
58.

Perceptual, Decision-Making, and Learning Processes During Video Gameplay

An Analysis of *Infamous – Second Son* with the Gamer Response and Decision (GRAD) Framework

Sam von Gillern (Iowa State University)

Abstract

During video gameplay, gamers constantly perceive and interpret multimodal symbols presented by the game, which influences their decision-making and learning processes that help them achieve goals and progress during gameplay. Furthermore, the gamers' decisions (e.g., which paths, weapons, and power-ups they choose) influence how the game unfolds and responds through presenting new multimodal feedback. So, as video gameplay is an iterative process of interpreting multimodal symbols, making decisions, and learning, it is important to recognize how multimodal communication impacts the gamer's decisions and learning. This paper uses the Gamer Response and Decision (GRAD) Framework (von Gillern, in press), which highlights important video gameplay features and processes, to analyze multimodal symbols presented during gameplay in *Infamous – Second Son*, an action-adventure game for the PlayStation 4. Additionally, this paper examines how these symbols carry meaning to gamers that influence their decisions, learning, and progression during gameplay.

Introduction

Views on literacy in the contemporary world have been expanding (Gee, 2007, 2015; Kress, 2003; Lankshear & Knobel, 2011; New London Group, 1996). The New London Group (1996) called for an expanded view of literacy, multiliteracies, a perspective that included emerging technology and a variety of forms of media. This perspective of multiple (multi)literacies has significant implications for understanding literacy and learning in the modern world. The work of Lankshear & Knobel (2011) complements the concept of multiliteracies and recognizes that emerging technologies provide new ways of interacting with the world and thus provide new literacies. Gee (2007, 2015) has developed a variety of ideas and concepts that connect video games, learning, and literacy. He illustrates how video games are a unique media that promote learning and engagement, and schools and educators can learn from this media that promotes deep and enjoyable learning.

Building on the ideas of the New London Group (1996), Kalantzis, Cope, & Cloonan (2010) have illustrated how various meaning-making modes, such as written and oral language, as well as visual, audio, and tactile forms of representation can convey meaning through multiple literacies. Multiple literacies are often required for interpreting modern media and multimodal texts. Video games are one

such form of new media and require that the player constantly interprets multiple meaning-making modes (e.g., written language, visual images and symbols, sound effects, tactile experiences, etc.) while interacting and making decisions within the game. This paper first analyzes these multiple modes of communication presented during *Infamous – Second Son* gameplay, and then illustrates how these modes influence players' decisions, goal setting, and problem solving.

Gamer Response and Decision (GRAD) Framework

As video gameplay requires gamers to interpret a wide variety of multimodal symbols, use metacognitive strategies, make decisions, and learn about the game (Gee, 2015), a framework that draws on existing literature and aids in the interpretation of these processes would be valuable. The Gamer Response and Decision Framework (von Gillern, in press) was created for this purpose and serves as a tool for interpreting video gameplay experiences. The Gamer Response and Decision (GRAD) Framework draws from Reader Response Theory (Rosenblatt, 1995), new literacies (Kalantzis, Cope, & Cloonan, 2010; Lankshear & Knobel, 2011) and Affordance Theory (Gibson, 1977). Ultimately, its purpose in this study is to be used as a tool to develop an understanding of how gamers interpret symbols, interact, make decisions, and learn while playing video games.

The GRAD Framework posits that each gamer's unique background (e.g., knowledge, experiences, agency, self-efficacy, skills, and goals) influences his or her experiences with games and that games also possess unique qualities and features (e.g., multimodal sensory display and feedback; game rules, mechanics, and systems; story and dramatic elements; opportunities for personalization; and opportunities for social engagement). Video gameplay is a constant transaction between the gamer and the game, mediated by the gamer's decisions, all of which occurs in a larger environmental context (see Figure 1).

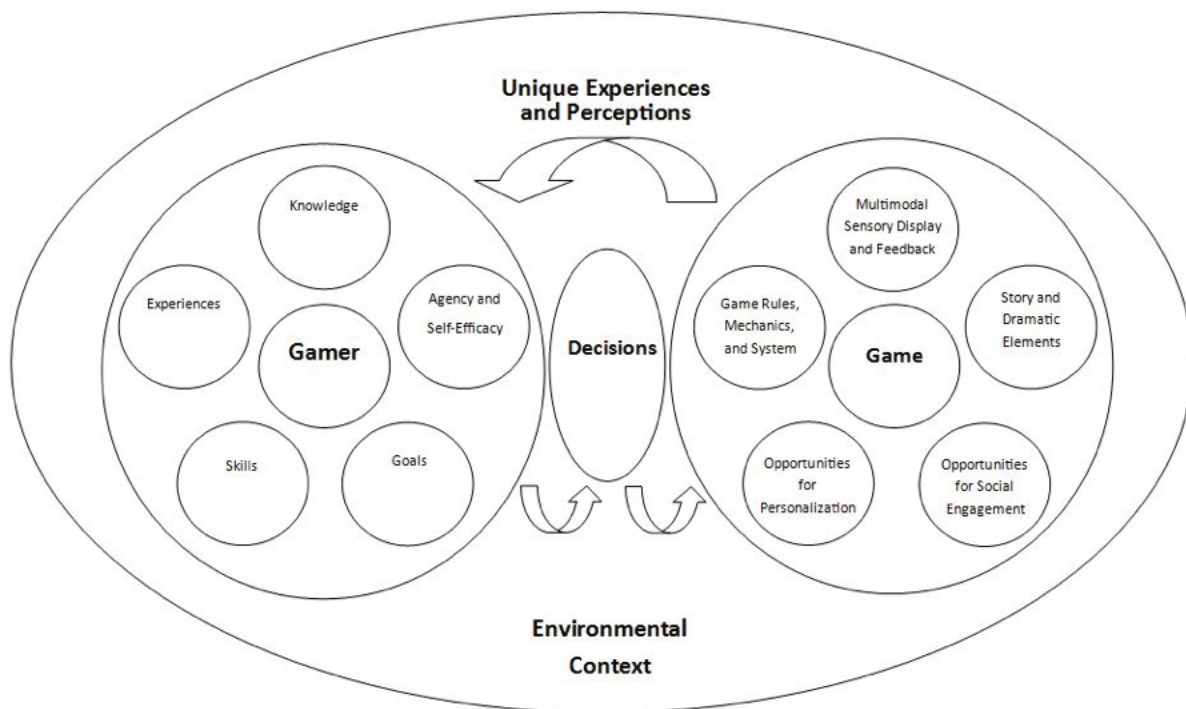


Figure 1. The Gamer Response and Decision Framework (von Gillern, in Press). Reprinted with Permission from *Simulation & Gaming*.

It is not within the scope of this paper to cover the GRAD Framework in depth in this paper, and while the GRAD Framework covers a variety of concepts and processes, this paper will focus on its features of multimodality, decision making, and problem solving. More specifically, it will explore how, during gameplay, multimodal elements help gamers interpret affordances (Gibson, 1977) that can be matched with their effective abilities to help them accomplish goals and solve problems (Gee, 2015). The following section will provide a brief story and gameplay overview of *Infamous – Second Son*. Subsequently, multimodal elements will be examined, and finally, an analysis of how the various multimodal features influence player decisions, goal setting, and problem solving.

Infamous – Second Son – An Analysis

Story and Gameplay Overview

Infamous: Second Son is an open-world action-adventure game set in Seattle about Delsin Rowe, a man who gains superhuman abilities after an accidental encounter with another superhuman “conduit.” The government has developed an organization, the Department of Unified Protection (D.U.P) designed to capture these conduits to prevent them from wreaking havoc with their supernatural abilities. Delsin, after encountering the D.U.P. in the beginning of the game and witnessing their leader’s wrath on innocents, decides to fight back against the D.U.P in an attempt to restore justice to a broken system. In Delsin’s efforts to dismantle the D.U.P, he needs to utilize his superhuman powers, such as emitting fireballs from his hands, hovering, and super-jumping from building to building. While Delsin has superhuman powers, they are not unlimited; he needs to replenish his powers by extracting resources,

such as smoke, from his environment. Without these valuable and scattered resources, Delsin is considerably weaker and more vulnerable to enemy attacks.

Infamous: Second Son is an open-world game in which the player can largely guide Delsin around the city, look for valuable objects and activities, and start the next main mission or a variety of side missions whenever he or she wants. Even within missions, the gamer can largely choose how to navigate between areas, although there are some locations that must be visited during the mission. Ultimately, *Infamous: Second Son* provides a large and beautiful open world ripe for exploring that allows players to personalize their use of Delsin's superhuman powers according to their own goals.

Infamous as a Multimodal Learning Experience

Written Language

Infamous uses written language in a variety of ways. The opening scene of the game is a written introduction to the story and world the gamer is about to enter. It informs the gamer that recently people have emerged with superhuman powers that allow them to harness the power of various forms of matter and the government has taken measures to prevent these "conduits" from abusing their newfound powers by detaining them. Written language is used in other ways as well. Occasionally the game will use written language to inform the player of actions he or she needs to take to advance, such "Search the crash for survivors" or "Smoke Dash (O) and then Hover (hold X) to cross wide gaps". Such messages inform the gamer what they are supposed to do (in both instances) and how they can accomplish it (in the latter instance by indicating buttons that need to be pressed to accomplish the task). Players decode these messages and then translate their meaning into action.

Oral Language

The primary way oral language is used in *Infamous* is verbal dialogue between characters. Dialogue exists during active gameplay as well as cut scenes (brief movie-like sequences during which the player has no control over his or her character). During active gameplay, the main character has conversations with other non-playable characters in the environment. For example, Delsin regularly communicates with his brother via walkie-talkie, and his brother will provide him valuable information about what is happening in the city and places he should visit. Additionally, numerous cut-scenes exist in the game in which the player has no control over his or her avatar, during which the player's total attention is focused on the audio and video of the movie-like scene to learn more about the story.

Visual Representation

There are a variety of ways the *Infamous* uses visuals to convey information to the player for interpretation. A primary form of visual representation consists of the three-dimensional open world that the player explores through Delsin (see Figure 3). Within this vast world there are buildings, streets, pedestrians, landscapes, valuable items, and more. The gamer sees and controls Delsin within this environment while envisioning immediate possibilities and opportunities that influence the player's

actions and decisions. Players explore this world in different ways, seeing and interacting with different settings and activities at different points in time. Additionally, during gameplay, the heads-up display (HUD), a set of icons that are superimposed over the digital world, also conveys various visual information to gamers, such as gauges and maps that inform the gamer of available resources and locations of valuable objects and activities in the environment. For example, a player may notice that Delsin is taking damage (in the world) and running low on his superpower resource (via a HUD resource gauge; see Figure 2), and thus will seek cover and try to find a location to replenish this valuable resource, so Delsin (and the player) are ready to reengage in battle.

Audio Representation

Sound effects are abundant in *Infamous*. Sirens, explosions, and gunshots are part of the experience and contribute to the immersive atmosphere of the game. These sound effects and countless others carry meaning about what is happening in the digital world. Even when enemies are not visibly on screen, the sound effects can alert the player to nearby adversaries. Additionally, as is the case with film, music contributes significantly to the mood of the experience, ranging from emotional background music played in a makeshift hospital to intense scores that magnify battle scenes.

Tactile Representation

The dominant form of tactile representation in *Infamous* is the player's interaction with the wireless controller. The player explores the world through controlling Delsin's actions via the Playstation 4 controller. Different buttons are pushed in different combinations and sequences to help gamers achieve their goals. This is a deeply tactile experience as one's fingers, hands, and arms are constantly engaged with the controller in an effort to guide Delsin's actions and progress in the game.

Goal-Setting and Problem-Solving during Gameplay: Paths for Progression

Gamers look for affordances to match with their effective abilities during video gameplay (Gee, 2015) similarly to how people in general look for affordances in the real-world to match with their effective abilities (Gibson, 1977), processes that are mediated by the goals of the individual. Throughout video gameplay, searching for and identifying affordances is a process rich in symbolic interpretation. Gamers constantly interpret an array of multimodal symbols and use this information to locate and follow paths for progression in the game by identifying and pursuing goals, problems, and opportunities through matching perceived affordances with effective abilities. Such perceptions influence the gamer's decisions, leading to new experiences from which gamers then learn from consequences of their actions. This process represents an intersecting set of goals, problems, and actions. Given this perspective, this remainder of this section will illustrate the various ways gamers experience *Infamous* as a problem-solving environment.

Gamers identify goals based on the symbols *Infamous* provides as well as their past experiences with video games, such as general ideas about video gameplay structure, mechanics, and progression. The variety of multimodal information presented in video games, and *Infamous* more specifically, can be interpreted as a problem or set of problems related to the goal(s) of the gamer. One broad goal

that gamers often have is the goal to progress through the game. This progression, however, unfolds differently for each gamer based on other progression-related goals. Goal-setting processes are often nested, as larger goals (game progression and beating missions) have smaller embedded goals (defeat a group of enemies), which have even smaller contingent goals (replenish resources when necessary). Furthermore, every goal represents a problem:

Goal: Beat Mission Problem: How Can I Accomplish the Mission?

Goal: Defeat Group of Enemies Problem: How Should I Beat the Enemies?

Goal: Replenish Resources Problem: How Often and from Where?

This process constantly requires gamers to interpret the situation, formulate goals, make informed decisions, and learn from their actions. This goal-setting/problem-solving process, even when subconscious, represents an important aspect of gameplay experiences in which gamers identify and follow paths for progression that help them accomplish goals and solve problems.

To illustrate this process, examining Figures 2 and 3 and the context they are drawn from is helpful. Two overarching goals during this gameplay session were to defeat all enemies and stay alive. Figure 2 illustrates Delsin battling D.U.P. enemies. In the lower-left corner is the smoke gauge, which shows his smoke powers are nearly depleted from battling enemies. Delsin, speaking to himself (and the player) verbally says “Time out for a break,” which signals to the player, in addition to the smoke gauge, that his smoke energy is low. After the player interprets this situation, he or she could continue to battle, but heeding the advice of Delsin and recognizing smoke power is low, the player decides to retreat and extract more smoke energy (Figure 3), and even though the player momentarily retreated to replenish resources, the player learns this action can help Delsin to live and fight on in the future.

In this situation, the player’s interpretation and decision occurred extremely quickly and led to a learning experience (i.e., momentary retreat can aid in the goal of survival and eventually help solve the problem of defeating enemies and beating the mission). Similarly, the player may have failed to interpret Delsin’s low smoke energy or decided to not retreat, in which case the player may have failed to stay alive and had to start over from a previous checkpoint, a different learning experience.



Figure 2. Delsin with low smoke gauge (lower left).

Another example from *Infamous* of goals, decisions, and learning occurs through the game's karma system. If one's goal is to earn good karma, he or she must avoid hurting innocent bystanders as well as police officers (not to be confused with the D.U.P.), who may even attack the player. This often makes completing a section of the game more difficult than for players who are seeking evil karma, as they can freely attack, and actually get rewarded, for harming innocents and the police, who are often located closely to enemy forces. So, a player seeking good karma (as a goal) must take extra caution to not hurt innocents and police when they intermingle with D.U.P. forces, which creates a problem that is not applicable to players seeking evil karma. As players strive for goals and solve problems through their decisions, they learn from their actions, which influences future goal setting and decision making.



Figure 3. Delsin absorbing smoke power over the city.

Conclusion

This paper recognizes video gameplay as a new literacy practice and examined one game to illustrate how multimodal symbols influence gamer perceptions, decisions, goals, and learning. Given the prominence of video games in modern society and the value of multimodal communication and learning, it is important to continue analyzing video games from a multimodal-focused new literacy perspective, so we can continue to learn about the complex meaning-making and learning processes video gamers experience.

References

- Gee, J. P. (2007). *Good video games + good learning: Collected essays on video games, learning, and literacy*. New York, NY: Peter Lang.
- Gee, J. P. (2015). *Unified Discourse Analysis*. New York, NY: Routledge.
- Gibson, J.J. (1977). The theory of affordances. In R. Shaw & J. Bransford (Eds.), *Perceiving, acting, and knowing: Toward an ecological psychology* (pp. 62–82). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Kalantzis, M., Cope, B., & Cloonan, A. (2010). A multiliteracies perspective on the new literacies. In E. A. Baker (Ed.), *New literacies: multiple perspectives on research and practice*, (pp. 61-87). New York, NY: The Guilford Press.
- Kress, G. (2003). *Literacy in the new media age*. London: Routledge.

Lankshear, C., & Knobel, M. (2011). *New literacies* (3rd ed.). Berkshire, England: Open University Press.

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60-93.

Rosenblatt, L. (1995). The transactional theory of reading and writing. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.) *Theoretical Models and Processes of Reading* (4th ed., pp. 1057-1092).

von Gillern, S. (in press). The gamer response and decision framework: A tool for understanding gameplay experiences. *Simulation & Gaming*.