Mechanical, Dynamic, and Aesthetic (MDA) of Cooperative Horror Extraction Games

A Deconstruction of R.E.P.O. and Lethal Company

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Abstract*—With the online multiplayer games rising in popularity, one genre of Cooperative Horror stood out for its growing popularity. There remains a critical lack of formal analysis regarding the specific design frameworks that sustain this engagement, leaving developers and researchers lacking a clear understanding of the genre's appeal. This study analyses the emerging genre of cooperative extraction horror video games through a comparative study of the two most prominent titles: Lethal Company and R.E.P.O. This paper uses the Mechanics, Dynamics, and Aesthetics (MDA) framework for its focused analysis points on the game mechanics and the emergent experiences from said mechanics called Dynamics, and the Aesthetics which represent the emotional responses from the players for an understanding of why this genre is desired by players. This study explores the core game mechanics, along with the dynamics that rise from the combination of several mechanics, and the aesthetics to categorize the emotional responses of each game experience. The findings indicate both games offer largely similar mechanics, dynamics and aesthetics. However, the aesthetics are prioritized differently; Lethal Company prioritizes the sensation and challenge aesthetics from constant tension through its time pressure and environmental unpredictability. In contrast, R.E.P.O. emphasizes more on challenge and creative expression by rewarding player mastery of the physics engine and fostering emergent social experiences. The study concludes that even within the same genre of cooperative extraction horror, subtle design choices and slight mechanical adjustments lead to fundamentally different emotional responses and psychological experiences from the players.

***Keywords*—Mechanics-Dynamics-Aesthetics, Game design analysis, Multiplayer, Extraction, R.E.P.O., Lethal Company**

I. INTRODUCTION

Social multiplayer games have recently surged in popularity, with Among Us being the classic example that most people know. These games are built on collaborative goals and open social mechanics [1]. This design approach prioritizes platforms for dynamic social interaction and emergent storytelling over complex mechanics, making games more approachable to a wider audience. This trend has given rise to an intriguing new subgenre: cooperative horror extraction games, which combine the suspenseful, survival horror elements with high-stakes, objective-based gameplay.

Lethal Company and R.E.P.O. show a significant increase in the socially conscious genre, cooperative extraction subgenre [2]. The main goal of both games is the same, players must work together to explore dangerous, randomly generated landscapes in order to gather valuable items and reach a group quota. Integrated social features, especially proximity voice chat, which facilitate smooth communication, strategic collaboration, and engaging roleplay, further strengthen this cooperative dynamic and highlight the genre's emphasis on social interaction as a fundamental component of gameplay [3]. These changes especially are the mechanics which improve the cooperation aspect of the games observed in this research, which are not present in Among Us where every player has separate tasks, and only communicating when assembled in a meeting.

The two games differ in how they use pressure and test player cooperation, despite having a similar basic idea. Players assume the role of scavengers in the cooperative game R.E.P.O. and Lethal Company [4], [5] to recover valuable items while avoiding dangers and supernatural threats in procedurally constructed maps. To reach their quota and avoid the dangers, players must carefully organize the handling and transportation of fragile things, which calls for teamwork and communication. The main mechanics of R.E.P.O. is in the physics engine, which adds simulated physical interactions between players and objects along with item durability limits as its primary attraction. Lethal Company shares similar foundation of collecting scraps while avoiding dangers [5]. Lethal Company distinguishes itself with mechanics such as randomized weather conditions and a finite in-game days count to meet an escalating quota, forcing players to constantly weigh the risks and rewards of exploration against the time limit and dangerous encounters [6]. These distinct mechanics are the main factors for analysis on how a player interacts with the game mechanics and fellow players, as stated in a past study where dynamic interactions and conversations help improve social bonds [7]. This research also observes patterns in the emergent dynamics from the randomness offered in the game mechanics combined with the freedom of players interactions.

This study examines the underlying game design of both R.E.P.O. and Lethal Company framed within the Mechanics

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Dynamics Aesthetics (MDA) Framework. Paying particular attention to how their game mechanics are implemented, the dynamics that emerge from player interactions, and how these components interact to produce unique aesthetic results. The cooperative goals and team-oriented mechanics of R.E.P.O. and Lethal Company are examined in detail in this paper to determine how they create tense and immersive player experiences. This research highlights how structural design choices such as procedural level generation, communication systems, and risk-reward balancing encourage distinct patterns of player cooperation, role-sharing and strategic decision-making. They also influence how each game displays the fundamental mechanics, the dynamic interactions that emerge, and how these dynamics enhance the horror extraction genre [8].

II. METHODOLOGY

A. MDA Framework

This research uses the Mechanics Dynamic Aesthetics (MDA) framework to analyze the two games [9]. The analysis is sectioned into the three titular causally linked components as visualized in Fig. 1. The framework conceptualizes game design as a sequence in which mechanics defined as the rules, algorithms, and systems established by the developers to generate dynamics which are the run time behaviors that emerge during play and ultimately produce aesthetics or the emotional responses experienced by players. In this research, the framework serves as the analytical lens to understand how design decisions embedded in the mechanics of both games generate dynamic player interactions and ultimately shape the aesthetic experience of cooperative horror extraction gameplay by R.E.P.O. and Lethal Company. MDA framework is selected for this paper due to its direct focus on game mechanics, also the multiplayer focus of both games means gameplay and the emergent experience from the random mechanics are the main draw of the player base. MDA also presents a clear throughline from the developers' point of view to the players' view when experiencing the game, offering comparison data for what the developers intended against how players actually interact with the game.

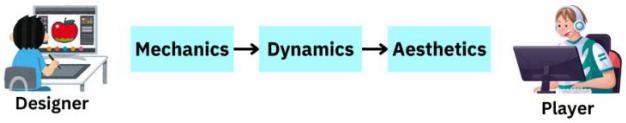

Fig. 1. MDA Framework Diagram

The MDA Framework is applicable for analysis from the viewpoint of the players or the developers depending on the direction of the diagram. Fig. 1 flow is shown from the developers' viewpoint where they directly design and create the mechanics that produce dynamic game behaviors during runtime, which set the game aesthetics. The players' perspective starts with the aesthetics setting the game's tone which rose from the dynamics born from the game mechanics.

B. Mechanics

Mechanics is understood as the formal rules, algorithms, and systems deliberately implemented by the developers to shape the play environment. Mechanics define what players can and cannot do inside the game. Mechanics can take several forms. They may include the core actions available to players, such as moving, jumping, collecting, or attacking. They also cover the behavior of non-playable characters (NPCs), which follow scripted rules or artificial intelligence to interact with players in predictable or adaptive ways. Other mechanical elements include the flow of time, which can be continuous, turn-based or limited by countdowns and the definition of resources, such as items, health, energy, or currency, which set objectives and influence player decision-making. Even environmental systems like weather, gravity, or collision detection are part of mechanics because they govern how the world responds to player input.

C. Dynamics

Dynamics are defined as the behavior that emerges from multiple game mechanics interacting during the game runtime. In multiplayer cooperative horror games, dynamics typically manifest through teamwork, communication, and real-time decision making [7]. Unlike mechanics, which are deliberately constructed, dynamics are not directly programmed but instead arise naturally from the way players interpret and respond to the rules. They represent the "runtime behavior" of the system the living, moment-to-moment interactions that take place as the game unfolds.

Dynamics are shaped not only by the rules of the game but also by the decisions, creativity, and social interactions of players. In multiplayer and cooperative games, dynamics often highlight social interaction. Players create their own systems of teamwork, communication, and role distribution, even if these roles are not explicitly assigned by the game. Negotiation, leadership, and conflict resolution become part of the dynamic layer as players attempt to maximize their success within the mechanical boundaries. In competitive games, dynamics might involve bluffing, forming temporary alliances, or exploiting loopholes in the rules.

D. Aesthetics

Aesthetics define the player's emotional responses and experiences players gain from interacting with the game. These responses can vary widely, ranging from Challenge, Fellowship, and Discovery to fantasy, narrative, and expression. The aesthetics element emphasizes how games create a sense of fun or engagement for players, not only by offering objectives but also by shaping feelings such as excitement, tension, curiosity, or satisfaction [10]. Aesthetics emerge as the outcome of the interaction between mechanics and dynamics, making them the most direct expression of the player's experience.

Players find meaning in how the games allow making moment-to-moment decisions, the dynamic situations create an aesthetic of agency as the implementation of challenges using resource limits such as time can influence player emotions [11]. From the point of view of a player experiencing the game, the order goes backward where aesthetics set the tone of the game manifested through observable dynamics, which is grounded in the applied game mechanics.

E. Research Scope

The two games in this analysis are selected based on the similar game description [4], [5] and the popularity among their player bases. Lethal Company is considered the pioneer

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of the extraction genre; several games were initially compared to decide the games for this analysis [12]. The cooperative extraction gameplay of R.E.P.O. and Lethal Company are described as exploring through horror-themed environments with multiple players working as a team, they have the same objective of extracting valuable items to fulfill a quota of in-game currency [4], [5]. Popularity is measured by the all-time player count on Steam as of July 2025 compared to the several other games in the extraction genre [13], [14]. As summarized in Fig. 2, the player count for Lethal Company is 239,369 with R.E.P.O. having 266,908 players as of July 2025, which is considered the closest comparator as opposed to the other games considered for this research.

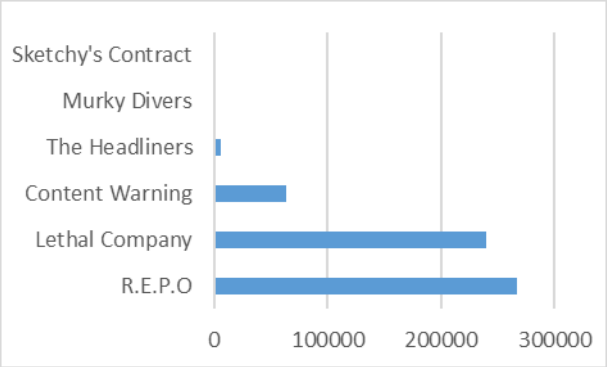

Fig. 2. All-time player count on Steam of cooperative extraction games (as of July 2025).

The analysis is based on how each game offers every mechanic to the players and how players utilize said mechanics to their game experiences. Lethal Company allows players to choose multiple moons representing level selection with three difficulty tiers in each play session, the game also sets randomized hazards and weather conditions for each moon to vary every session experience. To ensure a thorough analysis, this study limits to analyzing one of each difficulty preset. R.E.P.O. analysis also follows the same scope of playing through three dungeons escalating in difficulty, as R.E.P.O. has a more streamlined progression system where every level is randomized with fixed difficulty escalation.

This experiment was run using R.E.P.O. version 0.2.1 while enabling the beta features for the most updated experience, and Lethal Company used version 69, the latest version at the time of recording. Both games were designed for cooperative multiplayer, hence this research requires the game experiments to have at least two players to allow usage of the collaborative game mechanics. The hardware used for this experiment is specified in Table 1.

TABLE I. EXPERIMENT SPECIFICATIONS

Game	**Version**	**Hardware**
Lethal Company	V 69	CPU: AMD Ryzen 3700X GPU: AMD Radeon RX6600XT 8GB RAM: 16GB Operating System: Windows 10
R.E.P.O.	V 0.2.1 beta	

III. ANALYSIS AND DISCUSSION

Lethal Company and R.E.P.O. have been identified as cooperative horror games that can be characterized by a three-phase sequence of events: entry, resource collection, and extraction. Both apply pressure through a different set of rules. Lethal Company gives players a quota system with a four-day time limit, utilizes stochastic enemy appearance, and incorporates maps and weather modifications. R.E.P.O. places more emphasis on cart-based logistics, handling the physical properties and durability of items, the enemy tiers, and the presence of multiple checkpoints. These differences give rise to divergent game rhythms, coordination patterns, and risk and reward trade-offs, which contribute to different experiences.

The game design analysis is guided by the MDA framework, and it aims to solve two research questions: what are the deterministic mechanics of the cooperative horror extraction genre? Secondly, how the emerging aesthetics affect player interactions in each game?

A. Mechanics

1) Lethal Company

Lethal Company builds its gameplay foundation on procedural dungeon exploration, limited teamwork, and progressive time pressure. Players take on the role of scrap collectors tasked with exploring abandoned industrial facilities, called moons, to meet their quotas within four game days. Each session begins on a spaceship that serves as a control center, where players select a Moon via a navigation terminal. Each Moon has a different difficulty level, with some locations such as Dine and Artifice charging a travel fee that is only incurred when they are selected the first time. The selection of a Moon also determines the weather conditions, which are random and affect the challenges in outdoor areas. Weather such as stormy conditions can cause metal items to be struck by lightning, while eclipses significantly increase the intensity of enemy spawns.

Dungeons are randomly generated each run, including room layout, scrap location, and enemy patterns. Players have limited exploration time, starting at 7:40 a.m. until midnight, the in-game clock duration is approximately 11 minutes and 40 seconds per day. As midnight approaches, enemy threats increase sharply. This mechanic is visualized in Fig. 3, which shows the curve of enemy increase throughout the day. The combination of time, weather, and location creates a dynamic gaming session that requires tactical adaptation.

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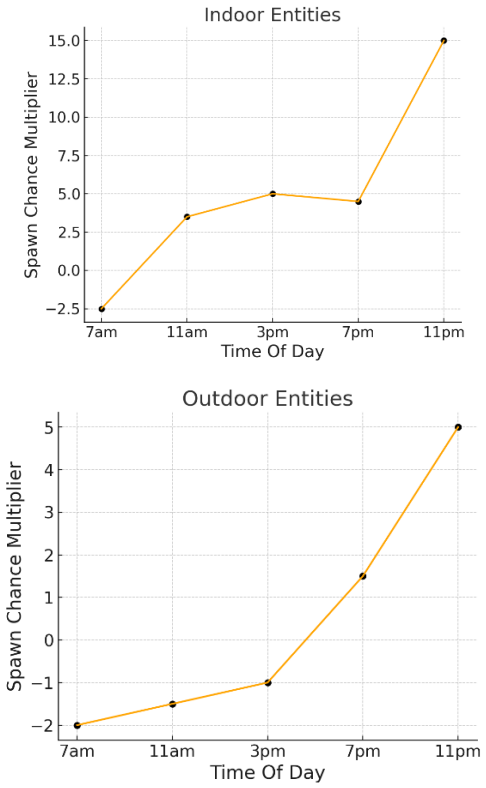

Fig. 3. Enemy spawn rate by in-game time.

The exploration location is divided into two areas: indoor and outdoor. Each has a different enemy limit and escalation level. Indoor enemies have a maximum limit of 10 entities per day, while outdoor enemies can reach 20, with distribution based on day and night times. Additionally, weather conditions such as Eclipse and heat wave alter the enemies spawn rate leading to additional decision-making when focusing on survivability or striving for more challenge. The types of enemies encountered also vary between Moons, locations, and active times. Table 2 summarizes the entities based on their strength, favorite locations, and active periods.

The entire team must coordinate within realistic communication limits. Players can only communicate by voice when within a certain distance using proximity voice chat. For long-distance communication, Two-way radios (walkie-talkies) are available as in-game items, which take up one of four inventory slots. These limited slots create a strategic challenge of whether to carry tools or focus on carrying as many scraps as possible. Players can also access a radar and cameras from inside the ship to monitor team members, open doors, and control dungeon systems. Items such as teleporters allow players to return to the ship instantly, but all items in the player's item slots will be dropped, introducing the risk of losing the collection results.

The collected scraps will be converted into money when the items are submitted and can be used to purchase equipment through the shop terminal. Items are divided into three categories: equipment such as flashlight, zap gun,

TABLE II. ENEMY SPAWN SPECIFICATIONS

Entity	**Power Level**	**Favorite Moon, Spawn Rate**	**Location**	**Active Period**
Barber	1	Dine, 13.95%	Indoor	Night & Daytime
Bracken	3	Vow, 22.22%	Indoor	Night & Daytime
Bunker Spider	2	Experimentation, 25.55%	Indoor	Night & Daytime
Butler	2	Dine, 27.91%	Indoor	Night & Daytime
Coil-Head	1	Offense, 10.96%	Indoor	Night & Daytime
Ghost Girl	2	Embrion, 5.24%	Indoor	Night & Daytime
Hoarding Bug	1	Artifice, 27.13%	Indoor	Night & Daytime
Hygrodere	1	Offense, 14.04	Indoor	Night & Daytime
Jester	3	Rend, 14.46%	Indoor	Night & Daytime
Maneater	2	Vow, 14.72%	Indoor	Night & Daytime
Masked	1	Titan, 7.37%	Indoor	Night & Daytime
Nutcracker	1	Rend, 24.10%	Indoor	Night & Daytime
Snare Flea	1	Assurance, 25.91%	Indoor	Night & Daytime
Spore Lizard	1	Experimentation, 12.33%	Indoor	Night & Daytime
Thumper	3	Offense, 24.12%	Indoor	Night & Daytime
Baboon Hawk	0.5	Adamance, 54.74%	Outdoor	Night
Earth Leviathan	2	Assurance, 48.97%	Outdoor	Night
Eyeless Dog	2	Experimentation, 55.56%	Outdoor	Night
Forest Keeper	3	Vow, 65.36%	Outdoor	Night
Old Bird	3	Embrion, 86.96%	Outdoor	Night
Circuit Bee	1	March, 35.71%	Outdoor	Daytime
Manticoil	1	Offense, 100.00%	Outdoor	Daytime
Roaming Locust	1	Experimentation, 35.14%	Outdoor	Daytime
Tulip Snake	0.5	Adamance, 5.17%	Outdoor	Daytime

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shovel, ship upgrades which include teleporter and radar booster, and decorations. Strategizing the proper tools, coordination, and time management for each mission are the main intrigue of Lethal Company, as there are no statistical character upgrades.

This game was designed focusing on the challenge of working together under time pressure, resource constraints, and unpredictable environments. Weather adds another layer of random conditions, which primarily affect the exterior area of the moon; for instance, a Stormy condition causes any metal items on the surface to become charged and struck by lightning; increasing the challenge of transporting metal items, while an Eclipsed condition alters the monster spawn frequency and timing of outside entities. This combination of variables ensures each run presents a new and dynamic set of challenges.

2) R.E.P.O.

R.E.P.O. features core mechanics with roguelike elements, physics-based objects, cooperation, and a more linear progression than Lethal Company. Players work as a team playing the role of machines, called Semibots, tasked with collecting valuable items from a dungeon to fulfill a quota of in-game currency.

R.E.P.O. offers roguelike mechanics for level selection, challenges, and difficulty progression. Firstly, the dungeon is randomly selected from a list of predesigned dungeons, the items to collect are also placed on procedurally set positions in the dungeon. The game offers free exploration of the dungeon and the objective of reaching a certain amount of in-game money from the extracted items, players can freely explore and collect the items required to fulfill their objective. Monsters are randomly selected from the roster and balanced based on their strength at the start of every level. The monster tier list is summarized in Table 3.

TABLE III. MONSTER STRENGTH TIERS

Strength tier	**Monster**
1	Peeper
	Shadow Child
	Gnome
	Apex Predator
	Spewer
2	Animal
	Upscream
	Rugrat
	Chef
	Hidden
	Bowtie
	Mentalist
	Banger
3	Headman
	Robe
	Huntsman
	Reaper
	Clown
	Trudge

The randomized dungeon and the random enemy selection are core roguelike mechanics that directly impact player strategy. This randomness ensures that each session offers new experiences and challenges for the players. While the dungeon's overall layout is predesigned, the procedural placement of items and the random selection of enemies introduce an element of unpredictability. Players cannot rely on memorizing a fixed path or individual enemy patterns. Instead, they must adapt their strategy based on their environment and the dynamics created by the enemy combinations.

R.E.P.O. ramps the difficulty progression and focuses more on the field gameplay than Lethal Company. Every level is a randomized preset dungeon environment with linear difficulty escalation of enemy quantity and tiers, extraction quota, and number of extraction points.

The game's progression, while featuring randomized elements, follows a structured difficulty curve that ensures a consistent challenge. This is primarily managed through the number and tier of enemies spawned in each level, as detailed in Table 4. As players advance through the levels, the game introduces a more challenging mix of monsters. The difficulty continues to scale dramatically in later levels. In levels 6-8, the number of monsters doubles to six, with a more even distribution across all three tiers. This escalation continues up to level 11 and beyond, where players face a group of eight monsters, including three of the most challenging Tier 2 and Tier 3 monsters. This linear increase in enemy quantity and tier level ensures consistent challenge, requiring players to take advantage of the shop mechanic between each level to spend money for statistical increase and take advantage of the assist items. The progression system ensures players are engaged with using their collection rewards for empowerment and experimentation of specific strategies with randomized enemies.

TABLE IV. R.E.P.O. MONSTERS SPAWN PROGRESSION

Level	**Monsters spawned**	**Tiers**
1-2	2	1 x Tier 1 1 x Tier 3
3-5	3	1 x Tier 1 1 x Tier 2 1 x Tier 3
6-8	6	2 x Tier 1 2 x Tier 2 2 x Tier 3
9-10	7	2 x Tier 1 3 x Tier 2 2 x Tier 3
11+	8	2 x Tier 1

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		3 x Tier 2 3 x Tier 3

The main gameplay loop in R.E.P.O. is finding and delivering items to a given extraction post while avoiding hazards. Items have durability and can be damaged using the game's physics engine, it calculates impact between game objects in the environment and other players. Each item has different values and durability, and every damage on an item lowers its value until the item is lost entirely upon durability reaching zero.

The physics-based system turns the simple item collection into a real-time item handling through the free grabbing mechanic. The physics engine manages the integrity and value of collected items. This physics-based grabbing mechanic also allows players to freely lift and manipulate items, which opens opportunities to take advantage of the physics to handle items differently and different physics-based obstacles. This is particularly evident in how items are affected by collisions through the assigned variables: the item value, item weight, and the durability. The physics engine calculates the force of the impact when an item collides into another player character or an environmental object. This force is translated into a reduction of the item's durability. A slight bump might cause a small value reduction, while a high-speed collision or a freefall drop could severely damage the item. An item is destroyed and is unsalvageable once the durability is depleted.

The cooperative gameplay in R.E.P.O. is applied through two main mechanics: the proximity voice chat and player statistical attributes. The proximity voice chat is the main mechanic offering a realistic communication experience. This mechanic simulates a natural conversation that allows players to hear and speak to teammates when the characters are in close physical proximity. This mechanic allows players to coordinate, warn each other of threats, and strategize just like in an actual conversation.

The player statistical attribute mechanics complements the cooperative gameplay through the player progression and interdependence. Each player possesses core attributes such as: health, stamina, speed, and strength. Health and stamina values are clearly defined in the game's User Interface (UI), health allows players to sustain more damage, stamina represents the energy value that determines how long a player can run. Certain values are less obvious such as speed and strength, where speed determines the player's movement speed. However, strength stat is particularly important, as it directly influences a player's ability to lift items and interact with the physics engine. Every item has a corresponding weight variable, and a player's strength must meet a certain threshold to carry or manipulate it. This creates a reliance on team composition, where players with higher strength can handle heavier, often more valuable, items.

The cooperative system is further enhanced by the group strength mechanic, which allows multiple players to lift a single item. By lifting a single item together, players can combine their individual strength stats, which enables them to move objects that would be impossible individually. Other attributes such as health and stamina mainly affect individual player which can be used for strategizing player roles based on their stats build.

B. Dynamics

1) Lethal Company

The most apparent dynamic emerged from the procedural generation of moons and dungeons. The random seed on every variable ensures that players can never rely on a fixed strategy and maps memorization. Each run offers a new indoor dungeon layout with unique scraps locations, different monsters spawned, every leap and step into a deeper section of the dungeon is a gamble risking the player's life for the potential of finding valuable scraps. The time pressure further intensifies this dynamic as nighttime increases the threat level, and the dark indoor dungeon blurs the players' sense of time. The combination of unpredictable environments and a ticking clock compels a constant risk recalculation.

Proximity voice chat, items, and the inventory mechanics emerge another key dynamic. The proximity voice chat creates a localized collaboration, where small groups of players must coordinate their actions in real time. This leads to unique tactical situations, such as a player scouting ahead and communicating threats with emote gestures or shouts, only for that information to be lost if they move too far away. The strategic decision of whether to use an inventory slot for a radio introduces another decision-making, directly influencing the team's ability to coordinate across distances. This forces the team to either stay close or spend resources on communication to allow covering more grounds. The limited inventory slots force a constant decision of equipment for each player depending on their preferred role. The scout who goes in front of the group may need a weapon, more likely to encounter the monsters and traps first, but a flashlight is also necessary to navigate in the dark, and inventory space is still needed to carry the items back to the ship. The courier of the group should have the inventory space for carrying items back to the ship, but they may also need to communicate with players in the dungeon and on the ship. Moreover, the random conditions might require weapons, a flashlight, and other utility items to navigate the outdoor area of the moon. The roles assigned to each player need constant communication and adaptation depending on the randomized moon conditions and the player limited resources.

The game's progression system, which solely revolves around money quota, makes effective resource management a focus. The item shop terminal supports this dynamic where certain items could prove useful for emergencies, but the combination pressure of approaching collection day deadline, collected money, and the required money quota may not be so lenient to buy the item. The in-game economy has been balanced to maintain engagement with money as the main resource revolving around the extraction mission gameplay loop. Hence, the item shopping choices and strategies made on the ship have a direct impact on the team's survival and mission success. This dynamic of managing limited tools and inventory spaces while under pressure presents a constant challenge for the team.

Overall, Lethal Company's combination of mechanics creates tight and collaborative dynamics tightly relevant to

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the game objectives of surviving and meeting the quota, as discussed in [15] regarding social effects on gameplay motivation. The combination of procedural dungeon and threats, the constant time pressure, and the limited resources offer dynamics that push players to adapt, strategize, and work together effectively.

2) R.E.P.O.

The game's physics engine, combined with item durability, creates a compelling risk-reward dynamic. Players are required to navigate the environment with careful precision. A player carrying a high-value, fragile item faces a constant strategic puzzle. Taking a shortcut and running might get them to the extraction post faster, but it significantly increases the risk of colliding with environment and other players, damaging the item, and losing its value. This forces a constant balance between speed and safety, resulting in dynamic decision-making and risk management.

This same dynamic applies to procedural generation. Each level's unique layout and the random placement of items and enemies force players to make new decisions with every run. Different enemy combinations and random spawn force players to be prepared for combat or avoid danger. Similarly, a valuable item might spawn in a deeper area, requiring players to weigh the risk of a difficult journey against the potential reward. This constant need to adapt prevents a single, optimal strategy from dominating the gameplay, promoting dynamic gameplay.

The group strength mechanic in combination with the physics engine and item durability enable dynamic cooperative challenges. For instance, a team might need to coordinate their movements to carefully transport a fragile, high-value object across a narrow hallway. This requires active team communication and coordination to navigate the item safely; one player might play the role of scout to warn of hazards or enemies, while other players coordinate to carry and manipulate the item to fit through the way. This deepens the cooperative experience, turning a simple item extraction into a strategic exercise in teamwork and risk management. Ultimately, these interconnected dynamics create unpredictable gameplay in R.E.P.O., making an engaging and novel experience where every decision offers emergent gameplay and aesthetics.

C. Aesthetics

1) Lethal Company

The core aesthetic of Lethal Company is Sensation. In particular, the sense of tension from the primary risk and reward dynamics, influenced by the procedural generation and time pressure. Each step deeper into a dark dungeon is uncertain, as players must continually assess the chance for valuable scraps against the danger of facing monsters and traps. This ongoing state of unease is heightened by the ticking clock within the game. As nighttime increases the rate of monsters, every collection run is turned into a narrow escape. The lack of character enhancements also makes players feel vulnerable, guaranteeing that the suspense remains high during the game.

The second aesthetic is of Fellowship, which emerges from the game's focus on collaboration. The proximity voice chat forces players to stick together and communicate actively to create a shared experience. The act of communication warning and shouting for help or celebrating a successful retrieval forges a strong sense of camaraderie. This aesthetic is further reinforced by the ability to assume roles and adapt their equipment. The dynamics between the scouts exploring into the dungeon, the courier focusing on transporting scraps back into the ship, and a navigator communicating from the ship to assist with the radar and unlocking doors, creates an experience where each player contributes equally to the mission. This collective dependency creates a sense of shared triumphs and deepens the aesthetic of Fellowship through rewarding effective communication.

Another key aesthetic the game offers is Discovery. This aesthetic is shown through the procedurally generated dungeon and effects, creating a threat of unpredictability for every mission. Players are always uncovering new rooms, exposed to differing weather conditions, and encountering different enemies and threats combinations. The experience of adapting to unexpected hazards, continually surprise, and challenge players. The aesthetic of Discovery ensures that the gameplay never becomes repetitive and that the overall experience remains fresh and engaging in every replay.

2) R.E.P.O.

The first aesthetic most apparent is Sensation, based on the audio, visual, and individual player interactions. The real-time physics-based interactions provide a visceral feel to the gameplay. The auditory and visual experience of the quiet abandoned locations, the effects from a collision on an item, the weight of a heavy object, and sound cues from monster noises, followed by the frantic pace of a chase contribute to a sensory experience that is immediate and engaging.

The aesthetic derived from the gameplay dynamics of R.E.P.O. is Challenge. The game constantly presents players with unpredictable obstacles. The risk management dynamic, powered by the physics engine and item durability, creates a sense of tension and stress when navigating a valuable item, knowing that a single mistake could destroy it, provides a satisfying sense of accomplishment when successful. This is amplified by the procedural generation of item placements and random monsters, which ensures that every level is unique, forcing players to constantly engage with new puzzles and threats. This aesthetic of constant challenge offers players the experience of mastering the physics engine and intellectual engagement of calculating the most optimal route given the situation.

The secondary aesthetic emerged from the cooperative dynamics is Fellowship. The proximity voice chat and the group strength mechanics turn every challenge into shared triumphs. The need for active communication and coordinated movement to transport a heavy, fragile item across a treacherous path promotes a powerful sense of camaraderie. The moments of working together to navigate items through a hazardous section or to defeat a monster create a shared narrative and a strong sense of a cohesive team [16]. The Fellowship aesthetic evoked from the team dynamics is the game's social appeal.

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Beyond the Fellowship aesthetics emerged from teamwork experience, the multiplayer dynamics of R.E.P.O. also foster an aesthetic of Expression. This aesthetic emerges from the teamwork dynamics allowing each player to contribute according to their skills and specialty into finishing the objectives [17]. However, expression can also emerge from the freedom for players to ignore the game objectives and engage in roleplaying within the game's unpredictable environment. The physics engine and communication mechanics are the primary drivers of this. The mechanics of lifting objects, enemies, and other players enhance player interactions, as players can creatively use the game physics to play with the environment and possibly sabotage each other leading to various comedic scenarios. The proximity voice chat, with its realistic sound effects, further enhances this aesthetic allowing various roleplay, humorous banters, and impromptu narratives as they navigate the dungeon. These moments of improvised personal expression are a major part of the social experience, the spontaneous, creative, and often comedic interactions offer an aesthetic beyond the game objectives.

Furthermore, the procedural generation and enemy randomness contribute to an aesthetic of discovery. Every playthrough offers new layouts, item placements, and monster combinations. Players are constantly uncovering new challenges and unexpected scenarios, which provide a sense of exploration and novelty. The dungeon offers changing environment that invites players to learn its logic and adapt to its surprises. This sense of discovery is the motivator for players to return to the game and experience the different variations.

D. Discussion

Lethal Company and R.E.P.O. both fall within the horror cooperative extraction genre, both games especially emphasize the similar mechanics of proximity voice chat, procedural generation of challenges, and the item collection for a collective quota objective. These main mechanics offer an experience focused in tension, collaboration, and exploration, but each game is designed with different aesthetics prioritization.

Both games prominently feature Sensation, driven by the horror environment. Lethal Company also emerged this aesthetic from a feeling of dread and vulnerability when navigating the dark dungeon corridors, combined with the escalating threat level. This aesthetic creates a constant sense of tension central to the game design. The horror sensations are proven to affect game immersion according to [18], and the multiplayer experience provides a sense of limited control in terms of dynamic communication while the dungeon horror mechanics still work accordingly to terror the player. Similarly, R.E.P.O. uses its physics engine to invoke a sensation through the audio and visual impact. Object weights and players making interactions with the world resulting in noises and in-game damages contribute to a sensation of immersion, offering players the dread of the unpredictable threats [18].

Fellowship is another aesthetic both games have in common. This aesthetic is invoked from their emphasis on limited communication and teamwork. Both implement proximity voice chat to foster a sense of camaraderie, where shared moments forge strong bonds between players as supported in [19]. The need for coordinated movement and strategizing in both of the observed games reinforces the pro-social mechanics also observed in [20] on online multiplayer games, transforming individual struggles into a collective narrative and building interpersonal relationships.

The procedural generation offers the aesthetic of Discovery from both games. In Lethal Company, this aesthetic is about exploring dungeons for scraps and surviving dangerous encounters. The unpredictable nature of each run ensures that players are always exploring new challenges. R.E.P.O. also leverages procedural generation, but it focuses this aesthetic on discovering optimal paths and adapting to differing item locations, enemy placements, and extraction points, inviting players to learn and master the game's logic. Both games still offer the aesthetics from discovering the game world while offering the comfort of teamwork, and the horror of the unknown with a cozy feeling from the social interactions.

While the two games share the same aesthetics, their prioritization and presentation differ. Lethal Company places Sensation and Challenge, specifically focusing on the tension and dread with its resource management and time limit. The game's design is tight and relentless in pressuring players to focus on the extraction objective from the start of the mission, this makes the core aesthetic about overcoming the struggle as a team through the shared objective and limitations.

R.E.P.O., on the other hand, places more emphasis on Challenge and Expression with less pressure on the game objectives. The Challenge aesthetic is more intellectual, focusing on players' mastery of the physics engine for carrying items and their ability to calculate risks and rewards in every moment. This promotes a feeling of continuous engagement and proficiency improvement. Furthermore, R.E.P.O. invokes an aesthetic of Expression through the physics-based manipulation of objects and even other players. This freedom encourages humorous and spontaneous moments of chaos and roleplay. This player-driven experience provides an aesthetic outside of the game's core objectives, offering a creative release that is less apparent to the design of Lethal Company.

IV. CONCLUSION

A. Conclusion

This paper has analyzed the mechanics, dynamics, and aesthetics of the two top horror cooperative extraction games, Lethal Company and R.E.P.O. following the MDA framework. The experiment demonstrated that the success of the genre is in how core mechanics such as procedural generation, proximity chat, and physics-based interactions create distinct emergent dynamics and aesthetic experiences for players. Analysis of both games reveals that the genre is built upon the atmosphere and mastery. Lethal Company excels at building an atmosphere of dread and vulnerability, driven by its time pressure and relentless environments, making survival the main focus for the game aesthetic. In contrast, R.E.P.O. focuses on fostering intellectual challenge and creative expression through its physics engine and cooperative mechanics, rewarding mastery and creativity.

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Ultimately, this comparative study concludes the defining characteristic of the cooperative horror extraction genre is the intentional design of mechanics that hinder efficiency such as proximity chat, loose physics, and procedural generation force emergent social dynamics. These choices offer a highly replayable gameplay loop that transforms technical limitations into the primary source of player entertainment and engagement.

B. Future Work

This study has taken note of certain limitations, mainly the sample size and constantly changing genre. With new games developed that expand on the genre, the MDA framework may not be adequate, which require a modification or analysed through a different framework. Another limitation is the qualitative nature of MDA framework, future research can expand upon this analysis using more objective player data. A quantitative study can measure player behavior and decisions in cooperative games to empirically validate the aesthetic differences. Data on player actions, resource management, and communication patterns could prove useful for studying player approaches to risk-taking. This would help to confirm whether the intended aesthetics align with the actual player perception.

V. Data Availability

The game experiment documentation used for the analysis in this paper is publicly available at: https://youtube.com/playlist?list=PLayAI-GN22Ax4VwUKlchlubRZ-X71FxxK&si=94VISfs_oefKbznB

VI. Author Contributions

Eric Savero Hermawan: Conceptualization, Methodology, Visualization, Analysis, Writing. Ricky Reynardo Siswanto: Investigation, Documentation, Writing - Review & Editing. Samson Nduru: Analysis, Writing, Review.

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