the solution to the puzzle itself then being trivial”
(Rouse 457). Other examples of locks include sliding/rotating block and lock-and-key
puzzles.

Some may argue that all puzzles are keys in the end, but this assumption misses important
opportunities for compelling gameplay. Movement puzzles occur in the architecture of the
world-space and involve no locks. These puzzles focus on players using their avatars'
maneuvering abilities to successfully navigate with the world. Normally seen in side-
scrollers, games like Super Mario Brothers and Sonic the Hedgehog, these games have
avatars running and jumping in order to progress the game.

Players customarily experience movement puzzles in three primary designs: *jumping*,
typically involving moving or disappearing/reappearing components where players are
required to use jumping to proceed; *timing*, where players have to wait for the right moment
to act to foil the puzzle; and *obstacle race*, in which players physically navigate the world
usually while being timed. In the end, environmental puzzle solving identifies ludic elements
of gameplay.

*Story-Telling*

World-space, regardless as either real or imagined, communicates a story, typically
paralleling the designer's story. Narrative world-space, or setting, is not so much a definition of the shape of game's space, but instead what is in it or what populates that space. It creates a “big picture” idea of the created world; it gives players an understanding of the cultural context and physical surroundings of a game (Rolling 69). From these symbols of culture and physicality, players are given the choice to seek out significance and meanings to the world.

This conception of environmental storytelling is readily exemplified when Hollywood produces and then reproduces the same film. Consider *Romeo and Juliet* (1968) and *William Shakespeare's Romeo + Juliet* (1996). Although the films use Shakespeare's original dialogue, the experiences differ in that the prior maintains a setting liken to that of the play and the latter transposes the experience into the present day, swords replaced with guns and castles replaced with skyscrapers. Ultimately, environmental variants between the films invites two unique experiences from a shared narrative. Because audience dispositions and expectations change in accordance to narrative context, story interpretations equally change. *Romeo and Juliet's* Shakespearean environment and language compels a sense of incomprehension and “high art;” whereas the *Romeo + Juliet* adaptation associates itself more directly to a modern, alternative audience, causing them to propel past the Elizabethan English into an approachable experience. Granted that the interpretations are similar, the story expressions distinct to themselves.

Again, returning to *Max Payne*. Its sights and sounds, which are dictated by the environment, reinforce, and at times, define its starkly vehement and melancholy story. If it were set in a futuristic, machine-age science fiction world or a quasi-medieval, sword-and-sorcery fantasy
world, the game experience would be entirely different. If the game took place during the modern era but was set outside of New York City, the game experience would be entirely different. Even supposing the narrative's beginning, middle, and end, and Max's character arc may remain approximately identical, the story is wholly changed because of its set change. As Wee Liang Tong and Marcus Cheng Chye Tan stated: “game-space is not merely a virtual construction rendered to the player to explore, but is presented as an active engagement and an expression of the game's fictional significance” (107). In effect, setting becomes a vital and powerful actor in the experience, affecting players continuously and subliminally. Every texture used, every sound played, every turn in the road reinforces the starkly vehement and melancholy story (Carson).

**DIMENSIONAL STRUCTURES IN SPACE**
Dimension strongly affects the experience of a game. A few years ago, the majority of games had only two-dimensional spaces; side-scrolling games, such as *Super Mario Brothers*, displayed two-dimensional action typically moving from left side of the screen to the right in order to reach their goals. “Mario could run left and right and jump up and down, but he could not more toward the player ('out' of the screen) or away from him ('into' the screen) (Rollings Adams 60).

Even though confined by the limitations of the x- and y-axes, two-dimensions can be manipulated to represent three dimensions. To create the illusion of depth, objects moving along the z-axis (‘into” and “out” of the screen) gradually change in size. “As objects grow larger they appear to be moving towards the viewer, and as they grow smaller they appear to
be moving away from the viewer” (Wolf 60). *Torin's Passage* is such an example. Likewise, *StarCraft* is effectively 3D showing plateaus and lowlands, as well as air units that travel over obstacles and ground units. However, its implementation is a layered set of two-dimensional planes, in which “objects can be placed and moved within a plane with a fine degree of precision, but vertically, an object must be in one plane; there is no 'in between’” (Rollings Adams 61).

Despite the implementation of such games being two dimensional, the experience can exist three-dimensionally. I say “can” because as a generalization, graphical elements do not dictate how the gameplay is experienced. But a game's visually perceived images are commonly deceptive and misleading, creating a natural and cognitive illusion of three-dimensional space. This illusion encourages, but does not require, players to think in three dimensions. *Doom* is heralded as a pioneer for the modern first-person shooter genre and widely recognized for its immersive 3D experience even though its graphics are strictly two dimensional. Equivalently, the use of 3D graphics, like the characters in *The Longest Journey*, does not mean the experience is three-dimensional. Explicitly, a three-dimensional game experience requires gameplay to necessitate players to comprehend and interpret the world-space in three dimensions. The addition of the three-dimensional interactions enriches the experience to emerge as an *immersive* three-dimensional experience.

Note that the addition of a third dimension does not offer a greater gameplay experience. Although three dimensions suggests a more real experience, reasoning does not follow that dimension serves gameplay in such situations. For example, “*Lemmings* was a hit 2D game,
but *Lemmings 3D* was nowhere near as successful because it was much more difficult to play. The addition of a third dimension detracted from the player's enjoyment rather than adding to it” (Rollings Adams 61). Dimension with all other structures of gameplay must balance to optimize players' experiences.
**Mechanical Elements in Gameplay**

A discussion about mechanics and rules may seem somewhat paradoxical, as play is typically seen as some unrestrained, amusing interaction. However, games by their natures are goal-oriented. Players play in order to accomplish some activity of achievement, socialization, or immersion, all of which mandate a goal (theses played games may be games existing outside of a game as metagames). With the inclusion of a goal, it follows that there must be some sort of mechanic to allow for its accomplishment. Competing with other characters on a battlefield or in an economy requires mechanics for points and exchange; exploring the game-world and discovering locations and artifacts requires mechanics for collecting and feedback. Mechanical elements provide significance to the experience.

Informally, game mechanics are recognized as a set of rules that operate play in a game. This definition is extremely vague can quickly lead to dissatisfying studies. It does not consider how rules direct the experience of play. Juul provides us a more formal and discriminative definition from his book *Half-Real*:

> Rules specify *limitations* and *affordances*. They prohibit players from performing action such as making jewelry out of dice, but they also add meaning to the allowed actions and this *affords* players meaningful actions that were not otherwise available; rules give games *structure*. (58)

This general definition includes games that exist outside of the video game medium.

Nonetheless, it is appropriately specific to continue our exploration of video games.
ROLE OF MECHANICS

By the definition of game, rules structure play. Mechanics exist so that ludic elements may begin, progress, and end. Mechanics function to assign players an active role as participants in the game. If a game's mechanical structures were not predefined and fixed (although, rule negotiation is not unheard of), the state of its play would not advance (Järvinen 70). It is important to remember that games, chess and Tetris, are state machines. And as such, games are dynamic systems. They contain various states governing any particular set of occurring affairs in the game. They contain numerous input and output functions in any particular state that players play within to work towards a winning game state. Juul examines game states in the game of Tic-Tac-Toe. From any possible arrangement of $O$ and $X$, a players takes his or her turn to mark a space in a 3×3 grid, and thus alters the state of the game. If a player were to mark one space as opposed to another then its sibling states can never occur. When playing a game, players interact with its state machine; and by this, they interact with its mechanics. “If [players] cannot influence the game states in any way (as opposed to being unable to influence the game states in the right way), [they] are not playing a game (Juul 60).
As previously stated, mechanics give games their structure, “a particular structure that makes them interesting and provides enjoyment from playing the game” (Järvinen 70). With the specification of limitations and affordances, mechanics act, in a sense, as a guide for players to navigate a game's different states effectively. Looking again at Tic-Tac-Toe, its mechanical structures do not allow events to occur outside of the spaces in its 3×3 grid, nor do they permit anything beyond the presence of a single O or X in any one space. But without this definition, the play of the game stalls endlessly in its empty grid and initial state. “This combination of different contextual rules in a particular game is called a ruleset. It functions as the superstructure that governs the game” (Järvinen 71).
Outside of a developer's understanding of the role of mechanics, a game's structure in which play occurs sets up elements needed to create feeling of “being in the zone.” More formally, Mihaly Csikszentmihalyi's flow theory defines it as a mental state in which a person (or player, in our case) becomes fully immersed in what he or she is doing and gives absolute concentration on a task. I am not saying that mechanics is flow, but that mechanics necessitate conditions for flow to occur. Penelope Sweetser and Peta Wyeth conducted a comprehensive review of the literature on usability and user experience in games to determine how the elements of flow exist in games. They discovered that:

Game must keep the player's concentration through a high work-load; but the tasks must be sufficiently challenging to be enjoyable. The player must be skilled enough to undertake the challenging tasks, the tasks must have clear goals so that the player can complete the tasks, and the player must receive feedback on progress towards completing the tasks. If the player is sufficiently skilled and the tasks have clear goals and feedback, then he or she will feel a sense of control over the task. The resulting feeling for the players is total immersion or absorption in the game, which causes them to lose awareness of everyday life, concern for themselves, and alters their sense of time. (4)

Because of the created flow, player enjoyment is shaped between a narrow channel between anxiety and boredom. But if a game is too difficult, players experience anxiety or frustration; if a game is too simple, players experience boredom. In either case, the entire experience falls apart if clear goals are not linked with tasks. This causes players to be uncertain about their skill level and lose a sense of control. Under these circumstances, players are engaged in an experience where its objectives and feedback are unclear and the game loses its immersive quality. Game flow and gameplay are sadly lost. Mechanics give players the means to hone their skills, in addition to suitable feedback to their game performances. Mechanics, if done
correctly, appropriately define challenge and goals to guide players to the game's ludic elements, defining challenge-based (or tactical and strategic) immersion for its game experience. In the end, mechanics facilitate the occurrence of game flow resulting in a heighten gameplay experience.

**PURE STRUCTURES OF MECHANICS**

Pure mechanics form the basis for most, if not all, actual play experience. Because pure mechanics provide an organized system in which the human experience of that system is play, these mechanical structures give rise to gameplay. Katie Salen and Eric Zimmerman in their book *Rules of Play* formally identify rules existing a three levels, which will be our foundation for understanding pure mechanics. The proposed system explains what game rules are and how they function in terms of *operational, constitutive, and implicit* rules.

*Operational Rules*

What we typically think of as rules are in fact operational rules. These rules are the clearly defined instructions that govern a player's actions during the course of a game. Let's look at the operational rules of Tic-Tac-Toe:

1. Play occurs on a 3×3 grid of 9 empty squares.
2. Two players alternate marking empty squares, the first player marking Xs and the second player marking Os.
3. If one player places three of the same marks in a row, that player wins.
4. If the spaces are all filled and there is no winner, the game ends in a draw.

These shared, fixed rules are explicit and unambiguous instructions prescribing how players are to manipulate and interpret the materials of the game. Essentially, operational rules
outline the core mechanisms of gameplay. Because these rules blueprint the player experience, they often incorporate the game's flow and interface together. As seen with Tic-Tac-Toe, operational rules can specify what players do in terms of “shoot”, “command”, “select” and “move” while directly associating these game-world actions with specific real-world interactions (buttons, hotspots, clicks and drags). Game manuals and in-game guides typically make clear its simple operational rules.

If, however, a game's actions and interactions are not clearly specified (or specified unnaturally), the player experience becomes confused and possibly undone. Rouse plainly explains “the controls are the players' interface between the real-world and the game-world. In order for players to experience true immersion in the game they must be able to manipulate the game-world almost as intuitively as they manipulate the real-world” (131). When a game's operational rules define controls that are unintuitive or uncooperative, the game quickly becomes unusable, and possibly, not used at all.

Within a game, challenge forms give shape to, or embody, operational rules in video games. Although a game's intentional challenges may not always express any explicit instructions of what to do or how to succeed, rules are explicitly inferred from that game's breadcrumbs. In other words, the rules of any challenge are made known through narrative and/or space. An example, from Myst, is the sunken ship “puzzle” on Myst Island. Players are given nothing but dates as clues for this puzzle – and only after thoroughly exploring all the buildings on the island do players discover that the dates need to be entered in the planetarium (as it is the only place to enter dates). Its instructions governing players' actions are recognized and
understood entirely within the confines of the game's virtual world.

**Constitutive Rules**

In contrast to operational rules, which guide the behavior of players, the constitutive rules of a game are the underlying formal structures that exist below the surface of rules presented to players. Constitutive rules are logical and mathematical by nature existing as operational abstractions and independent from players. Salen and Zimmerman state that “these rules have their own logic, which does not explicitly state how a player will make use of them” (132).

Consider Tic-Tac-Toe's constitutive rules. The underlying mathematical logic of Tic-Tac-Toe is shared with Marc LeBlanc's game thought experiment called 3-to-15. The constitutive ruleset reads as follows:

1. Two players alternate turns making a unique number selection from 1 to 9.
2. The first player to select three numbers that sum 15 is the winner.
3. If no player can make a selection and there is no winner, then the game is a draw.

Notice that in these rules, there is no mention of a grid, or Xs and Os. The mechanisms involving particular materials or behaviors are part of the operational rules. But these rules establish the function of gameplay, and can be introduced into the form of Tic-Tac-Toe through its operational rules.
With respect to digital games, there is a desire to equate constitutive rules with the programming code that makes up a game. On the surface, this feeling appears to make sense. Program code is highly structured, like rules of a game; and like rules, the code does seem to specify the limitations and affordances in a game through mathematically means. However, the two are not exactly the same. “The computer code is part of the medium that embodies the game [and thus its rules], just like the written-out rules of Chutes and Ladders are embodied in the medium of the printed ink on paper” (Salen Zimmerman 142). Constitutive rules are encompassed within the program code but are certainly not equivalent to the latter.

The formal rules of any digital game are exposed more clearly when simplifying the experience in terms of a finite state machine, or finite automaton. “Briefly stated, a state machine is a machine that has an initial state, accepts a specific amount of input events, changes state in response to inputs using a state transition function (i.e. rules), and produces a specific outputs using an output function” (Juul 60). And a game is a machine that responds to input actions of players by transitioning to another state depending upon those inputs. Recall Figure 10. Each turn shows a specific game state (of which 26 are displayed from a possible 765) that progresses through the game depending upon the grid unit selected by a player. Again, the Xs and Os are superfluous to the machine's transition, as they are
operational mechanics, only the symbol's position, or what its position represents under the 3-to-15 ruleset, is necessary to the machine's progression. Finally, when either 3 numbers sum 15 or 9 numbers have been selected, the machine accepts the final state. That said, a game's constitutive rules provide players with a state machine.

*Implicit Rules*

Implicit rules are the unwritten rules of a game, which loosely define the social guideline of “fair-play” and appropriate etiquette expected from players. Generally, implicit rules are shared between differing games, universally structuring the interactions of player-to-game and player-to-player. But because implicit rules are grossly vast and thus can not be exhaustively listed, these rules can easily change according to a game's context. “For example, you might let a young child 'take back' a foolish move in a game of Chess, but you wouldn't let your opponent do the same in a hotly contested grudge match” (Zimmerman 130).

In that implicit rules specify codes of conduct and behavior between players, these rules are seen only in multiplayer games. Regardless how any individual game frames its play (purely competitive, purely cooperative, or team play), multiplayer games as a whole offer opportunities for social interaction. “The social element makes online [and local multiplayer] games more than games. They become clubs, cafés, casinos—places where people get together for fun” (Rollings Adams 500). These communities engender normative rules of engagement, which routinely mimic the cultural ruleset of the players' out-of-game society.

Conformity (or failure of conformity) to the social norms does not often directly interrupt
gameplay, nor does gameplay directly encourage conformity (or punish nonconformity) to these norms. Implicit rules are informally policed by players. The sanctions range from thanking someone for rescuing you from a train of high-powered monsters to socially ostracizing someone is waiting near where a monster or another player will appear for an immediate kill.

APPLIED STRUCTURES OF MECHANICS
To some extent, applied mechanics are the application and interactions of pure mechanics discussed thus far. Together they work in concert to generate two formal structures of rules: “that of emergence (rules combining to provide variation) and progression (challenges presented serially by way of special-case rules)” (Juul 56). Across over three decades of video game content, play has been structured on a spectrum bond by these mechanics. In consequence, hybrids exist creating a variety of play experiences.

- Pure progression: traditional adventure games (e.g. Sanitarium, Grim Fandango, The Longest Journey)
- Progression with emergence components: single-player games in which players can negotiate the progression of a level or the world in a number of ways (e.g. Myst, Deus Ex, Max Payne, Fahrenheit)
- Emergence with progression components: games in which the overall structure is emergent but contains a number of events where players must transverse a predefined sequence of actions to complete each event (e.g. EverQuest, Ultima Online)
- Pure emergence: sandbox-style games, including strategy, and construction and management games (e.g. Civilization, Façade, StarCraft)

This division provides an excellent understanding that forms the basis for mechanical structures in gameplay.
Progressive Mechanics

Historically, progression is a newer rule structure in the video game medium that was introduced through adventure games. Progression structure follows from strong control mandated by designers. Designers explicitly determine possible ways in which a game can progress and put forth a number of challenges (such as finding keys to locked doors, figuring out mysterious machines, obtaining inaccessible objects, manipulating people, and navigating mazes) that players must travel and overcome. To accomplish whatever challenge, players must perform a predefined sequence of actions.

Gabriel Knight: Sins of the Fathers (Sierra On-line, Inc. 1993) focuses on the adventures of Gabriel Knight, a New Orleans author and bookstore owner. Players follows Gabriel step-by-step as he interrogates witnesses, finds clues, and slowly pieces the puzzle together to what the police are calling the Voodoo Murders. The step-by-step motion of actions shows the game's progressive mechanics. A concrete example have players bring Gabriel to Schloss Ritter of Rittersburg, Germany, where he must undergo the Schattenjäger, or “Shadow Hunter”, Initiation Ceremony. To do so, players must carry out its predefined sequences of actions. If players do not perform the correct actions, the play stops until those actions are done.
Walk east through the arch to enter the chapel. Look at any panel, and then exit the chapel to return to the hall. Ask Gerde about the Chapel Panels and Initiation Ceremony, and then exit the conversation. Get the salt shaker near Gerde and the dagger near the lion head at the left side of the room. Walk up the steps to the bedroom. Get the scissors and the chamber pot on the top of the cabinet. Use the scissors on Gabriel.

Get the scroll from the display case at the left side of the mirror. Open the window and operate the snow. Look at the inscription about the left door and then open the right door to exit the room. Ask Gerde about the Portal Poem. Exit the conversation and walk east through the arch to the chapel. Put the chamber pot on the altar. Use the dagger on Gabriel and use the salt shaker with the chamber pot. Operate the altar to kneel in front of it and use the scroll on Gabriel to complete day 7.

| Walk east through the arch to enter the chapel. Look at any panel, and then exit the chapel to return to the hall. Ask Gerde about the Chapel Panels and Initiation Ceremony, and then exit the conversation. Get the salt shaker near Gerde and the dagger near the lion head at the left side of the room. Walk up the steps to the bedroom. Get the scissors and the chamber pot on the top of the cabinet. Use the scissors on Gabriel. | Get the scroll from the display case at the left side of the mirror. Open the window and operate the snow. Look at the inscription about the left door and then open the right door to exit the room. Ask Gerde about the Portal Poem. Exit the conversation and walk east through the arch to the chapel. Put the chamber pot on the altar. Use the dagger on Gabriel and use the salt shaker with the chamber pot. Operate the altar to kneel in front of it and use the scroll on Gabriel to complete day 7. |

Figure 12: The solution to Schattenjäger Initiation Ceremony exemplifies mechanical progression.

Progression may appear similar, if not identical, to linear and multi-linear narrative structures. Nonetheless, they are unique structures, and yet indelibly interwoven. Narrative is again the dramatic structure, the succession of story events; mechanics is the working structure approving and prohibiting the succession of play. Juul states, “since the designer controls the sequence of events, this is also where we find the games with cinematic or storytelling ambitions” (73). The two structures are directly responsive to each other, but are again different.

**Emergent Mechanics**

Emergence has recently become a popular buzzword in gaming circles. It describes the interaction of a small number of simple rules that combine to produce large, complex results. As it were, the play experience of emergence in games is non-deterministic. The establishment of a game-world that operates according to logical rules players can easily understand and then use to their discretion, which gives players freedom to come up with
their own solutions to problems that the game presents. Consider a hypothetical game situation from Andrew Rollings and Ernest Adams to illustrate emergent structure:

Imagine that our character is on one side of a locked wooden door and wants to get to the other side of the good. There are a number of ways to approach this, ranging from the obvious to the obscure. First, we could find the key and open the door. That's the simplest solution. But let's say we cannot find the key. Let's try picking the lock – no luck there, because we're not skilled enough. Okay, another approach: We'll try and cast our magic Open Sesame spell and open the door magically.

However, in reality, we know that there would be other ways to get through the door. We could attempt to break it down with an axe or a mace. We could attempt to burn through it using fire or acid. We could try casting a spell to turn it to stone or glass and then shatter it. We could attempt to unscrew the hinges or the lock. We could attempt to use acid and burn through the hinges or lock. We could try and break our way through the wall next to the door. We could attempt to cast a “ghost” spell on ourselves that lets us pass though solid objects. (262-263)

In order for such emergence play to occur, its mechanics must be in place. In the above instance, wood and metal must adhere to certain properties, or rules. Wood requires that it be flammable. Metal requires that it be strong against physical assaults but not so against acid burns. These properties are not special to only “locked wooden door” but are fundamental properties exhibited by all occurrences of any one material. Repeated uses of like materials in different situations clears the way for creative uses of the game's simple rules and thus behave, at times, beyond the designer's original intent.

Obstacles, as opposed to objectives, give players the opportunity to imagine their own solutions. Whereas objectives only have a single, unique solution (i.e. find the key and open the door), obstacles allow for emergent, multiple solutions, or multi-mode play. Deus Ex (Ion Storm Inc. 2000) provides a variety of minute-to-minute experiences that naturally grow out
of the unique aspects of the players’ characters. Players are able to forge routes around or through presented obstacles – using specialized skills such as stealth, hacking, and combat. Players can explore perfectly reasonable solution and the game recognizes it as such.

Overall, emergence aims to avoid game stagnation by giving control to players. In a game of emergence, the experience is not so much as a straight line through the play but as an open-ended, free-form experimentation in its play. Players can take on and move between various roles, each having its unique talents. Players can utilize game glitches as viable strategies, such as rocket jumping in the *Quake* series where players fire a rocket at the ground while jumping allowing the shockwave of the blast to propel themselves to otherwise unreachable areas. Designers, who have played through parts of a game a hundred times and watched a thousand playthroughs, respond with thrill when players devise some obtuse, obscure method for solving a problem or situation. “The experience of surprise occurs because the player and designer do not imagine the entire game tree and all possible game sessions. Emergence as novelty is therefore an interaction between the game system and human cognition” (Juul 82).

At the same time where emergence is prized by designers, there is a fear of players discovering emergent strategies that they can use to as exploits, methods by which players manipulate a system for their advantage in the game's play or over its play. Rouse identifies one such method in Civilization.

In the original game, players were able to exploit a rush strategy where they would never build cities larger that two while staying in the most primitive form of government, quickly sweeping over the world and winning the game prematurely. This strategy was so effective is was clearly the best strategy to use and allowed
players to miss 90 percent of the game. (118)

With numerous systems running parallel, *Civilization* and other games of emergence become easily exploitable. And the indulgence of undesirable emergence simply does not add anything to the play experience. It, in fact, detracts from the total gameplay.
Ludic Elements in Gameplay

As a first step, let us conceptually and sensationally define play. This task is not without its ambiguities. Because the diversity of play is well illustrated by its forms, almost any activity exists within the sphere of play. Luckily, many have attempted to identify the qualities of play. Johan Hurzinga, cultural theorist and professor, will provide us with a working definition of play from his book *Homo Ludens*:

[Play is] a free activity standing suite consciously outside of “ordinary” life as being “not serious”, but at the same time absorbing the player intensely and utterly. It is an activity connected with no material interest, and no profit can be gained by it. It proceeds within its own proper boundaries of time and space according to fixed rules and in an orderly manner. It promotes the formation of social groupings which tend to surround themselves with secrecy and to stress their differences from the common world by disguise or other means. (13)

Undoubtedly this definition clearly outlines a conceptual understanding of play. If we examine our conceptual definition (or many other definitions), it presents play as though it exists in a “second reality or of a free unreality, against real life” (Caillois 10). But play is, in fact, very real. The problem of definition arises in that play cannot be instantaneously received as reality. Instead, play iconically depicts reality, requiring players to decode its abstractions and perceive from reality within. And because our brains essentially visualize reality via abstractions, albeit their decipherment and perception are so common that their realities are almost instantaneously received, arguing that play exists outside of reality seems moot at best.

Sensationally, play, more specifically fun, is about our brains feeling good. Raph Koster
briefly describes fun via physical stimuli, aesthetic appreciation, and direct chemical
manipulation, all of which can describe the sensation of play from differing sources of fun.
“Science has shown that the pleasurable chills that we get down the spine after exceptionally
powerful music or a really good book are caused by the same sorts of chemicals we get when
we have cocaine, an orgasm, or chocolate” (40). Regardless, the results are the same,
moments of pleasure.
Play, of either definition, exists completely external to the game as player experiences.
Although a game's mechanical elements are intimately related to its play, the experience is
unique to player interpretation. (Note that play alone is not gameplay. Play is the cognitive
and emotive response to gameplay; and gameplay is the unique multidimensional interaction
between the player and game.)

ROLE OF PLAY
As games have evolved into an increasingly complex and sophisticated medium, they have
simultaneously emerged to become an experience comparable to reading works of literature
or watching productions of theatre. Even in their original conception as a text adventures,
games offered the opportunity for players to visit and explore worlds, allowing, in essence,
the opportunity for vicarious living; but regardless of their limitations, they were always
language, or iconic, representations of reality. Video games have since grown into
technologies able to surpass a number of their earlier limitations to more accurately
represent, and fundamentally simulate reality. Not only have they moved forward in visual
dimensions, but in the conceptual dimensions, thereby allowing players to explore the
boundaries of reality within a simulated model of natural and human systems.

In these games (hypothetical realities), human experiences are made of the same elements that other experiences consist of. According to Laura Ermi and Frans Mäyrä, the “experience can be defined as an ensemble made up of the player's sensations, thoughts, feelings, actions and meaning-making” (2). And, although players may remain physically isolated from a virtual environment, players become part of the game-world by use of their imaginations, effecting their experiences to be cognitively and emotively real. The imagined experience is the same as the real. “For example, there is no difference between winning the lottery and thinking that you won the lottery – they are both just as fun up until you start trying to spend the money (Hejdenberg). As players actively imagine themselves being in the virtual world, dopamine is released, rewarding them for their imagined success and thus encouraging repeated behaviors.

In short, play teaches. Playful imitations form cognitive, social, and moral growth in their players. Games act as the ultimate Skinner box by providing reinforcers for game-desirable behaviors. “The game environment reinforce the player for improving responses with additional points or movement on to higher levels. In the case of violent, aggressive, or antisocial games, we are also reinforced for aggressive, quick-thinking, and blood-thirsty behavior” (Tews 173). Obviously, players enjoy being rewarded and dread punishments. Even the threat of punishment carries a tension to direct player choices. Think of Deus Ex. The tension felt when players attempt to accomplish a task without being caught is tremendous.
Typically we do not welcome a game as a teacher if it corresponds as something simplified, fantastic, or stylized (visually or conceptually). But if games are effectively models of reality, then games must teach things that reflect reality, just as poetry or painting. Video games present players with highly abstracted representation, teaching the underlying real world patterns. Roger Caillois, author of *Man, Play, and Games*, proposes a useful system classifying different experiences present in games (being a complete and succinct account of Marc LeBlanc's and Michael J. Apter's categorizations):

- **Competition**: teaches players to develop and use their skills to overcome various challenges. By physically or mentally outmaneuvering opponents, these games initiate lessons of power and status, and how they are important in society.
- **Chance**: players explore ways how to minimize the impact of the element of chance, giving the illusion of control over the foreseeable future. Even though players exhibit little control to the outcome of these games, they are designed to teach players about probabilities and statistics.
- **Vertigo**: incorporates “studies” of spatial reasoning and relations, extending into temporal and societal mappings. The disruption of a player's normal perception of the world requires that he or she learn to classify, collate, and exercise power over the contents of space. From these games, players learn how to fit things together.
- **Simulation (Make-Believe)**: transcends the everyday and experience first-hand unattainable dreams. But games as alternate realities still remain bound by the constraints of the real world, and through its message and delivery, subtly commune behavioral and cognitive dimensions of culture. Players essentially get to practice life in a completely safe and consequence free environment.

Play functions from two basic purposes: “as a contest for something or a representation of something” (Hurzinga 13). It offers vast opportunities to simultaneously educate and delight. Players leave the make-believe with a strengthened sense of self-understanding, with the feeling of transcendence. New concepts, new ideas, and new experiences build up and revise
players' iconic depictions of reality. This symbolic play enables players to actively rehearse life by learning about people, objects, animals, right and wrong, etc. in closed environments and then explore the resulting interactions. And, in the end, players decipher and perceive their own lives.

**STRUCTURES OF PLAY**
Identifying the nature of fun (why some things are fun and why others are not) is extremely important when it comes to understanding gameplay, yet we are still without answers and will likely remain that way. What can be done instead is to determine and categorize activities that incite fun and play. Koster briefly discusses how “fun” has been classified differently by different people.

Game designer, Marc LeBlanc has defined eight types of fun: sense-pleasure, make-believe, drama, obstacle, social framework, discovery, self-discovery and expression, and surrender. Paul Ekman, a researcher on emotions and facial expressions, has identified literally dozens of different emotions...Nicole Lazarro did some studies watching people play games and she arrived at four clusters of emotion represented by the facial expressions the players: hard fun, easy fun, altered states, and the people factor. (90)

To discuss play in this paper, our breakdown will resemble Lazzaro's categorization (we will not continue with the structure given by Caillois due to its limitation with respect to player functions):

- *Achievement Play*: activities motivated by direct out-of-game or in-game challenges, strategies, and problem solving.
- *Aesthetic Play*: activities motivated by players' casual curiosity and personal intrigue.
- *Immersive Play*: activities motivated by players' visceral relaxation and
excitement.

- **Social Play**: activities motivated by social exchange, which a game may provide the social mechanisms.

This grouping provides broad self-cohesive categorizes that allow for multiple forms of fun to exist within any category without rendering the structure's original definition meaningless. Even though it accommodates for internal cohesion, the grouping does not restrict any form of play from belonging to multiple structures. In massively-multiplayer online role-playing games (MMORPGs), raids combine the efforts of multiple groups in order to solve difficult quests or to venture into difficult instance dungeons. As such, raids are a form of both achievement and social play. After all, it is not clear that reality divides up so neatly, just because we believe it to do so.

**Achievement Play**

When play becomes structured where players actively overcome obstacles in the pursuit of a goal, it is often quickly recognized as a game; this is called achievement play. Although commonly exhibited as a function of power in more tactical or strategic, such as *Civilization* or *Halo*, achievement play does not necessarily demand conflict. *The Sims*, for instance, includes this play form by focusing on lives of players’ virtual characters and their needs, and players playing to meet those goals.

In order for achievement play to exist, video games need to set forth challenges before players for them to overcome and conquer. The examination on challenges in *Andrew Rollings and Ernest Adams on Game Design* as the “archetypal form of gameplay” (202) is
wonderfully insightful, and thus will serve as a strong foundation for categorizing interactive forms in relation to functions of achievement play. My revision to Rollings' and Adams' challenge forms is as follows:

- **Puzzle Form**: the apparent play primarily involving logic, strategy, pattern recognition, sequence solving, word completion, and in some cases, pure luck. This form is typically recognized in four secondary forms: *inventory*, the collecting of an inventory of items that are then used to solve puzzles; *dialogue-based*, in which players interact with synthetic actors to gather clues or directions, or to persuade them to help you; *environmental*, where players are required to analyze and often alter their surroundings in a game (previously discussed as a world-space structure); and *non-contextual*, puzzles belonging outside of a game's narrative.

- **Exploration Form**: the searching or traveling for the purpose of discovery or progression. This form is typically interrupted by differing obstacles (for example, “lock-and-key” and maze), which in turn forces players to work for their freedom to explore.

- **Conflict Form**: the direct antagonistic action against another. This form does not require combat or violence, nor does it require the form exist solely as player versus monster; conflict can exist as player versus player competition or as player versus time.

- **Economy Form**: the play of resource management that minimizes undesired traits or outcomes and maximizing desired ones. In order to achieve a desired outcome, players must occasionally conceptualize an action's relationship between multiple interrelated systems, such as *SimCity*’s direct relationship between an efficient transportation and economic prosperity. This form includes ammunition conservation in first-person shooters, resource flow in strategy games, and character development in role-playing games.

Any one challenge form may range from those viscerally solved in a fraction of a second to those requiring intensive cerebral involvement for an extended period.

Regardless of the form, the result is typically the same. There is an expression of personal triumph over adversity, such as after overcoming difficult obstacles, players may raise their
arms over their heads. This emotion is Fiero. And although the process to Fiero rarely elicit fun and pleasure – on the contrary, it is typically seen as stressful and frustrating – fun takes place as a result of the struggle. Christoph Klimmt proposed, as an extension of Zillmann's excitation transfer theory, to explain the positive feelings from perceived negative conditions of play:

The suspense, anxiety and physical arousal elicited by playing are interpreted as positive feelings because player anticipate a resolution and a closure such as winning the game or completing the task. When players manage to cope with a given situation successfully, the arousal is turned into euphoria, and the players experience this kind of cycles of suspense and relief as pleasure. (Erni Mäyrä 3)

Mastering a challenge, either physically or mentally, causes the the behavior, the knowledge, the experience to be known is such a way that players not only understand it, but that they almost intimately become one with it. In doing so, game actions are given more significance outside of the arena of play. In-game play, such as Doom's nameless space marine shooting, has meaning out of the game. It facilitates training “reaction time, tactical awareness, [assessment of] the weakness of an opponent, and [judgment of] when to strike” (Koster 58). More broadly, video games instruct generalized experiences to be learned and mastered through it achievement play, which can then be applied to specific instances of physical, cognitive, social, or moral reality.

_Aesthetic Play_

Although commonly understood relating to a game's audiovisual elements, aesthetics play involves players sensually experiencing a game and delighting in that sheer activity. Engagement in a game's fantastic images and sounds is more than an engagement in these
elements. It is an interaction of gameplay. Player experiences of a game's beautiful, sublime, disgusting, fun, cute, silly, entertaining, pretentious, discordant, harmonious, boring, humorous, or tragic play all exist as aesthetic play, seducing players the game's beautiful art, music, and crafted story.

Aesthetic play extends from the philosophical idea of aesthetic experience. David Hume and Immanuel Kant are the most influential contributors to the modern understanding of aesthetics. George Hagman provides a summarized definition under three curricula:

(1) the source of the aesthetic experience is within the mind of the artist [or designer] and audience, not inherent in the object [or game].

(2) the formal characteristics of the object [or game] are important to the extent that they evoke an inner knowledge or feeling associated with an idea or emotion.

(3) aesthetic experience involves an attitude of “disinterest,” or distance, that is characterized by the suspension of prejudice, psychological security, and the willingness to give oneself over to the experience of the object [or game].

From this definition, play is not only the result of pleasure arising from sensation, but the pleasure derived from reflective contemplation in the evaluation of that sensation.

Ultimately, the experience proceeds as an emergent phenomenon occurring within the minds of players, where they simultaneously evaluate beauty in terms of sense, emotion, and intelligence.

These evaluated notions of beauty and the other aforementioned describe things deeply subjective to players resulting in experiences unique between individuals. And the created sense of ownership grants player permission to express themselves in a meaningful way
through the game. Expression and curiosity within reality's represented awe, mystery, and wonder causes delight among its players. Koster explains the experience as:

Delight strikes when we recognize patterns but we are surprised by them. It's the moment at the end of Planet of the Apes when we see the Statue of Liberty. It's the thrill at the end of the mystery novel when everything falls into place. It's looking at the Mona Lisa and seeing that smiling hovering at the edge of known expression and matching it to our hypothesis of what she's thinking. It's seeing a beautiful landscape and thinking all is right in the world. (94)

In recognizing patterns, and in interpreting past those patterns, aesthetic play reaffirms players' sense of idealization of reality. The experience intensifies old and inspires new insights concerning the makeup of reality in all of its dimensions. A discussion of art between April Ryan and Cortez from The Longest Journey succinctly expresses aesthetic play as aesthetic experience.

CORTEZ: What do you see?
APRIL: I see art.
CORTEZ: Art, yes. And beyond that? Beyond art?
APRIL: Truth?
CORTEZ: Truth, exactly! A deeper truth. This painting, this particular work of art, speaks a deeper truth. It has a soul.
APRIL: How can a painting have a soul?
CORTEZ: It has a soul because it has an identity, it has a heart. The memory of this painting will survive beyond this moment, it will linger in your mind, become part of the tapestry of your subconscious. It has a lasting impression on you, and you're not quire sure why.
APRIL: It's just a painting by some kid. It's not as if it's a Picasso, or a Monet.
CORTEZ: Now you're arguing technique. Not every painting by van Gogh or Michelangelo is real art either, although they all demonstrate great technique and craftsmanship. And the scribbled drawings of a five-year old child are rarely technically impressive, but they may still have a soul, they may still be real art.
APRIL: So you're saying “real art” is not defined by the skill of the artist? Then what is art, if just anybody can create something more “real” than artists who've spent their entire lives developing their skills?

CORTEZ: Art is still the work of artists. And skill, craftsmanship, technique – those things are critical to the success of an artist’s work. But alone, those things are merely pretense. For something to be real, to be truthful, the artist must transfer – shift – part of him or her self into the work, to transcend the illusion and reach for the truth of art.

Figure 13: A discussion between characters from The Longest Journey about the experience of art.

Aesthetic play, ultimately, expands the spectrum of emotions video games evoke. If players do not enjoy immersive stimulation or dexterity-based gameplay, it gives opportunities for novel and visceral experiences.

Immersive Play
Closely associated with simulation and make-believe (given by Caillous), immersive play involves players transcending everyday reality into a different environment and altogether into a different life. Immersive play is not so much appreciating beautiful art and music, or enjoying a well-crafted and engaging story. These experiences exist superficially against the visceral experiences initiated by games. Whether a player chooses the sport simulations of Top Spin or spending time slaying monsters in Ultima Online's (ORIGIN Systems, Inc. 1997) Britannia, he or she plays the game for the experience.

In a model presented by Ermí and Mäyrä, three dimensions of immersion are identified at which players experience gameplay. The first dimension distinguished is sensory immersion. Related to the audiovisual elements of a game (and typically related with aesthetic play), sensory immersion is, according to Lombard and Ditton, the physical sense of “being there”
in the virtual environment. For example, the use of a head-mounted display that fully covers the eyes, the use of headphones that fully cover the ears and remove external ambient sounds, the use of gloves that fully cover the hands to allow for interaction in the new world all cause the body become entrusted to the virtual world and the material world to no longer exist. However, because “being there” is a psychological phenomenon and not a physical one, immersion does not require the use of such devices. These devices merely facilitate the development of immersion because they create the illusion of new space, but ultimately is the psychological acceptance of this new space that creates a sense of presence.

With narrative elements becoming more central to contemporary video games, players engross themselves in an alternate reality that designers (and, at times, players) have created. This dimension of immersive play in which players become absorbed with the stories and the world, or begins to identify or empathize with its characters is called imaginative immersion. The creation of immersion, digital or otherwise, is simply the creation of a model that represents reality. The situation is analogous to a magician leading his audience to believe his constructed reality while performing a trick in actual reality. This occurrence explains how readers or how audience members can have an equally immersive experience while reading a book or watching a movie. The models created by these media are tangible and acceptable, creating imaginative immersion.

Another dimension central to immersive gameplay experiences, as they are interactive, is challenge-based immersion. Not existing as external experiences of game challenges, strategies, and problem solving as with achievement play, challenge-based immersion elicits
the altering of players' internal states during and after play through said challenges, similar in how imaginative immersion typically extends from aesthetic play. In order for this dimension to be effective, it requires that challenges produce a sense of flow. Flow is, again, the mental state in which higher brain functions are largely shut down and a player becomes “a pair of eyes directly communicating with [his or her] fingers. It's almost a mediation-like state – the Tetris Trace” (Adams). The game experience becomes the immediate place for discovery, role-playing, and escapism.

Regardless of immersive form, creating player immersion requires meeting three condition, as given cited by Ermi and Mäyrä: “the conventions of the game matching the user expectations, meaningful things for the player, and the consistent game world” (4). And in the creation of player immersion, the experience becomes widely participatory. That is, player immersion increases player physical, mental, and emotion presence in the game-world. In doing so, player investment in a game-world increase, thereby heightening the overall gameplay. However, if the immersive arousal becomes too enticing or real, the immersive experience is lost. “If a horror movie becomes too frightening, we cover our eyes or turn away from the screen. If a romantic movie is too directly arousing, audience members may start necking instead of watching the characters” (Murray 119). In the end, immersion is a balance between extremes.

**Social Play**
Because play is not merely an individual activity, it offers a platform in which lone players can socially interact with each other, locally or online. In online interactions, social play is,
of course, limited to the technology provided by games. Players cannot communicate as well
as if they were in they were in the same room; players cannot physically interact (either in
praise or criticism). But regardless of a game's technological limitations, players will
creatively respond in order to ensure its social aspects.

With the popularity of the Internet, social play within games has increased dramatically.
Some online games, such as *EverQuest* (Sony Online Entertainment 1999) and *Second Life*,
use their technologies to architect social experiences around traditional gameplay challenges.
These experiences consequently attract new audiences into the medium:

One of the reasons that girls and women have traditionally been less interested in
interactive entertainment, especially games for personal computers, is that it is often a
solitary activity. But women represent a much greater proportion of the online game
market than they do the single-player market, chiefly for this reason: They enjoy
interacting with others. (Rollings Adams 500)

The social elements involved with social play cause games to be more than just games; they
become the third place for many individuals. Video games act as social mechanisms, serving
to meet players' social goals and needs (such as improving friendships, social approval,
provide a common ground for conversation and shared experiences). From these
mechanisms, social play within any video game, assuming its mechanics allow for the
particular interaction, occurs at two strata of interactions: internal and external.

When social activities are directed by a video game's premise and mechanics rather than
extroverted personalities surrounding the game, social interactions and arrangements become
means of challenge or survival within the virtual world. Players enter into sorts of social
contracts where by participating in an activity they become subject to the rules of engagement. In a competitive arena, players know a zero-sum will follow; if one player, or team, is the winner, the other player(s), or team(s), will lose. Players accept the loss as a possible outcome when competing in an arena. However, most confrontational actions, which may not be accepted outside of the context of the game, do become acceptable. Players exist in a game's magic circle. Three common types of internally derived play are:

- **Pure competition**: games including competing behaviors towards other players on the battlefield or via an in-game economy. Player actions include fair play, governed by a game's mechanics, such as dueling or structured player versus player (or PvP), as well as unprovoked acts, such as scamming or griefing.

- **Pure cooperation**: games typically (but not always) involving superordinate goals where two or more people or groups must work together in order to achieve a specific goal against the game-world, that no individual or group could accomplish alone without grossly significant difficulties. Activities of collaboration foster a strengthened unity within a particular group; as a result, the bond enhances the overall meaningfulness of a game experience. That is to say, emotions to group accomplishments and failures are more significantly known across members.

- **Team-Based play**: games in which players cooperatively participate in a group competitively against another cooperatively engaged group of players. This form of play does not require (although, it generally does involve) directly combative mechanics.

Regardless of their formal interactions, players abstractly engage each other under the premise of another play structure to communicate and socialize. The combined interactions redefine the boundaries of player stories and the game mechanics. Thus empowering their shared experiences as unique commonplaces that bind the players.

For whatever form of play players prefer, growth play follows from the prior. It minimally
requires some familiarity with another player, or other players, that the player interacts with, should this be on the strictly personal, purely business, or some combination thereof. This form of play involves players in a gamer subculture, where they shape the community in and around the world of their games. Players respectively establish and/or sustain meaningful relationships with others where the game transcends its marker statehood into the medium for player communication to exist. Note that the relationship is not necessarily dependent upon the presence of the game, although its necessity is a common phenomenon among online play.

Externally derived play are those actions between players (and, at times, non-players) in which a video game functions as a social lubricant; the game serves to act as a comfortable commonplace for persons to socially engage each other. Take, for example, Katamari Damacy (Namco Ltd. 2004). Although the game is predominately a single-player game, it spawns conversation between players and non-players in its presents, which in turn potentially augments the fashion in which players play. The play transforms into social performance. Simple chit-chat and gossip develop into social performance and meaningful (and dare I say, possibly intimate) social exchange. The game thus serves to mediate, not as a medium, but as a marker for human-to-human interactions.

With the addition of simultaneous multiplayer experiences within the confines of the game, socialization conceivably shifts towards more game-oriented, as opposed to person-oriented, arrangements. If Katamari Damacy's single-player mode were to be played as a multiplayer activity, it requires that players “take turns” – one player would play until either he or she
lost a life or completed a level and then the other player would play until like events occur. All social interactions that emerge from the activity are driven by those individuals surrounding the game. However, when two people play the designed multiplayer mode in the game, they compete simultaneously in a small arena to collect the most objects within three minutes, and thus socially engage each other under the premise of the game's context. In this instance, they compete. This interaction again returns to internally derived play.

Game interactions become more meaningful at any time a group of players get together to play. New emotions, and therefore new experiences, emerge from social play. Communities may form around a single game or a series of games and into the larger, open culture of norms, values, and institutions bounded by the medium on a whole. A number of games, especially online games, consider social interactions and their maneuverings, as part of the design. Social emotions surrounding these interpersonal interactions primarily include two forms contextually to video games: Schadenfreude (the gloating over misfortune or failure of a rival), and Naches/Kvell (the feeling of pleasure or pride at the accomplishments of a mentee). The inclusion of these specific emotions effectively transform standard play into something new.

Transformative social play transcends the rigid confines of a game’s narrative and mechanical structures into a phenomenon where players form purposeful relationships significantly influencing their real lives. Personal relationships seek group affirmation. Meaningful conversations concentrate on real life matters and concerns.
So whether someone is experiencing *Halo 2* by passing controllers around a crowded living room, playing against complete strangers on XBL [Xbox Live], talking about the game over lunch, joining in a team of competitive players or posting about tactics on a message board, they are using the game as a platform for human interactions and communication. (Levy)

Gameplay becomes contextualized by social exchange.
Conclusion

In the end, the medium of video games is experienced in two dominant fashions: audiovisual and gameplay. Being that audiovisual elements carry with them from existing arts formal definitions of line, shape, color, texture, pitch, rhythm, and quality, they naturally lend themselves to critiques and creative practices. But gameplay is a new and innovative evolution between art, science, and player. This engenderment requires equally new definitions for its understanding and expression. To briefly recapitulate, the vertices of the gameplay pentad are:

Narrative: the dramatic experience arranged within a game. Video games follow common narrative elements borrowed from literature and film to express their stories; but in that they introduce active participation, video games extend their possibilities for dynamic story and its cause-and-effect.

Temporal: the linear experience of events passing from future to present then past. Because games do not always dictate how its events unfold, players actively become crucial for their dramatic advancements.

Spatial: the fundamental experience in an established environment and its surrounding objects. Players engage in a game's built spaces, reflecting its play and story, from externally or internally present viewpoints of the game-world.

Mechanical: the limited and afforded experience that operate in a game. Any activity performed by players in a video game behaves according to its predefined framework being a step-by-step progression, an emergence complex system, or a hybrid therein.

Ludic: the participatory experience involving goal-directed, visceral (conceptually and sensationally), and social activities. Through its various rhetorics of play, a game acts as a rehearsal of life for its players.

The exchange within and between these structures in conjunction with the individual player leads to a unique multidimensional experience called gameplay.

This pentad certainly has not been exhaustively explored but does provide a framework for
more encompassing examination to begin. In controlling the five elements, researchers and designers can understand how these elements interrelate as gameplay and interact with established audiovisual elements. We can move past anecdotal testimony as proof in the experience of gameplay.

While it is easy for video games to excite and entertain the human condition, they are a form of media and expression, and thus capable of influencing those that play them. Because video games are a newer medium, designers, critics and players continue to struggle in defining the experience of gameplay. From this difficulty, meaningful conversations about gameplay and video games have yet to truly exist. Once an accepted lexicon exists, removing excessive connotative interpretations, then we can understand how a game is perceived, learned, and used.

The future of society can be outlined in how virtual experience is defined and examined in its possibilities. Values, norms and institutions can be reevaluated under these new forms in order to understand the transformation of the Information Age into the Virtual Age.
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