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Best Practices: Encouraging the Modality Between Melee and Ranged Combat Styles

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Best Practices: Encouraging the Modality Between Melee and Ranged Combat Styles: Post-Mortem

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Abstract
This thesis aims to determine what gameplay factors encourage and discourage players from switching between melee and ranged playstyles while in combat scenarios. The practices for the artifact were found in action-focused video games and then incorporated into a standalone level in a *Dying Light* [1] mod.

Keywords
Combat, Modality, Melee, Range, FPS, *Dying Light*

1 INTRODUCTION

Action game design often includes options that allow players to use multiple playstyles. Allowing players to switch between those playstyles. While players have the opportunity to switch between playstyles, there may be a style that they favor in any scenario. Designing levels around combat switching would encourage players to change their playstyle and create more dynamic gameplay. The goal of this thesis is to examine combat scenarios within games and put them into the stand-alone custom *Dying Light* [1] level, "Managing the Distance" [2]. The artifact will be used to test if the best practices are valid and how to properly implement them.

2 TERMS DEFINED AND THEORIES/RESEARCH

2.1 First-Person Shooter

Figure 1: First-Person Shooter in *Doom* (1993) [12]

First-person shooters are defined as a "Genre of action video game that is played from the point of view of the protagonist" [3]. This allows the player to see everything through the eyes of the character they are controlling. This style of play allows for a more immersive experience but also must be designed around the limited view frustum the player has.

2.2 Ranged Combat

Ranged combat is the act of engaging in battle from a distance. This is common in most first-person shooters as the player and enemies will typically wield ranged weapons (Guns, grenades, etc.) making it ideal to fight each other from a distance. It's best to have long sightlines and tall cover for this style of combat as the player will want to see the enemy coming from farther away to take engage in combat. In addition, the tall cover will protect them completely and allow them to be stationary when fighting.

2.3 Melee Combat

Melee Combat is the act of engaging in battle close to the opponent. In most first-person shooters this is typically used as an alternative option for when the player and enemy get close to each other, when trying to be silent, or when players run out of ranged resources. Games such as *Dying Light* [1] however use it as the primary means of combat and emphasize its importance by the following: making melee weapons more accessible than ranged, most of the enemies use melee attacks, and making melee more versatile than ranged.

2.4 Cover

Cover is typically an object or piece of geometry within a level that the player can use to hide behind and avoid damage from enemy attacks. There are multiple forms of cover, each of which have different pros and cons depending on the situation.

2.4.1 Low Cover

Low Cover is typically a piece of geometry that does not go higher than the player's waist. It is best used when the player is in a crouching state or can be used to climb over to and get closer to enemies while avoiding damage, making it ideal for close-quarters and melee combat.

2.4.2 Tall Cover

Tall Cover is typically a piece of geometry that is at least as tall as the player character when standing up. It protects the player completely when they are behind it. However, because of the size of the cover, the player also has less maneuverability. This makes it ideal for long-ranged combat as the player is typically stationary and thus the tall cover will better protect them from oncoming enemy attacks.

2.4.3 Circular Cover

Circular Cover is typically a piece of geometry that is thin enough for the player to easily move around it. The circular cover can be both tall and low, but it always allows the player to move around it seamlessly without breaking their movement flow. This type of cover is ideal for players moving around the level, as they can weave around circular cover to avoid enemy attacks while maintaining their momentum.

2.5 Modality

Modality is described as switching from one form of operation to another. For the case of this artifact melee and ranged combat switching will be used. Modality is important because it is very commonly used in combat focused video games. Typically, levels or environments will set up scenarios forcing players to switch combat styles. As an example, if players are on a lower elevation, they may be forced to use ranged combat when their enemies are on higher elevations. The opposite of this could be the player taking out enemies that are on higher elevation while melee enemies are approaching players quickly, forcing the player to switch to a close-ranged playstyle.

2.6 Best Practices

To find the best practices for modality between melee and ranged, the researcher studied articles and research from other designers and analysed elements from combat-focused video games that forced players to engage in modality and created a series of assumptions of best practices to put to the test.

2.6.1 Best Practice 1 – Enforcing Player Progression

Teach melee combat before teaching ranged combat. This enforces learning each combat style in a systematic way.

Every game has some form of Player Progression, to introduce new skills for the player to learn and challenges to overcome.

Player progression is important because if it is done incorrectly, it might not be able to teach the player the importance of certain skills. For instance, if a player begins with only ranged combat, then they will quickly learn that ranged weaponry is the most viable option in most combat scenarios. But if you then try to teach players the importance of melee combat afterward then the player might not learn it because they already know all the advantages that ranged combat has over melee. However, if this is reversed where the player learns all the uses of melee combat and then must learn ranged combat, they are more likely to learn the advantages and disadvantages of each style more effectively [4].

2.6.2 Best Practice 2 – Cover that Enforces Different Playstyles

Create various forms of cover in an environment that the player must use in a variety of scenarios. Tall cover for ranged combat, circular cover for melee combat, and low cover for both.

Figure 2: Uncharted 2 Low Cover Example [9]

Figure 3: Uncharted 2 Tall Cover Example [10]

Cover is the key to determining how the player can best use the environment when dealing with enemies. As the definitions explain, cover placement and type can subtly influence players' playstyle. This kind of subtle influence is seen in action game design because it still allows players to use their preferred playstyle even in adverse conditions [5].

2.6.3 Best Practice 3 – Utilize Obstacles to Influence Playstyles

Obstacles are hazards or impediments of a level that can both aid or harm players based on their use.

Figure 4: Explosive Barrels as an Obstacle [8]

Mike Stout, a level designer on the early *Skylander* games, lists various ways to create engaging combat scenarios. Using explosive barrels could encourage the player to use

ranged combat to detonate the barrels damaging enemies from afar. However, putting the barrels close together in a tight room would encourage melee combat so that the player doesn't set them off. The reason behind obstacles like these should be clear to the player, as, otherwise, the player won't know how to react to their new situation properly [6].

2.6.4 Best Practice 4 – Create a Player Front and an Enemy Front

A lot of action games will have designated spawn areas for the player to predict where enemies will come from.

Figure 5: Player Front and Enemy Front [7]

A way of setting these distinct areas up was described by Pete Ellis, a level designer on *Killzone: Mercenaries*, where he discusses using player fronts and enemy fronts. Player fronts are a part of the level where the player feels most safe, and the cover is closer for safer movement. Player fronts are right next to the start of the level, and they are generally where the player can assess their options. The enemy front is defined by the same logic but applied to the enemy. There are multiple pieces of cover positioned near enemy spawn areas which provide the enemy with clearly marked cover. Another way to distinguish the two fronts is to space them far enough apart that there is a dead zone, which is a part of the room where cover is more spread out and in turn limits the player's movement options. By making these areas clear it allows the player to better assess their options as they can predict where the enemy will move and attack [7].

3 LEVEL DESIGN PROCESS/METHODOLOGY

3.1 Overview

Figure 6: Managing the Distance Overview Map [13] [14]

The level, 'Managing the Distance', is structured to have players fight through 5 unique areas which introduce new challenges designed to teach and enforce modality.

- Room One focuses on teaching the player melee combat.
- Room Two introduces ranged combat, high cover, and environmental hazards.
- Room Three reinforces the modality between melee and ranged combat.
- Room Four focuses on verticality and gaps that force the player to jump.
- Room Five combines each of these elements to test mastery of the modality switching.

3.2 Implementation of Player Progression

The focus of the level is to force the modality between melee and ranged combat, and to do so the player must learn both playstyles. Melee combat is the first style introduced for two reasons; melee is the primary combat system within *Dying Light* [1], and it will showcase this combat style's functionality for players, providing an introduction to combat within *Dying Light*. Utilizing skill progression concepts, the researcher introduces weaker melee weapons at the beginning of the artifact. Additionally, enemies at this starting location are substantially weaker, than other enemies as the player progresses. By starting the artifact with only melee weapons and weaker enemies players learn the strengths and weaknesses of melee combat early on. As the player progresses, the researcher introduces weaker ranged weapons and stronger enemies to enforce the use of ranged combat. By introducing ranged combat into the level, the player is able to learn the strengths and weaknesses of both playstyles rather than the playstyle they are already familiar with.

Figure 7: Bomber and Gun Introduction [13]

To teach ranged combat, in the first transition area (the space that leads from one room to another) the player is given a gun and immediately introduced to an enemy that explodes when close to the player. This scenario forces players to learn that ranged combat is more effective when fighting Bombers.

Figure 8: Introduction of Toads in Room 4 [13]

The final implementation of Player progression is by always introducing new enemies for the player to fight. Every room has Biters with the first room introducing Virals, the second introduces Bombers, the third focuses only on humans, the fourth introduces Toads, and the fifth room has the player fighting a boss Goon at the end. Each room will prioritize the newly introduced enemy, except for room five which uses all the special infected introduced and has the player fighting the Goon at the very end. This progression forces the player to adapt and learn which combat style is best to take down different enemies.

3.3 Implementation of different Cover styles

It is important to reinforce the best cover style with the best combat style. To introduce the player to melee combat, the cover must reinforce this. So, the cover in room 1 focuses primarily on low and circular covers. This is because the player needs to be able to move and dodge attacks while in a melee combat style. So, the short cover allows the player to vault over it to gain distance from the enemies, while the circular cover allows them to move around it to get closer to enemies while avoiding damage.

When introducing ranged combat in Room Two low and circular cover elements were combined with ranged cover objects which further reinforces the modality switching. The level has two major areas, the lower path that prioritizes melee and the upper path that prioritizes ranged. For the lower path circular cover and shorter sightlines were used to reinforce that the lower path is best for melee. While the upper path introduces tall cover with longer sightlines which allows the player to be fully protected from enemies while also being able to see them coming from further away. This allowed players more time to predict their attacks. This process is repeated in the other rooms to allow for combat modality.

3.4 Implementation of Obstacles

Similar to the implementation of cover, obstacles were introduced to go alongside the play style they could enhance or hinder.

Room Two introduces explosive barrels that will detonate when a Bomber explodes near them or when the player shoots at it with a ranged weapon. This encourages ranged combat from an elevated position, where no explosive barrels are located, and discourages ranged combat from the ground floor where the barrels are placed. This arrangement promotes modality switching based on the player's proximity to the explosive barrels. The enemy types also create an impetus to switch between melee and ranged combat due to their properties, such as the Bomber's explosive attack when damaged or when nearby.

Gaps in the geometry are introduced in room 3 to force a particular play style. The upper path of the room is separated into multiple platforms forcing the player to jump to quickly move between the cover. This encourages ranged combat as it forces the player into being more stationary while in range, which is already an important factor of ranged combat.

By pairing up the obstacle with a combat style that either enhances or discourages it, modality is further reinforced and taught to the player.

3.5 Implementation of Player and Enemy Fronts

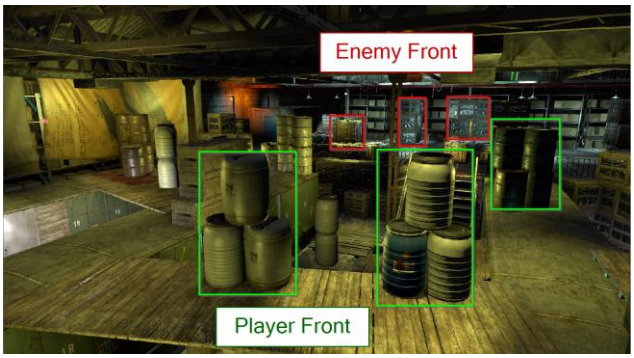

Figure 9: Player and Enemy Fronts in Room 3 [13] [14]

The player front was implemented by having multiple cover options the player could utilize to weave between to dodge enemy attacks. This cover was put close enough together and on two different planes of verticality so that the player would always have a way to dodge enemy attacks. The enemy front was implemented by placing ranged enemies near the exit so that they are more likely opposite of the player. In addition, they spawn further back than other enemy combat scenarios making it harder

for the player to get close to them, as the player has less cover to protect them. Finally, cooler blue lights were put on the enemy front to contrast with the brighter yellow lights featured on the player front.

For room 4, the start of the level has less Biters and more low cover allowing space for the player to get used to their environment. While the enemy front on the back and upper level of the room has tall cover that's more spread out and Toads spawn from the highest point. This creates a space of the level that allows the player to fight but forces them to stick to a ranged combat style and actively engage with other enemies.

The final room uses similar design principles being the start of the level with fewer enemies and more circular cover allowing the player to dodge enemy attacks more easily. The enemy front on the middle and end of the map is where most of the special infected and explosive barrels are located, making it harder for the player to switch playstyles on the fly and engage in combat.

4 RESULTS AND DATA ANALYSIS

4.1 Playtester Count

A total of 18 playtesters played the final artifact while the researcher was watching. After the playtest, testers took a survey that collected qualitative and quantitative data.

4.2 Demographic Data

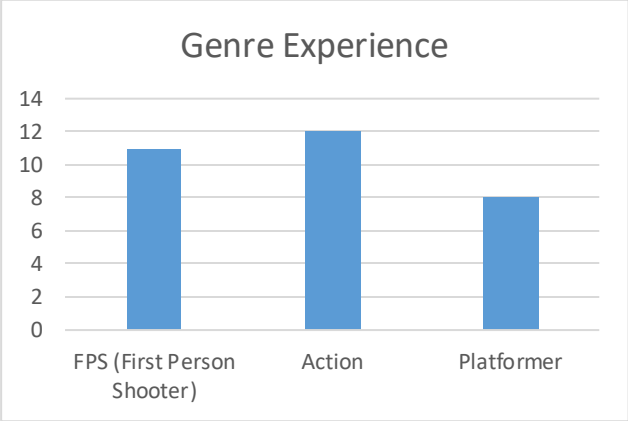

Figure 10: Genre Experience [11]

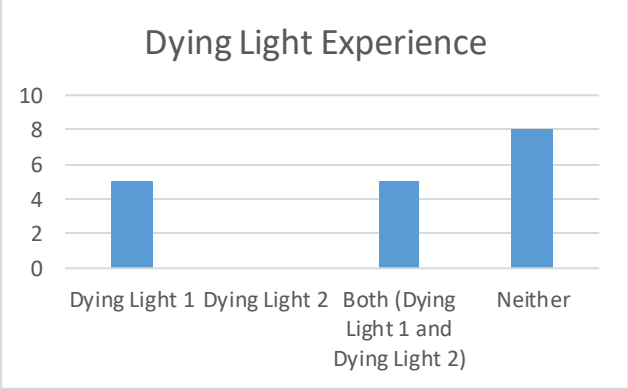

Figure 11: *Dying Light* Experience [11]

When asked about their past video game experience, 11 testers had experience playing FPS games. When asked about their *Dying Light* experience, 10 playtesters had played *Dying Light* in the past (See Figures 10 and 11).

4.3 Playtest Session Notes

Except for 2 playtesters, all playtests were conducted on the researcher's laptop. Despite this all results were identical. Some questions in the survey were not answered or were answered incorrectly, after observing the footage the researcher concluded that this had little impact on the final results.

4.4 Data Analysis

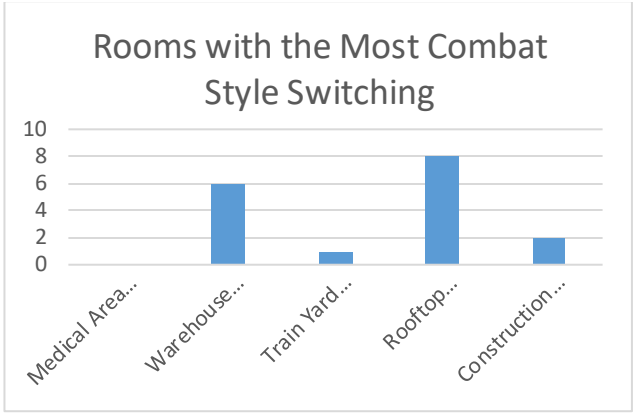

Figure 12: Rooms with the Most Combat Switching [11]

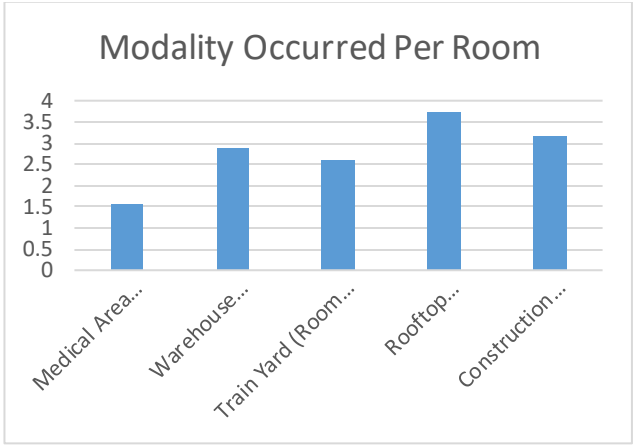

Figure 13: Modality Occurred Per Room [11]

In Figure 12, playtesters were asked to rank from most to least which rooms had the player switch combat styles the most. 8 playtesters ranked Room 4 (Rooftop Restaurant) as the room with the most combat modality. While only 1 playtester said Room 3 (Trainyard) made them switch combat the most. Figure 13 further backs this up, when asked how often players switched combat within each room, Room 4 ranked the highest while Room 3 ranked the lowest. These results show that the player progression did affect the player's modality. Additionally, modality did occur throughout the level, this varied depending on each individual room's design features.

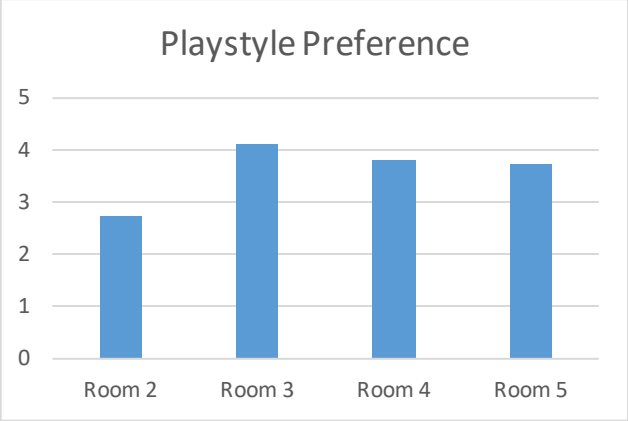

Figure 14: Playstyle Preference [11]

As seen in Figure 14, when asked to rank on a scale of 1 to 5 (1 = all melee, 5 = all ranged) playtesters averaged 2.72 in Room 2. However, after Room 3 the average increased to 4. While the average rating went down in Rooms 4 and 5, there was still a higher preference towards ranged combat after Room 3. While players did switch combat styles through the level, there was still a higher preference towards ranged combat.

4.4.1 Level Design Elements

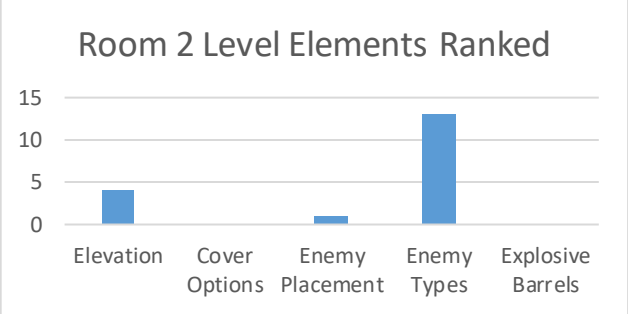

Figure 15: Room 2 Level Elements Ranked [11]

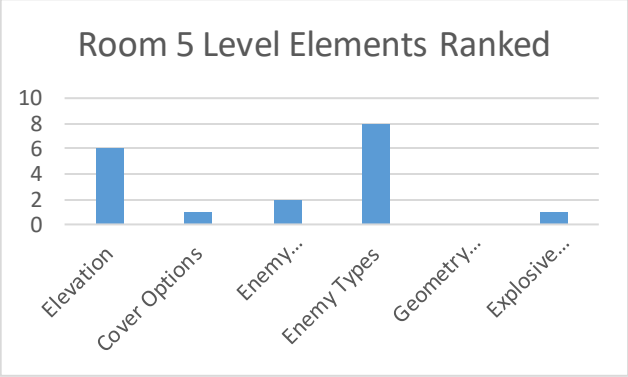

Figure 16: Room 5 Level Elements Ranked [11]

When asked to rank from greatest to least the various features and level design elements that affected their playstyle in each room, the majority of testers found that the enemy types used in each room affected their playstyle the most. Meanwhile, obstacles such as explosive barrels and geometry gaps affected the player's playstyle the least. This means that elements such as elevation and cover still affected playstyles, it was ultimately the enemies that had the most impact on combat style preference.

4.4.2 Enemy Playstyles Ranked

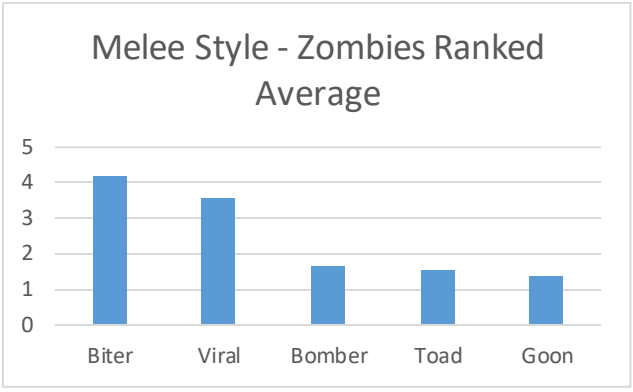

Figure 17: Melee Style – Zombies Ranked Average [11]

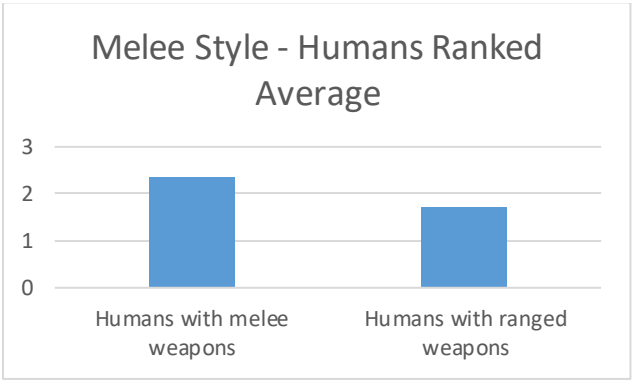

Figure 18: Melee Style – Humans Ranked Average [11]

When asked to rank from 1 to 5 (1 = None at all, 5 = All the time) which enemies made playtesters use melee combat, Biters and virals were ranked the highest. While further enemies that were introduced starting in Room 2 ranked significantly lower. This further reinforces the data on how enemy types influenced playtesters' playstyle (see Figures 17 and 18). This also reinforces the data that playtesters preferred ranged combat over melee as enemies like the Humans, Bombers, Toads, and Goons are featured heavily in later parts of the level (see Figure 17).

5 CONCLUSIONS AND LESSONS LEARNED

5.1 Conclusions

When analyzing the data it became clear that while modality did occur throughout the level, once players were given ranged weapons, they tended to use the ranged weaponry and switch to melee weapons only when necessary. This is partially due to 11 of the researcher's playtesters having prior experience with FPS games and 10 testers having played *Dying Light* meaning they already knew how effective ranged combat is. In addition, the primary influence on the playtesters' playstyle was the enemies used, as beginning with Room 2 more enemies that were meant to influence players toward ranged combat were introduced creating a stronger preference towards ranged combat throughout the artifact.

Overall, it's determined that while the artifact succeeded in playtesters' modality between melee and ranged

combat there was still a stronger preference towards ranged combat rather than melee.

5.2 Lessons Learned

When teaching multiple playstyles, players need enough time to be familiar with unfamiliar playstyles. *Wolfenstein: The Old Blood* teaches players stealth and melee combat in a 30-minute long level while the artifact teaches the player melee combat in 5 minutes. The other key factor is to consider the level design, resources given, and the enemies used. Parts of the artifact were ideal for ranged combat rather than melee because of the placement of platforms, it made melee combat more difficult thus further discouraging that mode of play throughout the level.

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