The OODA Loop: Using a Modern Military Concept as a Game Design Tool

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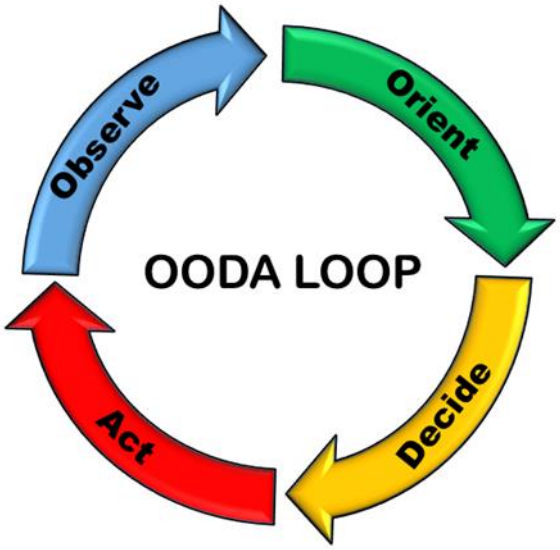
At some point during playtesting, one or more of your playtesters will do something or not do something that significantly deviates from your grand vision of gameplay. Figuring out where, why, and how your game went "off track" and what you need to get it back on is something you will do many times in the game design process. This is where the military concept of the OODA Loop can be a useful tool in your game design toolbox.



The Basic OODA Loop

OODA, which stands for Observe, Orient, Decide, and Act, was created by US Air Force Colonel John Boyd to originally describe air to air combat but it later evolved into a model of the decision-making process. Boyd developed his ideas through the 60s and 70s, eventually becoming an essential part of officer training in the US military. In addition to the military, this versatile concept is also used in business, law enforcement, and martial arts. Several books have been written highlighting non-military applications of Boyd's work.

The application of OODA Loop concepts to game design is a natural fit. Gameplay of almost any game can be viewed as a series of player-enacted decisions. A tool designed to dissect the decision-making process would greatly benefit anyone looking for ways to improve their game designs. While powerful, there's nothing radical or groundbreaking about the OODA Loop. Many will find OODA Loop concepts to be easily recognizable even mundane. The true power of the OODA Loop concept is its ability to make explicit that which is typically implicit. In other words, Boyd's work provides game designers with a structured framework to analyze vague or amorphous game design elements.

The OODA Loop is a versatile tool. In addition to helping you fix gameplay problems, the OODA Loop can help enhance your game and even create player powers. This article is part one of a series of articles and it is

intended to provide you an introduction to the OODA Loop concepts and provide some basic tips on fixing problems. Subsequent articles will expand on the concept and highlight other ways designers can use it.

OODA Loop Basics

The OODA Loop is an iterative cycle broken down into four steps: Observe, Orient, Decide, and Act. It can be used to describe any general decision–making process but we'll focus on this cycle applies to a player of your game.

The OODA Loop applied to Chess. Observe: seeing the position of pieces on the board; Orient: giving meaning to the chess pieces; Decide: choosing which piece to move; Act: moving the piece

Observe

Observe is the step in which the player is looking and gathering data from the game. He/she is looking at things such as:

- The position of player pieces
- The cards in play
- The resources available

In this step, the player has not yet evaluated the data. Observing is simply the gathering of raw data.

Orient

Orient is the step in which the player assigns meaning to the data gathered from the Observe step. He/she is assessing things like:

- The relative strengths of each player
- Which player is currently leading
- Which players are vulnerable
- Eliminating unimportant data

Orient is the step in which a player's persona, experience, knowledge, etc. enters gameplay. While all the players are observing the same gameplay, each is coming up with different conclusions about the state of the game and paths to victory.

Often gathered data is incomplete or imperfect. So players may also be listing all the possible meanings of the data gathered from the Observe step. Players may also be filling in missing or incomplete data using their own persona or experience. Aggressive players may see opportunities in the missing data. Cautious players may focus on their vulnerabilities in the missing data.

Decide

Decide is the step in which the player lists his/her courses of action and decides which action to take. He/she is doing things like:

- Evaluating the risk/reward of each course of action
- Assessing the possible counter-moves of each course of action
- Deciding which observations/meanings are important or a high priority
- Eliminating courses of action
- Choosing one course of action

The Decide step is the second step when a player's persona enters gameplay. Players may arrive at similar lists of courses of action but they won't necessarily choose the same one. Aggressive players may choose a high risk action while cautious players may choose low risk actions.

Act

Act is the step in which the player puts his/her planned course of action into motion. He/she is doing things like

- Rolling dice
- Playing/drawing a card
- Moving/placing game pieces
- Trading/using resources

The Act step is when the player changes the state of the game. In addition to taking the chosen course of action, the player may be required to take additional actions such as replace played cards, collect resources, etc.

General OODA Loop Guidelines to Solve Problems

Observe Step Problems

Your game may have problems relating to the Observe step if your players are consistently doing any of the following:

- Misreading icons or terminology
- Feeling overwhelmed by the amount of information they see

- Misreading the state of the game
- Failing to notice opportunities for advancement

Designers should aim for a game design that not only conveys information to the player clearly but also efficiently. Such a design provides the player a greater understanding of gameplay. Improvement of the Observer Step involves deciding how much information you want your players to have, then ensuring your game conveys that level of information clearly. Use the following questions as a guide to resolve problems with the Observe Step with respect to your game:

- What information can be directly observed by the players?
- What information is hidden from the players?
- Is the information you want to convey in one specific area or spread out over the table? Is there a way to collect or consolidate information into a smaller area?
- Are icons and terminology distinct?
- What items are not intended to convey gameplay information? Do these items confuse the players?
- Are there items that do not convey information intuitively or clearly? Is there a way to improve clarity?
- Would providing more or less information enhance gameplay?

Players consistently misreading icons or terminology may be a sign of problems relating to the Observe step.

Orient Step Problems

Your game may have problems relating to the Orient step if your players are consistently doing any of the following:

- Misreading icons or terminology
- Misunderstanding the significance of a game event
- Disregarding important game information
- Misreading the strength of other players relative to his/her own strength

The primary question you're trying to answer with the following questions is how steep is the learning curve of your game. While all games have some kind of learning curve, it remains important to minimize the learning curve as much as possible. Games with easy learning curves tend to be played more often by more people. Games with steep learning curves tend to be played less. The learning curve of your game is not only dependent on your mechanics but the language and iconography of your game. Give careful thought to if your game is unnecessarily complicated by using following questions as a guide:

- How many items must the player observe to understand their status in the game relative to other players? Can you reduce this number?
- Does your game use terms/icons that could be confusing? If so, can you use terms/icons that are more intuitive?
- Does your game use terms that have an uncommon meaning compared to other well-known games? Can you change the term to match the common meaning?

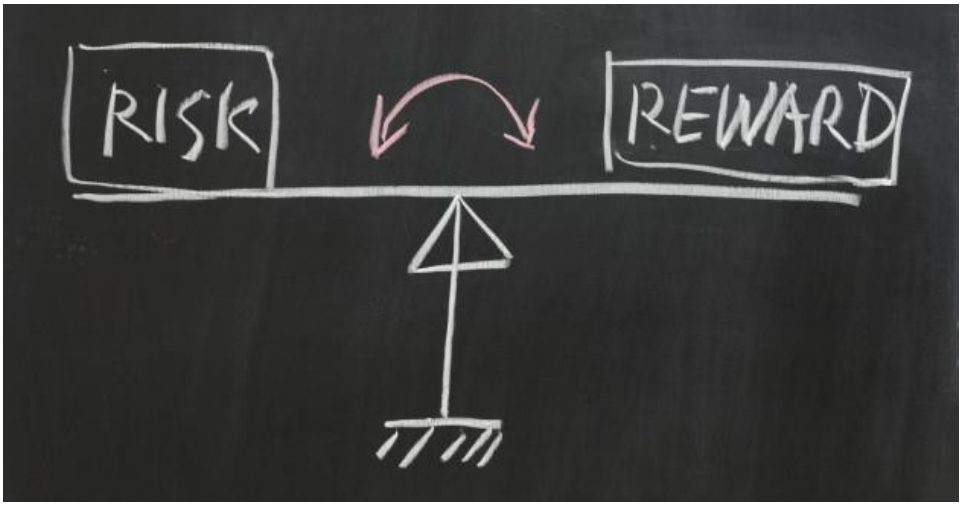
Decide Step Problems

Your game may have problems relating to the Decide step if your players are consistently doing any of the following:

- Repeatedly choosing one specific course of action (or a small subset of many choices)
- Not choosing an obvious course of action
- Believing a risk or reward is much smaller or larger than it actually is
- Believing there is only one sensible course of action

The key to this improvement is analyzing how well the players understand their gameplay options. Having vague or confusing choices and consequences diminishes gameplay. Improving this step will help you clarify gameplay choices to the player. The following questions focus mainly on the primary choices in the game. The term "primary choices" means those choices every player typically faces on every turn rather than choices that are situation specific. Consider the following questions with respect to your game:

- Are options intuitive or clearly specified? Do they follow the theme/mechanics of your game?
- How many different types of primary actions are in your game? Would your game be enhanced by increasing or reducing the number of primary actions?
- How many different types of primary consequences? Would your game be enhanced by increasing reducing the number of primary consequences?



Players misunderstanding the risk or reward of their choices can indicated problems related to the Decide step.

Act Step Problems

Your game may have problems relating to the Act step if your players are consistently doing any of the following:

- Attempting to take actions that are invalid or against the rules
- Forgetting to perform a chosen action (after performing other actions)
- Performing unnecessary actions (such as shuffling cards when there is no need to)

The crucial aspect of this improvement is understanding how well your game allows players to put their decisions into motion. A player must be able to link actions with decisions. Having obstacles between actions and decisions detracts from gameplay. The following questions are designed to help you design a game that provides as much freedom to act as possible:

- How many actions can a player perform per turn?
- Would gameplay be enhanced by decreasing or increasing the number of actions per turn?
- Must the player perform any mandatory action before he/she can perform their chosen action?
- When are player's actions hindered? Are they hindered by previous actions or by other players?
- Are there any invalid actions?

Final Thoughts

When it comes to game design, the OODA Loop is a concept rather than a process. It isn't something that can be applied in discreet steps to yield an answer but rather a framework to get into the head of your playtesters. It is especially helpful when players consistently perform actions you did not intend to be part of the game or fail to perform actions. You can use the OODA Loop to trace back where the player diverted from your gameplay plan. You can also use the OODA Loop to find incentives for players to stay within your gameplay vision. The purpose of this article was to introduce you to the OODA Loop concept and provide ideas on how you can use it in the game design process. Forthcoming OODA Loop articles will build on this knowledge.

If you have any question please don't hesitate to contact me at: gary.chavez@gcrocketscience.com