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Best Practices for Teaching Shifting Gameplay Styles

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Abstract

This thesis explores four different methods (Golden Path, Punishers & Reinforcers, Teaching in Threes, and Forced Teaching) for teaching players how to engage with shifting gameplay styles within video games using Nico Fridja's Valence Theory [1]. Using the *Far Cry 5* Arcade Editor, the researcher created a single-player video game level in which all four teaching methods were tested in tandem with one another. The goal of creating this level was to evaluate the validity of the teaching methods and their ability to shift gameplay valences—specifically between stealth-focused gameplay and push-forward firefight combat gameplay.

Keywords

Valence Theory, Stealth Gameplay, Push-Forward Firefight Combat Gameplay, Teaching, Video Games, First-Person Shooter, *Far Cry 5*, Affordance, Conveyance, Gameplay Styles, Weighted Valences

1 INTRODUCTION

This thesis study uses Nico Fridja's Valence Theory [1] and applies it to video games by identifying certain game objects as either positive, negative, or neutral. Gameplay styles each have a unique set of valences, which influences the player in corresponding ways. The researcher created a level within *Far Cry 5* called "Prey & Predator" to test the effectiveness of weighted valences for specific gameplay styles. The level is split between two different gameplay styles: stealth and push-forward firefight combat. "Prey & Predator" utilizes four different teaching techniques that attempt to guide the player through the transition between the two gameplay styles: Forced Teaching, Punishers & Reinforcers, Golden Path, and Teaching in Threes.

2 DEFINITIONS

2.1 Valence Theory

Valence Theory was first proposed by Nico Fridja in his book, *The Emotions* [1]. Fridja defines a "valence" as, "the affective quality that determines the intrinsic attractiveness or averseness of an event, object, or situation" [1]. In other words, a valence is anything that holds a positive, negative, or neutral connotation to an individual. Valences hold these connotations within certain contexts. This means that a positive valence in one situation might not be a positive valence in another situation.

For example, if a person walks home late at night, they will perceive certain elements differently than if they walked home in the daytime. A well-lit sidewalk is an example of a positive valence in this situation. The sidewalk is a safe place for pedestrians to traverse, while the streetlights overhead illuminate their path clearly. On the other hand, an example of a negative valence in this situation would be a dark and narrow alleyway. The darkness hides potential dangers and the narrow space leaves little room

to avoid any sudden obstacles or hazards. A neutral valence in this example is a fire hydrant. A fire hydrant holds no positive or negative benefit for someone walking home at night.

The researcher posited that Fridja's Valence Theory may also apply to video game elements (items, enemies, locations, events). Just like real world objects, events, or situations, video game elements can have positive, negative, and neutral connotations within the game world. In *Far Cry 5*, the player uses tall grass to hide from enemies. Tall grass is a positive valence because it provides the player with the ability to sneak past foes or attack them with the element of surprise. In contrast, open spaces are seen as a negative valence for players. Wide-open areas make it easier for enemies to notice players and attack them.



Figure 1: "Prey & Predator" - Hiding in Tall Grass [4]

2.2 Weighted Valences

While constructing this level, the researcher discovered that valences in games were not solely positive, negative, or neutral. Instead, some valences were *more* positive, or *more* negative. This discovery led the researcher to theorize that valences can have different "weights."

For example, an individual may have multiple different transportation options to get to work in the morning. The

individual can run, ride a bicycle, or ride in a car. However, each type of transportation does not have the same “weight” in this situation. A person who wants to get to work faster than walking or running would see either riding their bike or driving their car as a positive valence. While a bicycle is faster than commuting on foot, a car can typically get someone to a destination even faster. Therefore, a car is an even greater positive valence.

The same can be said for video games. A player might have the choice between two different pickup abilities: one that boosts their speed and another that boosts their speed and defense. While both are positive valences to the player, if given the option, players will more than likely select the latter pickup ability, since it provides a greater benefit than the first pickup ability. Designers can employ this deeper understanding of valences to better predict how players will engage with their level or game.

2.3 Affordance

Affordance, as defined by the Merriam-Webster Dictionary, is “the quality or property of an object that defines its possible uses or makes clear how it can or should be used” [5]. Put simply, an object’s shape, structure, size, etc. communicates (or affords) an object’s function. A classic example is known as the “Norman Doors” [15]. The Norman Doors example explores the difference between a door handle and a push bar. A door that has a closed-loop handle conveys that the user must grab and pull the handle to open the door. In contrast, a door with a push bar communicates that the door is supposed to be pushed open.

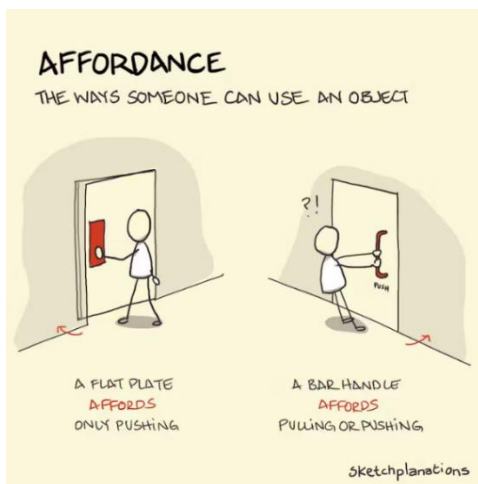


Figure 2: Norman Doors - Affordance [13]

In video games, designers often utilize affordances. A game object’s characteristics communicate how the player must interact with the game object. Naturally, when someone sees a ladder in real life, they might assume that it is there to be climbed. When a player comes across a ladder in a video game, the player would assume that the digital ladder affords the same interaction. Therefore, designers can use affordances to guide players on how to accurately interact with the world and objects around them.

2.4 Cover

In video games, the term “cover” refers to gameplay objects which provide protection from enemy attacks and from enemy sightlines. The researcher focused on two main types of cover: hard cover and soft cover.

Hard cover game objects are medium (roughly the size of the player) or larger game objects that both visually obscures the player from enemies and protects them from attacks. For example, a brick wall would be able to stop a bullet, while a chain link fence would likely not stop a bullet. In combat-focused games, cover almost always plays some part in the tactical decision between offense and defense. This type of cover is typically the most reliable as the player gauges what objects allow the player to both hide and stop incoming attacks.



Figure 3: Uncharted 4 - Using Hard Cover [12]

Soft cover, unlike hard cover, does not protect the player from incoming attacks. Soft cover only obscures the player visually. An example of soft cover is a bush or a fabric tent. The player might be able to hide behind these objects, but neither a bush nor a tent would protect them from bullets. If an enemy were to discover the player, the enemy would simply shoot through the bush or tent. This type of cover is primarily used for games that want to encourage the player to sneak and hide from enemies (but not to engage in full combat). Some variants of soft cover can offer greater mobility than hard cover. In *Horizon Zero Dawn*, the player can hide in large patches of tall grass. Hiding in tall grass allows the player to stay hidden and move freely. In contrast, the player would have a more difficult time moving around a solid hard cover object, such as a car.



Figure 4: Horizon Zero Dawn - Hiding in Tall Grass [14]

Both types of cover have their specific uses and can occur in games that use both stealth and combat. If a designer

wants to encourage a specific gameplay style, they may use more of one cover type. For example, the designer can provide the player with more soft cover to encourage the player to avoid engaging in outright firefights.

2.5 Gameplay Styles

“Gameplay” is “the characteristic way in which the action of a game (such as a video game) occurs or is experienced” [5]. The player adopts a different “style of play” in response to a game’s mechanics, layout, and systems. Some games encourage the player to play aggressively, fighting or shooting enemies, while other games encourage the player to stealthily navigate, sneaking around and avoiding enemies. A gameplay style has its own set of associated valences. Each valence set pushes and pulls the player to interact with the game in specific ways. The researcher examined two main gameplay styles for this thesis: Stealth Gameplay and Push-Forward Firefight Combat Gameplay.

2.6 Stealth Gameplay

A player is engaging in stealth gameplay if they are using their abilities and skills to avoid being noticed. Stealth games provide the player with different means of remaining undetected. Typically, stealth games will also provide the player with a way to stabilize should they be detected, or if a Non-Player Character (NPC) becomes suspicious of them.

The player will be given some measure of affordance that an NPC has detected them or is on the alert. At this point, the player is inclined to avoid detection by escaping the NPC’s detection zone, or by eliminating the NPC as a threat. In other words, the player is engaged in stealth gameplay for as long as they are within proximity to one or more NPCs that have the inherent ability to detect the player, but the player remains hidden.

In *Sly Cooper 3: Honor Among Thieves*, the player can easily interpret the guards’ detection radius. This radius is indicated by the guard’s flashlight beam. The flashlight radius informs the player where they can and cannot move to stay hidden from the guards. If the player enters the flashlight beam, they will be detected by the guard. Otherwise, the player will remain hidden (unless they alert the guard through some other means).



Figure 5: *Sly Cooper 3* - Flashlight Guard [10]

2.7 Push-Forward Firefight Combat Gameplay

Push-forward firefight combat is one of the most aggressive gameplay styles in video games. Players who adopt this gameplay style primarily use firearms to eliminate enemies. As they “push” forward towards a specified goal, the player moves in and out of cover. By using hard cover, the player can avoid attacks from enemies and gain tactical advantages. When the player is behind hard cover and an enemy is not, the player can attack from a fortified, protected position. Other supplemental tactical considerations for this gameplay style include ammo pickups, line of sight, and elevation.

For the player to partake in this gameplay style, there must be at least one hostile target actively aware of the player’s presence. The target is constantly trying to prevent the player from progressing by either holding a position or pursuing the player using harmful or lethal means. For example, in *Uncharted 2: Among Thieves*’ level, “Urban Warfare,” the player, as Nathan Drake, must eliminate enemies as they push forward through a battle-stricken city toward their goal.



Figure 6: *Uncharted 2: Among Thieves* - Combat [11]

2.8 Best Practices Overview

The goal of this study is to use the Valence Theory to influence the player’s understanding of two different gameplay styles. Each of these two gameplay styles have their own set of valences that the player should recognize and utilize appropriately. To achieve this, the researcher employed four teaching methods (referred to as best practices).

2.9 Best Practice 1 – Forced Teaching

Forced teaching is a technique in which content is forcibly introduced and taught to an individual. Designers can employ this technique to require the player to perform a specific game action. When the player executes this action, they are introduced to a corresponding affordance for the purposes of encouraging a learned behavior or skill.

A classic example of forced teaching is seen in *Super Mario Bros* [6]. When the game forces the player to jump over an enemy Goomba, the player bumps into an overhead block, which results in the spawning of a power-up mushroom. This critical moment teaches the player that they can jump and hit blocks from below to expose their contents. Forced

teaching is a powerful tool to subtly instruct the player on how to interact with game objects or how to engage with certain gameplay styles. The researcher used forced teaching to subtly instruct the player on how to interact with certain valences for both stealth and push-forward firefight combat.



Figure 7: Super Mario Bros. - Teaching Moment [6]

2.10 Best Practice 2 – Golden Path

In Randy Smith's Game Developer's Conference (GDC) talk, "Level Building for Stealth Gameplay," Smith discusses the importance of providing the player with a 'golden path' [7]. Smith uses this term to describe a recognizable path forward through the level. This path provides the player with optimal means for remaining undetected. Without the golden path, the player might feel confused and frustrated. This breaks the player's faith in the level designer's intended gameplay. In response, the player may act in unpredictable ways.

For example, a player may resort to using a weapon to attack a guard if they cannot see any path forward for stealth, regardless of if they believe the intended action will work or not. Therefore, it is critical that a designer building a stealth-based level ensures that there is a golden path that the player recognizes and uses to successfully remain undetected.

2.11 Best Practice 3 – Punishers & Reinforcers

"Punishers & Reinforcers" is another concept mentioned in Randy Smith's GDC talk [7]. Punishers and reinforcers provide feedback to the player based on their actions. The explicit purpose of this feedback is to either encourage or discourage a specific gameplay style.

"Punishers" are a type of affordance that tells the player when an action they have performed is harmful. An example of this can be seen in *The Elder Scrolls V: Skyrim* [8]. *Skyrim* allows the player to utilize stealth gameplay. The game conveys to the player when they are hidden, being searched for, or detected by nearby NPCs with an

icon on the player's screen. While the player is hidden, the icon depicts a closed eye. However, when the player is noisy (attacking, sprinting, or casting a spell), nearby NPCs may be alerted, and, as a result, the icon changes from a closed eye to an open eye. This icon change indicates a shift in the player's detected state.

If the player is loud and alerts the enemy, the icon opens. The player has brought about a negative reaction and is now under attack as a result. They have lost the advantage of surprise. Therefore, punishers can be used to discourage players by providing a type of negative affordance. In future gameplay encounters, the player will likely remember this interaction and alter their actions to avoid being punished.

In contrast, a "Reinforcer" is a type of affordance that conveys to the player when they perform a beneficial or positive action. In *Skyrim*, an example of a reinforcer is when the player attacks an NPC while they are hidden. Attacking while sneaking gives the player a bonus to their attack damage. As a result, the game overtly tells the player they have succeeded in applying sneak attack damage. The player can see a sizable amount of health depleted from their target's health bar.



Figure 8: *Skyrim* - Sneak Attack Kill [8]

This positive affordance encourages the player to replicate this behaviour in the future. Therefore, reinforcers are a way of rewarding the player for engaging in the gameplay as the designer intended (or at least one of the ways the designer intended).

2.12 Best Practice 4 – Teaching in Threes

Teaching the player the rules of a video game can often take more than a single instance. The player must encounter a game concept multiple times for them to fully grasp and understand it. In his article, "Subverting Player Expectations," Pete Ellis breaks down the importance of building up the player's expectations before you undermine those expectations [9]. Ellis first introduces the player to something new, then reinforces the player's understanding of it, and then further builds on their understanding in a more detailed way. After doing so, the player develops an understanding for the pattern, which Ellis then flips to subvert the player's expectations. While

Ellis primarily employs this technique to create successful narrative twists, teaching in threes can also be used to establish a player’s understanding of a gameplay style.

If the designer wishes to encourage two distinct gameplay styles, the player must have a clear understanding of each style’s ruleset. In stealth gameplay, the player is expected to hide, avoid enemies, and make as little noise as possible. However, in push-forward firefight combat, the player instead charges into the middle of the action and directly confronts enemies, while firing loud weapons. Teaching in threes is used to establish the player’s expectations and understanding of the rules of the game (or gameplay style). Each of the three parts holds a separate purpose: teach, reinforce, and master.

The first phase is the “teaching” phase in which the player is introduced to the game rules. The player is asked to perform a task, with relatively low risk, to prove their understanding of the rules. Next, the player encounters a follow-up situation in which they must repeat a similar action that they were taught in the teaching phase. This structure “reinforces” their understanding of the rules and any new skills. Finally, the player is challenged in a moment of “mastery” where they must apply what they have been taught and reinforced in a situation of increased difficulty. This rewards the player’s understanding of the rules by overcoming a challenge that increases their skill in the game.

3 METHODOLOGY

3.1 Overview

“Prey & Predator” is a single-player journey mission made in the *Far Cry 5* Arcade Editor. The player traverses through a mountain valley highway taken over by hostile cultists. The goal of the level is for the player to reach the designated extraction point at the far end of the horseshoe shaped valley. Stealth gameplay is emphasized in the first half of the level, which is divided into three sections. The second half is made up of another three sections, which emphasizes push-forward firefight combat. To test the outlined best practices, the researcher divided their level into these two parts to teach the player how to engage in stealth gameplay before teaching the player to convert to push-forward firefight combat. This process involves teaching the player to identify the different valence sets of each gameplay style. The researcher believed that by presenting the player with a definite understanding of the positive/negative/neutral relationship of a valence set, the player would engage with the supported gameplay style.



Figure 9: “Prey & Predator” - Artifact [4]

3.2 Weighted Valence Sets

The researcher created a list of valences based on weight for the two employed gameplay styles. Some valences may gain or lose value between gameplay styles and yet still retain their positive or negative nature.

Stealth Valence Set

Tall Grass (Soft Cover)	++
Enemy Patrol Paths	++
Other Soft Cover	+
Hard Cover	+
Dark Areas	+
Elevation	+
Ammo	0
Medkits	0
Well-lit Areas	-
Open Areas	--

Table 1: Stealth Valence Set

Table 1 shows the researcher’s anticipated stealth valence set. The designer assumed that “Tall Grass” was one of the highest valued positive valences, very positive (++) for stealth gameplay. Unlike any other form of cover, tall grass allows the player to become relatively undetectable while moving through it. While hard cover and other forms of soft cover can also obscure the player, tall grass provides the player with total visual cover from all directions.

“Enemy Patrol Paths” were found to be another very positive (++) valence. Patrol paths are high-value valences because the player is able to use the paths to gauge how NPCs will move and when (if at all) the player has a tactical advantage. The player can use this information to decide when to best move between two areas of cover without being detected.

“Other Soft Cover,” “Hard Cover,” “Dark Areas,” and “Elevation” were all considered positive (+) valences. Soft and hard cover help the player hide and remain undetected by enemies (but are less beneficial than tall grass). Dark areas also help conceal the player. NPCs have a harder time detecting the player in areas of low

illumination. Elevation provides the player with a raised view of the level, and it puts them out of the enemies' detection range.

"Medkits" (which restore some of the player's missing health) and "Ammo Pickups" (which give the player ammunition) were predicted to be neutral (0), since they do not provide any positive or negative value in stealth gameplay. If a player remains totally undetected, they will not need to replenish their health. Likewise, the player was not given a firearm for the first half of the level, so ammo pickups do not provide any benefit either.

Since dark areas were seen as a positive (+) valence, "Well-lit Areas" were seen to be a negative (-) valence, for inverse reasons. It is easier for NPCs to detect the player when they are in well-lit, fully illuminated areas.

"Open Areas," such as a field with no hard or soft cover objects, is the lowest-valued negative (--) valence. In stealth gameplay, open areas restrict the player's agency. The player has no chance to hide or conceal themselves from NPCs.

Push-Forward Firefight Combat Valence Set

Hard Cover	++
Ammo	++
Elevation	++
Well-lit Areas	+
Medkits	+
Enemy Patrol Paths	0
Other Soft Cover	-
Dark Areas	-
Open Areas	-
Tall Grass (Soft Cover)	--

Table 2: Combat Valence Set

Between two or more gameplay styles, valences can remain positive or negative, while still shifting in weight.

"Hard Cover" changes from a normal-value positive (+) valence in stealth gameplay to a high-value positive valence (++) in push-forward firefight combat. Once the player has been detected, they will need cover to protect them from enemy attacks.

"Ammo" shifts from a neutral valence (0) to a high-value positive valence (++) as it provides the player with an important resource to defeat enemies. With armed enemies standing between the player and the goal, the player must engage in firefights to open a path forward. Much like hard cover, this is a critical element in this gameplay style.

"Elevation" is the last of the high-value positive (++) valences for push-forward firefight combat. This valence provides the player with a form of partial cover, as it inhibits NPCs from attacking the player. Elevation provides the player with a vantage point that can also assist them in making tactical decisions.

"Well-lit Areas" shift from a negative valence (-) to a positive valence (+). Lighting helps the player to better see their targets.

"Medkits" also have more value in a combat situation than in a stealth situation. The player is likely to sustain damage in a firefight. As a result, medkits shift from a neutral (0) valence to a positive (+) valence.

"Enemy Patrol Paths" shift down from being a high-value positive (++) valence to a neutral (0) valence. In "Prey & Predator," once the player has entered the second half of the level, the enemy NPC becomes alerted. The NPC stops using patrol paths to instead use an aggressive ambush-like strategy. Therefore, patrol paths lose their positive (+) value but do not foster any negative value.

"Other Soft Cover" (not tall grass), "Dark Areas", and "Open Areas" all become normal-value negative (-) valences. Soft cover (such as tents and bushes) becomes unhelpful for combat because the player can be hit by enemy attacks through it. Dark areas no longer provide the player with an advantage once they have been spotted.

In fact, dark areas can make moving around more difficult for the player. Open areas shift from a high-value negative (--) valence to a normal-value negative (-) valence. While open areas are still negative, they are less so than when a player is engaged in stealth gameplay. In the first half of the level, the player was only equipped with a baseball bat, putting them at a severe disadvantage fighting against all the NPCs that were equipped with firearms.

"Tall Grass" undergoes the most dramatic shift from a high-value positive valence (++) to a high-value negative valence (--). Tall grass shares all the same weaknesses as other types of soft cover in the push-forward firefight combat. However, for a player to be properly using this valence, they must also be crouching, which restricts the player's mobility. Using tall grass then not only provides the player with no protection from attacks, but it also makes it even harder for the player to move in attempt to dodge them.

3.3 Application of Forced Teaching

To teach the player how to interact with some of the valences for stealth gameplay, the researcher used a forced teaching moment. At the start of the level, the player must exit the starting area, a mountain highway tunnel via a gap in a fence blocking their way. When the player crouches and passes through the gap, they emerge hiding in some tall grass. Nearby is an enemy with their back turned towards the player.



Figure 10: Forced Teaching - Stealth [4]

This moment (Figure 10) is used to influence the player. The player is using one of the most positively weighted valences for this gameplay style to remain undetected. This scenario helps the player understand both their relationship to this valence and their relationship to the gameplay style. However, this forced teaching moment for stealth is only used at the beginning of the level. The player is left to use, or not use, the valences, like tall grass, to navigate their way through the first half of the level.

Halfway through the level, the player is offered a pistol and ammo. The researcher designed this moment as the only opportunity for the player to acquire a weapon. It marks the beginning of the gameplay shift to firefight combat. After acquiring the firearm, the player encounters their second forced teaching moment. The player must crouch to fit through the opening in a nearby fence. When the player emerges through the opening, they are situated behind some crates (hard cover). At the same time, an enemy appears with their gun raised in an alerted state. The change in the enemy's behavior, the forced hiding behind cover, and the player's adoption of a firearm inform the player that the gameplay style has shifted to push-forward firefight combat.



Figure 11: Forced Teaching - Combat [4]

Both teaching moments set up the gameplay for the player and set a precedent for the valence sets.

3.4 Application of Golden Path

For the first half of the level, the player is given a clear golden path that they can follow. The golden path allows the player to remain engaged in stealth gameplay. Each of the three level sections has a golden path in which the

player can clearly view their goal and recognize valences they can use to stay hidden and progress forward.

The player is encouraged to stick towards the darker areas, which have an abundance of tall grass (made easier to recognize by the yellow flowers), or to stay hidden behind hard cover objects. Ultimately, the player wants to avoid stepping into areas of light or out in the open. The enemy patrol paths (the invisible paths in which the NPCs walk back and forth along) can cause a temporary interruption of the golden path. Due to enemies moving across the golden path, the player must time their own movements in and out of the soft cover (tall grass and the like). By providing the golden path to the player in the stealth section, the researcher encouraged the player to engage in the stealth gameplay style, as it leads to the most advantageous means of progressing through the level.



Figure 12: "Prey & Predator" - Golden Path [4]

In the second half of the level, the researcher broke the golden path. This disruption of the golden path is done to convey to the player that stealth gameplay is no longer preferable. Instead of carefully planning out their path through a string of valences, the player is now forced to react to the NPCs and use their new valences (such as hard cover and elevation) to maneuver around enemies for a tactical advantage.

This golden path best practice is used to support stealth gameplay. Therefore, the designer can discourage stealth gameplay by removing the golden path and by forcing the player to seek out a new way to progress through the level.

3.5 Application of Punishers & Reinforcers

The level utilizes the built-in technology of *Far Cry 5* for its punisher and reinforcer teaching. Like many other stealth games, *Far Cry 5* provides the player with a recognizable enemy detection system. When the player moves into an enemy's detection range and is either not fully hidden or makes too much noise, a bar will begin to fill over the enemy's head. When the bar fills all the way, the player is considered found and the enemy will switch to an aggressive state and target the player.

"Prey & Predator" utilizes this inherent aspect of the game to encourage the player to engage in stealth gameplay during the first half of the level. Due to the player being underpowered with only a single baseball bat, the player has no choice but to utilize stealth to either avoid enemies or at the very least get close enough to perform an

undetected stealth attack. When an NPC's detection bar begins to fill, the subsequent feedback is a punishment for the player for either exposing themselves to the NPC or for making too much noise.



Figure 13: "Prey & Predator" - Enemy Detection [4]

The player is reinforced to engaging in stealth gameplay. While sneaking up behind enemies, players can perform a takedown attack, which eliminates that enemy as a threat. This encourages players to remain hidden and rewards them for successfully sneaking up on the enemy without being noticed.

During the second half of the level, sniper enemies will use a laser sight to quickly lock on to the player. If the player does not duck behind cover or dodge out of the way before the enemy fires, they will take massive damage. This is a punisher introduced to dissuade the player from staying out in the open (for too long).



Figure 14: "Prey & Predator" - Hiding from a Sniper [4]

The player is rewarded for using cover while under fire to avoid incoming enemy attacks. By ducking behind cover to avoid snipers and regular cultists alike, the player can avoid damage at critical moments. The player can then wait for their own opportunity to return fire when the enemy exposes themselves.

3.6 Application of Teaching in Threes

Each half of the level is broken down into three separate sections. In the first part of the level, which encourages stealth gameplay, the researcher created a Checkpoint section, a Gas Station section, and a Hiking Trail section. The Checkpoint is considered a relatively low-threat area. The number of enemies and the distance between the patrol paths is generous enough that players can use stealth easily to remain undetected. This section is the

'teaching' section for stealth gameplay. It allows the player to grow comfortable enough with the mechanics and rules before progressing forward in the level.

The Gas Station slightly increases the difficulty by adding more enemies and narrower openings in the player's patrol paths. This section is the 'reinforcing' section, as it asks the player to perform the same skill checks that they did in the previous section, but now with a risk of failure. By using the same skills to overcome a more difficult area, the player develops their confidence and skill in the game.

The last section for stealth gameplay is the Hiking Trail. This area proves 'mastery' for the player as they must sneak past NPCs with overlapping patrol paths (meaning they must watch more than one NPC at a time) before moving out of cover to remain hidden. Additionally, there are more enemies and wider gaps between cover objects. Together, these three sections solidify an understanding of the stealth gameplay before ultimately reversing it in the second half of the level.

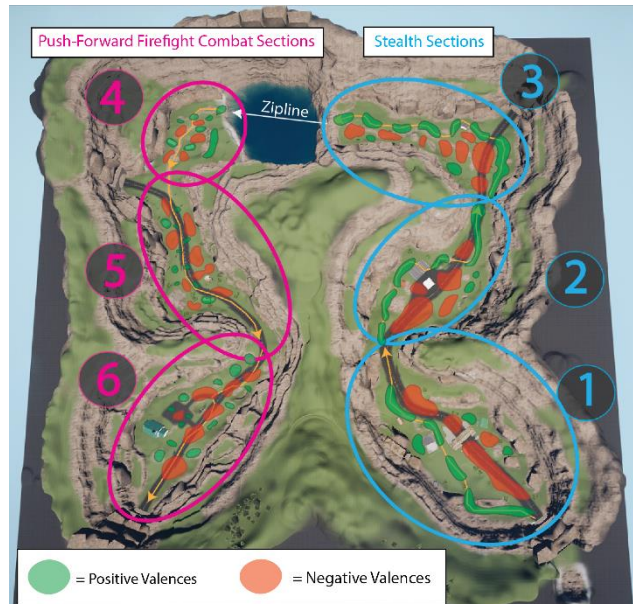


Figure 15: "Prey & Predator" - Sections [4]

At the level's midpoint, the player uses a zipline to cross the lake to arrive at the second half of the level. This half encourages push-forward firefight combat and is broken down into three sections: The Campgrounds section, the Ranger Station section, and the Church section.

The Campgrounds first introduces the player to a single hostile target. After the player moves past this encounter, they have another encounter with two more enemies. This is a relatively easy firefight encounter with plenty of cover and ammo for the player. It serves as the 'teaching' moment for push-forward firefight combat.

The Ranger Station is a slightly more difficult encounter space. The player now has a slight disadvantage as there is an enemy on top of the nearby watch tower, along with two more enemies on the ground. This requires the player to utilize hard cover more effectively to preserve their health. This section serves as the 'reinforcement' to combat.

The last section is the Church, and it is the most difficult encounter space. This ‘mastery’ section for combat has the most hostile enemies, enemies attacking from different sides, and different elevations. Together these three sections make up the three teaching sections for the second gameplay style.

4 RESULTS AND DATA ANALYSIS

4.1 Survey Process

The researcher created a post-playtest survey in Qualtrics XM. The survey consisted of 46 questions total. The questions mainly asked about either the playtesters’ assessments of the valences or the best practices used for each gameplay style.

4.2 Valence Ratings for Stealth Gameplay

For the post-playtest survey, the researcher had the tester rank each of the valences for the first half of the level, before the zipline transition. This half of the level was intended to encourage stealth gameplay. These questions had the tester rank the valences (for the first three sections of the level) on a Likert scale from 1 to 5, where 1 meant that the valence was “very unhelpful” and 5 meant it was “very helpful.” The researcher compiled these Likert values for each valence and divided the sum by the total possible score.

For example, if all 14 playtesters rated a valence 5, then the sum of the Likert values would be 70 (14 times 5). This sum divided by the total possible score (which is always 70), would yield a percentage of 100%. The minimum score was 14 instead of 0 since the lowest possible rating a valence could receive would be 14 (14 times 1). This was important for normalizing the scale for percentages. Each valence was then categorized into one of five valence weights based on its percentage:

- Very Positive (++) for 80%-100%.
- Positive (+) for 60%-79%.
- Neutral (0) for 40%-59%.
- Negative (-) for 20%-39%.
- Very Negative (--) for 0%-19%.

The chart below shows the percentage of each valence in relation to one another for the first three sections of the level.

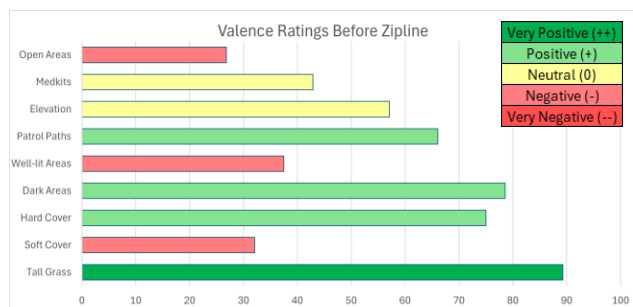


Figure 16: Actual Valence Ratings - Before Zipline [16]

The two stealth based valences that were expected to be weighted as very positive (++) were Tall Grass and Enemy Patrol Paths. However, only Tall Grass received this very positive rating. This response is likely due to testers’ confusion over the usefulness of Enemy Patrol Paths. While many of the playtesters rated Enemy Patrol Paths as a less helpful valence, those same playtesters were observed frequently utilizing this valence in the playtest session.

Elevation, Dark Areas, Hard Cover, and other types of Soft Cover (excluding tall grass) were expected to be rated as positive (+) valences. However, these valences were instead valued differently than anticipated. Only Dark Areas and Hard Cover were rated as positive (+) valences.

Elevation was rated to be a neutral (0) valence, likely due to there not being an abundance of elevation for the player to use in the level. “Other Soft Cover” on the other hand were valued much less and were ranked as a negative (-) valence. This unexpected shift was likely due to the way the question was phrased.

The question asked the playtester to rank the valences based on their location (“before the zipline”) rather than rank the valence based on the gameplay style (such as “stealth gameplay”). This phrasing was purposely chosen by the researcher to accommodate those playtesters that chose to use other gameplay styles. Playtesters who chose to engage in a more aggressive gameplay style and avoid the more stealth-inclined valences, were likely to rate them as less helpful.

Medkits were expected to be a neutral (0) valence for the first half of the level. The data supports this expectation and shows that players valued this valence almost exactly as the researcher anticipated. The researcher believes that this result is because the playtesters rarely needed to use medkits while engaged in stealth gameplay (due to a lack of direct combat encounters).

Well-lit Areas was expected to be the only negative valence in the stealth portion. While the data shows that this assumption by the researcher was accurate, there was another negative valence (besides Soft Cover mentioned previously). Playtesters also found Open Areas to be a negative (-) valences rather than very a negative (--) valence, as the researcher predicted. As mentioned previously, playtesters who chose to forgo stealth gameplay in lieu of a more aggressive style of play, tended to rank valences in unexpected ways. Aggressive players rated Open Areas as more helpful since the player would run directly at unsuspecting enemies to attack them before the enemies had a chance to start attacking the player.

Ammo was not surveyed in the first three sections of the level. The researcher assumed that if the player was given the opportunity to collect ammo before the player was given a firearm, it would result in unnecessary player confusion. The researcher chose to avoid this possibility, so as to not impact the researcher’s encouragement of stealth gameplay.

4.3 Valence Ratings for Push-Forward Firefight Combat Gameplay

In addition to asking about the first half of the level, the researcher also asked playtesters to rate each of the valences for the second half of the level (after the zipline transition). Again, these questions had the tester rank the valences (for the last three sections of the level) on a Likert scale from 1 to 5, where 1 meant that the valence was “very unhelpful” and 5 meant it was “very helpful.” The researcher compiled these Likert values for each valence and divided the sum by the total possible score.

- Very Positive (++) for 80%-100%.
- Positive (+) for 60%-79%.
- Neutral (0) for 40%-59%.
- Negative (-) for 20%-39%.
- Very Negative (--) for 0%-19%.

The chart below shows the percentage of each valence in relation to one another for last three sections of the level.

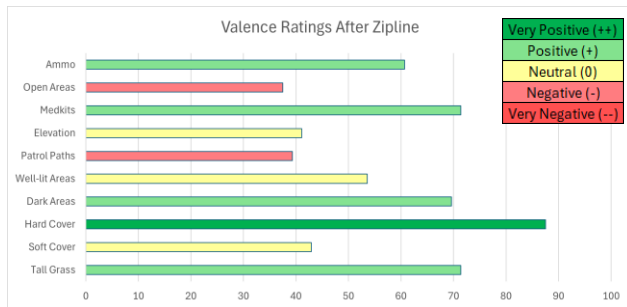


Figure 17: Actual Valence Ratings - After Zipline [16]

The anticipated very positive (++) valences for the last three sections of the level were Hard Cover, Ammo, and Elevation. However, according to the results, only Hard Cover was rated as a very positive (++) valence. Ammo was instead rated as a positive valence (+), likely due to some playtesters refusing to break away from stealth gameplay, and therefore not using the provided firearm.

Elevation on the other hand was rated lower than expected and seen as a neutral valence. The level had a low frequency of Elevation and therefore was likely rated lower due to the player not having many opportunities to take advantage of it.

Well-lit Areas and Medkits were expected to be rated as positive (+) valences in the Combat Gameplay sections. However, only Medkits were evaluated by the playtesters as a positive (+) valence. Well-lit Areas were instead concluded to be a neutral (0) valence. This is likely due to the valence being skewed between playtesters that adopted a push-forward firefight combat gameplay style versus those that stuck to stealth gameplay. Players who chose to stick with stealth gameplay most likely continued to avoid well-lit areas (when possible).

Enemy Patrol Paths were expected to be seen as a neutral (0) valence since all enemies in this half of the level spawn in an alerted state. This change to the enemy behavior means they act less predictably. Enemy Patrol Paths are positive (+) valences when the player can predict when and where an enemy will move to next. However, if the

paths are random, this valence becomes irrelevant to the player.

The assumed negative (-) valences for the last three sections of the level were Other Soft Cover (not Tall Grass), Dark Areas, and Open Areas. Among these three valences, only Open Areas were ultimately considered a negative (-) valence. Soft Cover ended up being considered a neutral (0) valence. The researcher believes this result is due to the players choosing to avoid a particular valence after it was devalued in the “Stealth” portion of the level. Dark Areas surprisingly were rated as a positive (+) valence. The researcher assumes this unexpected shift is a result of playtesters continuing to adopt stealth gameplay after the zipline transition. A few playtesters even adopted a new hybridized gameplay style, which was a mix between stealth and a more aggressive gameplay style like push-forward firefight combat.

The final valence for this valence set, Tall Grass, was predicted to be a very negative (--) valence. However, perhaps the most dramatic shift from expectation to actuality is that instead Tall Grass was rated as a positive (+) valence. In fact, it was tied for the second most positive valence for this valence set. This unexpected result is due to the players who preferred stealth and the players who adopted a hybridized gameplay style refusing to shift their gameplay styles and continuing to value this as their most beneficial valence.

4.4 Best Practices – Golden Path Results

The Golden Path ultimately proved very successful as a best practice for teaching shifting gameplay styles. All 14 playtesters concluded that there was a path throughout the first section of the level in which they could remain relatively undetected. The number of playtesters that felt the Golden Path was effective fell slightly for the second and third sections. This slight decrease in later sections was likely due to a change in enemy number and enemy difficulty. It was generally much more difficult to remain hidden from enemies.

Once the playtesters entered the second half of the level, where the golden path was no longer being supported, playtesters displayed a decrease in confidence in partaking in stealth gameplay.

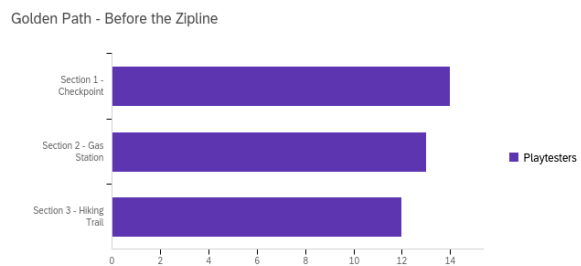


Figure 18: Golden Path - Data [16]

4.5 Best Practices – Punishers & Reinforcers Results

Punishers & Reinforcers were another best practice that proved effective for teaching shifting gameplay styles. Players almost unilaterally agreed that they noticed when enemies were beginning to detect them. This best practice appeared to be most effective in the first half of the level when players were more reliant on using stealth gameplay. In the second half of the level when enemies were already acting in an alerted state, the time it took enemies to detect players was far less. If the players exposed themselves even for a short amount of time, the enemies often found the players.

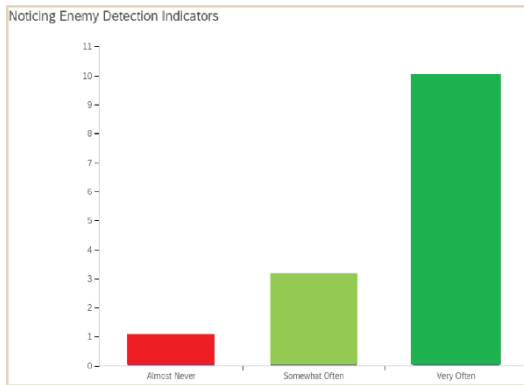


Figure 19: Noticing Enemy Detection [16]

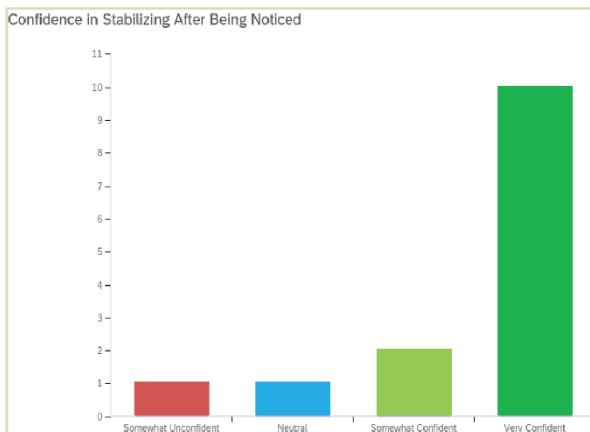


Figure 20: Confidence in Stabilizing [16]

4.6 Best Practices – Teaching in Threes Results

Teaching in Threes was successful for teaching, reinforcing, and proving mastery for stealth gameplay.

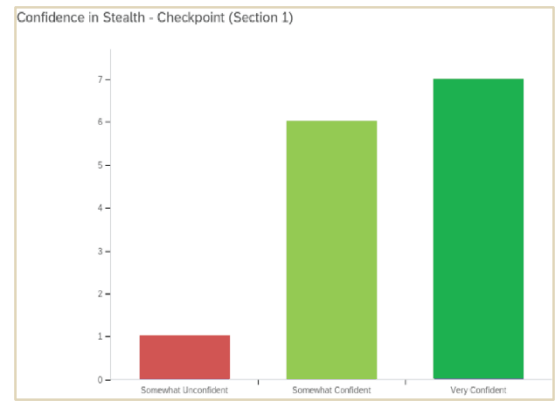


Figure 21: Teaching Stealth Gameplay [16]

In section 1, playtesters felt very comfortable engaging in stealth gameplay.

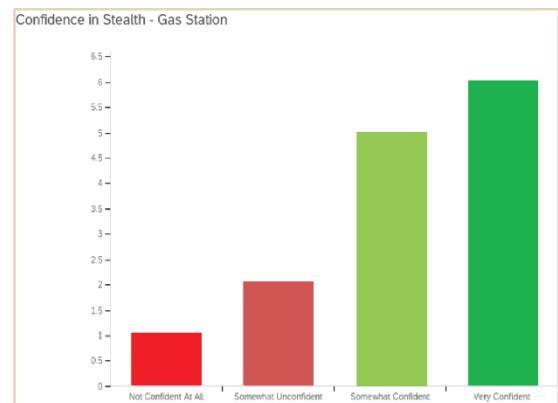


Figure 22: Reinforcing Stealth Gameplay [16]

In section 2, playtesters felt slightly less confident. However, this is likely due to the increase of enemies in this area. Playtesters might have interpreted “confidence” as “difficulty.”

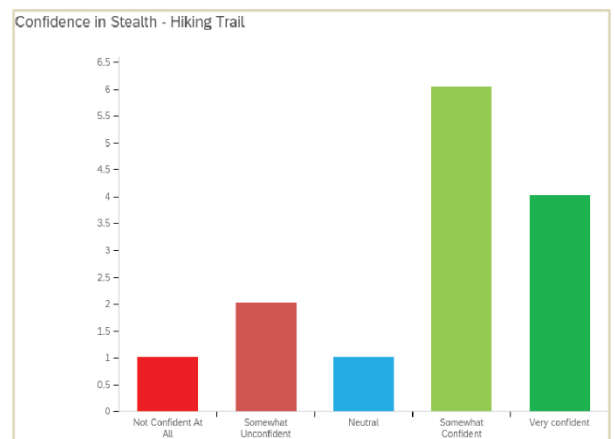


Figure 23: Proving Mastery for Stealth Gameplay [16]

In section 3, there was another decrease in confidence. This area had an increase in the number of enemies, overlapping enemy patrol paths, and elevation which benefitted the enemies. Regardless, players generally felt confident in partaking in stealth gameplay. Additionally, given the increase in difficulty, the researcher can conclude that the stealth gameplay style was successfully encouraged.

After the transition using the zipline, when playtesters were finally given a weapon to use, many of them abandoned stealth gameplay and used push-forward firefight combat.

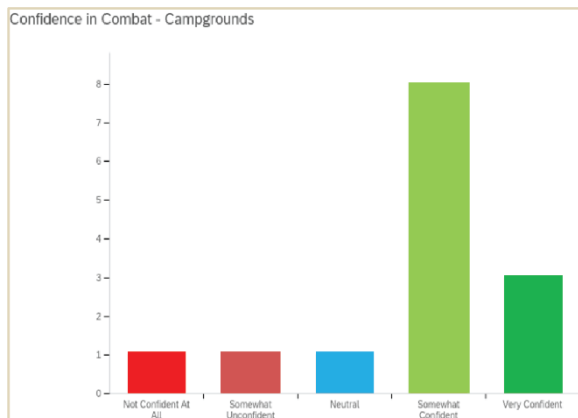


Figure 24: Teaching Combat [16]

For section 4, most playtesters felt confident in adopting the push-forward firefight combat gameplay style.

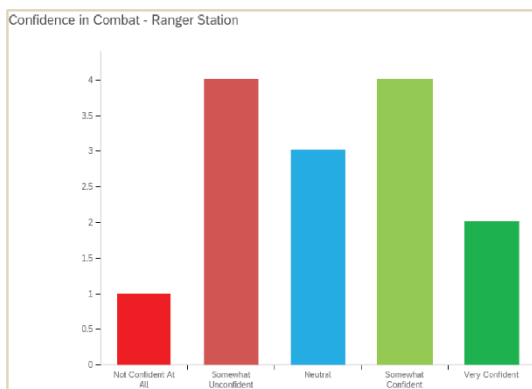


Figure 25: Reinforcing Combat [16]

However, in section 5, the results were more skewed. While some players stuck with their newly adopted gameplay style, some playtesters switched back to stealth gameplay.

Section 5 was also the first section in which a sniper enemy was introduced. The sniper deals a considerable amount of damage compared to the regular enemies in the level. This sniper enemy was added to encourage the use of hard cover. However, while this proved effective for reinforcing combat gameplay, it also encouraged stealth-inclined players. Section 5 not only encouraged push-forward firefight combat, but stealth gameplay as well, depending on which the player's currently employed gameplay style.

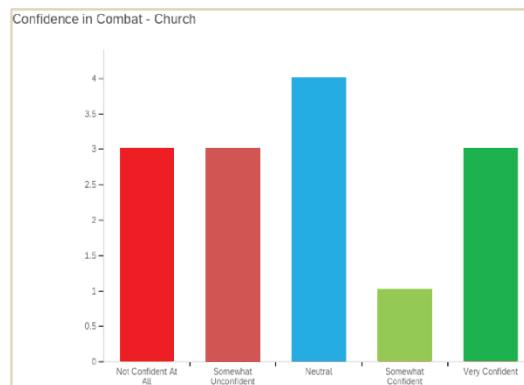


Figure 26: Proving Mastery for Combat [16]

The researcher intended for section 6 to serve as the “proving mastery” section for push-forward firefight combat. Instead, much like section 5, players felt encouraged to utilize their preferred gameplay style. Players already partaking in stealth gameplay continued to engage in stealth gameplay. On the other hand, combat-inclined players mostly stuck to the same combat gameplay style, with a few adopting a hybrid gameplay style instead.

4.7 Best Practices – Forced Teaching Results

The Forced Teaching moment for Stealth Gameplay proved to be effective. At the start of the level, the player was required to crouch to pass through an opening in a fence. Once they move through the fence, the players emerge on the other side, now crouching in tall grass. Nearby, an enemy has their back turned to the player. This situation sets the player up to engage in stealth gameplay using one of the most powerful stealth valences-- tall grass.

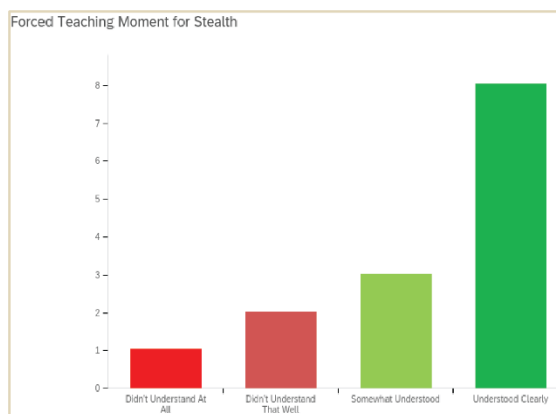


Figure 27: Forced Teaching for Stealth Gameplay [16]

Most playtesters acknowledged that this moment helped them understand stealth gameplay. The few that felt less confident were likely a result of those players turning and facing another direction when they emerged through the fence opening.

The Forced Teaching moment for push-forward firefight combat gameplay was less effective than its counterpart. Halfway through the level, the player acquired a pistol weapon and ammo. Similarly to the beginning of the level,

the player must now crouch to pass through a narrow opening in a fence. Once they do, an alerted enemy appears, however, the player is situated behind hard cover. This scenario sets up the ideal situation for the combat-inclined gameplay style. However, the player still has the option of whether to attack or remain hidden.

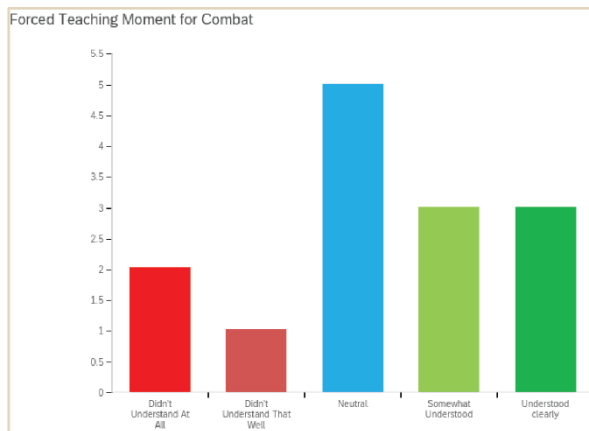


Figure 28: Forced Teaching for Push-Forward Firefight Combat Gameplay [16]

This instance of the Forced Teaching best practice proved to be less clear to the playtesters. The researcher concluded that the likely reason for this was due to players' unwillingness to abandon from stealth gameplay. While this is a "forced" teaching moment, in that the player must crouch and use hard cover, the researcher did not force the player to attack the enemy. Since this was also the teaching section for the teaching in threes best practice, the researcher believed it was important to not place the player in a high-threat situation. So instead of having the enemy directly attack the player, which could have resulted in an unexpected and frustrating encounter, the researcher chose to simply encourage push-forward firefight combat.

5 CONCLUSIONS

5.1 Conclusions – Best Practices

After assessing all four of the best practices used in this study, the researcher concludes that all of them were effective to some degree. Ultimately, this conclusion was based on the premise of encouraging versus enforcing gameplay styles.

"The Golden Path" was effective for supporting stealth gameplay, except in the case of players who prefer a more aggressive gameplay style. Regardless of being encouraged to engage in stealth gameplay, several playtesters felt more comfortable adopting their familiar style of play.

"Punishers & Reinforcers" were helpful in providing feedback regarding specific gameplay style actions. Playtesters, who were more open to adopt a new gameplay style, utilized the feedback from this best practice to better understand how to engage with both stealth and push-forward firefight combat gameplay.

Playtesters, who were more familiar with *Far Cry 5*, were able to take advantage of these punishers and reinforcers. For example, when an enemy detects the player, there is a slight delay before the enemy starts their attack animation. This delay created a window of opportunity. The player was able to rush an enemy straight on before the enemy had a chance to react.

"Testing in Threes" was helpful in allowing players to develop their gameplay style skills. However, Testing in Threes was only effective if the player chose to adopt the encouraged gameplay style. This best practice was mainly effective for the first half of the level as the playtester entered increasingly difficult areas. However, once the playtester reached the transition point and they were introduced to push-forward firefight combat gameplay, they often did not adopt the new gameplay style. Instead, many utilized a hybrid of both the stealth and combat gameplay styles. While this best practice is effective for building the player's confidence in using valences, it proved less effective for converting the player from one gameplay style to another gameplay style.

Forced Teaching was the most effective of the best practices. While the forced teaching moment for push-forward firefight combat was evaluated as not being very helpful, the researcher believes this is due to the forced teaching moment not being a full-fledged teaching moment. Since the enemy in the teaching moment was only alerted, but did not recognize the player's position, the player was able to choose how to proceed. This choice polarized playtesters into either engaging with the new gameplay style or sticking with the previous style (stealth).

5.2 Conclusions – Lessons Learned and Future Research

This study's identified best practices resulted in mixed success for encouraging shifting gameplay styles. The researcher believes that the player's agency is an important factor in video games. Players having the power to carve their own destiny in how they engage with a game is one of the most attractive elements about the medium. While some games may want to force gameplay style shifts to create a curated experience, other games may benefit from simply encouraging change and allowing the player to decide for themselves.

Designers may want to consider challenging this idea of encouraging versus enforcing. Using the results from this study, future researchers could build upon the practice of shifting gameplay styles to identify when it is best to force the player to adopt a specific gameplay style and when it is best to give the player agency.

When using Valence Theory, researchers need to be aware of how they gather their data in surveys. The researcher for this study chose to ask playtesters to rate valences based on location ("before the zipline" and "after the zipline"). However, this choice led to playtester confusion. Instead, the question needs to be framed in regard to the different gameplay styles. This would clearly determine

how players rated valences for stealth versus valences for push-forward firefight combat.

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