

Miłosz Markocki*

ORCID: 0000-0002-8465-3142

Independent Researcher

**REACTIVE GAMES
AS AN EXAMPLE OF EXTENSIVE USE OF
EVOCATIVE NARRATIVE ELEMENTS IN DIGITAL GAMES:
THE CASES OF *DWARF FORTRESS* AND *RIMWORLD***

There are many types of digital games – some focus more on new gameplay mechanics while others focus more on new ways to tell and deliver their stories. Some games, in their goal of creating more engaging narratives, push the environmental storytelling and evocative narrative elements to their limits, allowing for a unique emergent narrative experience for players. Consequently, players now recognize a specific type of game, calling them, “reactive games”, in which the events and story of the gameworld occur without the need for the input of the player, who instead must react to the events and problems the game sends their way. This article presents two examples of reactive games which create a unique gameplay experience by exploiting the limits of environmental storytelling, evocative narrative elements, and emergent narrative: *Dwarf Fortress* and *RimWorld*.

Keywords: environmental storytelling, evocative narrative elements, emergent narrative, reactive games, gameworld

In today’s digital games, it is increasingly common for the gameworld or a game’s virtual environment to play a more significant role in both the gameplay and the players’ experience of the game, in some genres more than in others. In fantasy and simulation games in particular, certain important aspects of digital games’ virtual environments, and the gameworlds themselves, are related to how game texts tell their stories (Murray, 2017). There is also a specific type of game which creates a very unusual gameplay experience by exploiting this relationship between gameworld and narrative through the game mechanics or gameplay style. These games use environmental storytelling and evocative narrative elements to create emergent narratives, which makes it seem like the players only react to the game; because of this perception many players refer to the gameplay style of these games as “reactive gameplay,” and the games themselves “reactive games”.

In reactive games the gameworld appears to be more autonomous than in other game genres, as the micronarratives within specific locations in the gameworld are not inactive

* Miłosz Markocki, independent scholar; e-mail: miłosz_markocki@yahoo.com

regardless of whether the player is present to observe them. There is also no central avatar around which the whole story, narrative, and – to some degree – the virtual environment of the game would revolve. This creates a distinct impression that the player is merely a guest in the world of the game: they can influence the virtual environment of the game and interact with evocative narrative elements in it, earning great potential for the emergent narratives, but the events and, in consequence, stories in the game change and evolve throughout the gameworld regardless of the presence of a player. The aim of this text is to discuss selected elements of the above-mentioned characteristics of reactive games through analysis of the games *Dwarf Fortress* (2006) and *RimWorld* (2016).

GAMEWORLD, VIRTUAL ENVIRONMENT, AND NARRATIVE ELEMENTS

To discuss the emergent narrative and its relationship to the gameworld, it is first necessary to define several terms and concepts for the purpose of clarity and flow of this text. The first term that needs to be defined is “virtual environment”. According to Gordon Calleja,

virtual environments are computer generated domains which create a perception of traversable space and afford the exertion of player agency. They are populated by objects and often human or AI controlled entities with whom players can interact (Calleja, 2009).

In the context of digital games this definition can be treated as identical to that of the term “gameworld”, so the terms “virtual environment” and “gameworld” are used interchangeably in this paper. It is also important to note that Calleja argues that the players’ interaction with the virtual environment is the main force generating the stories in digital games – except for several aspects of the gameplay or gameworld like scripted events or cutscenes (Calleja, 2009, pp. 1–3). This important relation between the players’ interaction with the virtual environment of games to create stories or narratives is closely related to another important term in the context of this article, environmental storytelling.

The definition of the term “environmental storytelling” most suitable for this analysis is that proposed by Don Carson:

the story element is infused into the physical space a guest walks or rides through. In many respects, it is the physical space that does much of the work of conveying the story the designers are trying to tell. Color, lighting and even the texture of a place can fill an audience with excitement or dread (Carson, 2000, pp. 1–3).

Even though Carson’s definition stems from his experience as a park designer, this definition is also effective in the context of digital games, as their players also move through various spaces (e.g. the levels in a first person shooter game) specifically designed for the particular games. The function of environmental storytelling consists in the game designers using the virtual environment of a game as one of the tools conveying the story of the game. Many academics have considered different ways in which environmental storytelling can be used

in creating and maintaining a game narrative, and based on those, Fernández-Vara highlights two main ways to do so: “one, the narrative shapes the space, and navigating it constructs the narrative sequence; two, the player must piece the story together, interpreting the objects and events in the space” (Fernández-Vara, 2011, p. 3). Henry Jenkins further points out another crucial trait of environmental storytelling, stating that it “creates the preconditions for an immersive narrative experience” (Jenkins, 2004, p. 123), and can be in itself used by game designers to prepare the players for the game experience. This aspect of environmental storytelling is especially easy to spot in many various horror games, for example some locations in the gameworld of *Song of Horror* can be easily recognized by players as backdrops for a Gothic horror story. Jenkins also presents several ways in which a narrative can be created by the means of environmental storytelling:

In the case of evoked narratives, spatial design can either enhance our sense of immersion within a familiar world or communicate a fresh perspective on that story through the altering of established details. In the case of enacted narratives, the story itself may be structured around the character’s movement through space and the features of the environment may retard or accelerate that plot trajectory. In the case of embedded narratives, the game space becomes a memory palace whose contents must be deciphered as the player tries to reconstruct the plot and in the case of emergent narratives, game spaces are designed to be rich with narrative potential, enabling the story-constructing activity of players (Jenkins, 2004, p. 129).

In a context more specific to game design, “environmental storytelling” is defined by Richard Rouse III as “the little stories told through the world itself” (Rouse III, 2010). Rouse highlights how the virtual environment of a game should be designed to make immersion into the gameworld easier for the players, and to enhance the game narrative itself; he stresses the significance of the location backstory and its relevance to the main story of the game – whether the location is merely a setting, or if the story of the given space supports “the theme or tone in some unique way” (Rouse III, 2010).

Rouse also points out another significant problem that arises with the use of environmental storytelling, which is both important and problematic in the context of game design time. He emphasizes that “without downtime, players may charge blindly ahead, missing all the environmental storytelling you have carefully set up” (Rouse III, 2010). The severity of this issue depends greatly on the type of the game that is played, as adventure or massively multiplayer online role-playing games (MMORPGs) focus to a greater degree on the exploration aspect of the gameplay than most racer or puzzle games. Nonetheless, any game designer who implements environmental storytelling in their game faces the challenge stemming from the fact that players need time and incentive to explore the gameworld and focus on details and elements of the virtual environment for environmental storytelling to have a chance to work properly.

Linking environmental storytelling (here called “the game’s story-world”) to the players’ experience of the gameplay has also been emphasized by Jan-Noël Thon, who argues that “the importance of video games’ story-worlds for the gameplay experience varies across genres as well as from player to player, since different player types focus on different kinds of experience when playing video games” (Thon, 2016, p. 105). Jethro Jongeneel points to

the same connection, accentuating the player's subjective interpretation of both the game's virtual environment and the game's story:

Compared to storytelling, ES "environmental storytelling" does something powerful that is exclusive to this means of storytelling: it lets each individual consumer of the content, be it book, game, etc., fill in the gaps their own way. [...] ES is a way of telling an incomplete story which the receiver of the story needs to actively interpret. It incites participation by omitting certain aspects of the story. If the story is interesting enough, the receiver of the story will go to great lengths to find out about the missing elements that are not presented. ES is a form of storytelling that incites participation. It makes sure the player is constantly connected to, and reminded of, the story (Jongeneel, 2013).

Not only can the virtual environment as a whole be used to help players immerse themselves into the gameworld or help them create stories during gameplay, but specific singular elements of the gameworld can perform this function as well. Michael Nitsche uses term "evocative narrative elements" in reference to those singular elements which enhance the players' understanding and experiencing of the gameworld that surrounds them. Both Jenkins and Nitsche highlight the active role of the players and their interaction and relationship with the virtual environment of the game and its elements as necessary for the players to understand the game's story or create a certain game narrative. As Nitsche points out:

Narrative is a way for the player to make sense of the in-game situation. The main process happens in the player, but it can be evoked and directed by evocative narrative elements, formed by encounters or situations in the game that prime some form of comprehension. Evocative elements are included in virtual environments to improve the meaning-building process of the player. The elements are not "stories" but suggestive markings (Nitsche, 2008, p. 44).

According to Nitsche, the main task of the evocative narrative elements is not to be a part of the predetermined or scripted game story or narrative, but to be an incentive for players to create different narratives or to supplement the already existing narrative with those elements. Many games use various types of evocative narrative elements in the form of the so-called "hidden objects" carefully concealed in the gameworld, which have the potential to influence or even change the player's ongoing narrative of the game. Those hidden objects do not necessarily have to be literal objects, like notes or tablets with something written on them. They can also take the form of non-player characters controlled by the AI of the game, who can give players new information that changes the game narrative prior to the point of the players discovering them. Using evocative narrative elements in such a way not only makes it possible for numerous players to experience those games differently – depending on how many of those elements they discover during their gameplay – but it also adds great replay value to those games, as many players will be quite interested in discovering the "alternate" versions of the game story or other endings to those games. The main function of the evocative narrative elements is "to trigger reactions in players in order to help them create their own interpretations" (Nitsche, 2008, p. 44), which renders them rather useless in creating a linear story. As such, many simpler and linear digital games do not use many evocative narrative elements or environmental storytelling to any significant degree (if they use them at all).

All of the terms and definitions above bring us to the last and most significant – in the context of this article – term: “emergent narrative”. Henry Jenkins defines emergent narrative as those that “are not prestructured or preprogrammed, taking shape through the game play, yet they are not as unstructured, chaotic, and frustrating as life itself” (Jenkins, 2004, p. 128). Stephanie Jennings rewords Jenkins’ definition of emergent narrative to further highlight the role of players’ actions: “[r]ather than consisting of pre-written events and characters, emergent narratives are assembled and conjured by the actions of players out of the structures of video games” (Jennings, 2016, p. 146). Both those definitions point out that emergent narratives come into being as a result of the players interacting with the game through the gameplay. As this type of narrative is not pre-structured or pre-written, it often arises – at least to some degree – from the players trying to interact with various or even random elements of the game’s virtual environment. In this context, emergent narrative can be even considered to constitute a natural consequence of environmental storytelling, or in other words, the use of the environmental storytelling gives the players a chance, or rather an inclination, to create emergent narratives. Similarly to the case of the environmental storytelling and evocative narrative elements, many games allow for emergent narratives to different degrees, depending mostly on the type and main goal of the game. As mentioned before, puzzle games or digital simulations of card games such as *Patience/Solitaire* do not require environmental storytelling to fulfil their main goal, so naturally players do not have any chance to form emergent narratives while playing them. On the other hand, adventure, role playing games (RPGs) or MMORPG games need environmental storytelling and evocative narrative elements to fulfil their function, so they also have a lot of potential for the emergent narratives to be formed by players interacting with the gameworld and evocative narrative elements spread around the virtual environment of the game.

EMBEDDED STORIES IN THE LIVING WORLD OF *DWARF FORTRESS*

The official Steam page of *Dwarf Fortress* describes the game as “[t]he deepest, most intricate simulation of a world that’s ever been created¹”. *Dwarf Fortress* is an independent digital game created by Bay 12 Games. The game has been in a state of constant development since 2002, and the first version playable for a wider audience was released in 2006. Each playthrough of *Dwarf Fortress* starts with creating a world in which the gameplay takes place; these worlds are generated procedurally, creating a fractal global map that looks somewhat similar to a map of the Earth. Players can find all kinds of Earth-like biomes in the gameworld, ranging from the Arctic, to high mountains or flat steppes and swamps and even deserts. The game uses a sophisticated, randomized algorithm with numerous settings for the creation of each world, allowing for a wide range of environments in each gameworld, making each map unique. The world creation also encompasses history and socio-political situations. The algorithm allows players to make choices concerning how long they wish their

¹ Steam *Dwarf Fortress*, https://store.steampowered.com/app/975370/Dwarf_Fortress/ [8.09.2020].

world's history to be, or how many civilizations have a chance to thrive in a specific world. The fact that the world creation algorithm fully simulates the relations between potential civilizations – which means that when setting a very long world history there is a chance that some of the early civilizations to show up in this world can be destroyed by various random events (including a war with other civilizations) by the time the players start their game – is indicative of the autonomy of the gameworld, one of the most important characteristic features of *Dwarf Fortress* as a reactive game.

The main game mode is called “fortress mode”; within it, the player manages a group of dwarves². By indirectly controlling the population of a new settlement, players can construct a fortress in any way they see fit. Even though the game was originally designed with text-based graphics, there are now many graphical modes that switch the text symbols into 2D graphical representations (called sprites) for players to better understand what they see on the monitor. The game itself has no main goals or quests and it is fully open-ended, stressing the emergent narrative characteristic of reactive games. The second mode is “adventurer mode”; within it, players control a single character – the titular adventurer. Gameplay in this mode is also turn-based and open-ended, very reminiscent of the text-based computer roleplay games of the 1980s. In this mode, players can explore various locations, take and fulfil quests for the non-playable characters, or visit abandoned or still active fortresses and towns – if a player has created a fortress in the same world they now play as adventurer, they can also visit their own fortress. For better representation of environmental storytelling, evocative narrative elements, and emergent narrative, this text will mainly focus on the fortress mode.

As mentioned before, in fortress mode the players pick up a location on a world map where they want to start their game, and typically they have access to a small group of dwarves and a certain amount of resources. Even though players can see 2D graphical representation of only one layer, the game works fully in all three dimensions. Characters in the game can fly, swim, climb or jump between numerous layers. The players can freely modify almost all aspects of the virtual environment on the fortress map, although they have to remember that realistic physics still apply, so for example digging too big a space underground will lead to a collapse of the layer above, while ordering one's dwarves to dig close to the lava can lead to an uncontrolled release of lava and the death of the dwarves. The gameplay, especially in the context of wounds and injuries, is very realistic and the most frequent causes of death of dwarves are accidents and player error, rather than at the hands of enemies. Among the frequent mistakes leading to the death of dwarves – especially among new players – is ordering dwarves to dig a multi-layer area while neglecting to order them to dig a ramp or a staircase, stranding the mining dwarves at the bottom of the dig with no way to escape, leading to death from hunger or dehydration.

Dwarves dying due to accidents or player error are actually excellent examples of what happens when a game uses environmental storytelling, evocative narrative elements, and emergent narrative to their limits. *Dwarf Fortress* fully exploits the potential of environmental storytelling in many different ways, one of which takes place during the world creation.

² In the latest version of the game there is a way to start a new fortress with population composed of not only dwarves but many different creatures, e.g. elves, goblins or various types of humanoid hybrids of different animals, like ‘black bear man’ or ‘crocodile man’.

Through colour coding and information displayed next to a region on the world map, players receive the first set of information that will influence the story of their gameplay. The place on the world map and type of the terrain in which the players choose to start their fortress will determine the severity or lack of winters, the types of animals the players will encounter on the fortress map, and the level of threat of wild animals and monsters in the region, thus determining the probable emergent narratives. If the players choose a region closer to other fortresses and towns, there will be fewer wild animals and monsters wandering around the fortress map. The further away it is from other settlements, the more dangerous a region is. In the context of game mechanics and gameplay narrative, the choice of the place where players want to start their fortress is a crucial one, as there are regions in the game where trying to establish any permanent settlement on the surface is impossible due to evocative narrative elements specific to them, such as putrid slime, toxic and lethal to any living thing, raining from the sky.

Another, more direct and detailed way *Dwarf Fortress* uses environmental storytelling is in situations where players start their game in the location of an abandoned fortress. In the worlds created in *Dwarf Fortress* there is very good reason why some of the old great dwarf fortresses were abandoned. In many cases the reason is some giant, extremely dangerous monster. Nonetheless, players can try to reclaim fortresses of old and take possession of the treasures left within. In such a case, players do not start on the “clear” fortress map. When players try to reclaim an old fortress the game will load a fortress map with an already built and developed fortress on it. Here one of the most obvious means of environmental storytelling is employed, through various items scattered all over the fortress, empty and abandoned workshops, and, in some cases, skeletons and body parts left where they fell. Moreover, not all of the abandoned fortress is visible to players, so they have to send their dwarves to different parts of the fortress to explore and uncover them. Naturally, this involves the risk of dwarves encountering the monsters which had contributed to the extinction of the previous population and are now inhabiting the place, which puts the dwarves at risk of meeting the same fate as previous denizens.

The emergent narrative mostly manifests in *Dwarf Fortress* during the gameplay on the fortress map. Depending on what region the players choose, they will have access to different resources. Players can extract certain ores only from specific kinds of rocks, while certain items or furniture can be created only from certain materials; for example beds for dwarves can be made only out of wood. This means access to certain resources will determine which items the players can try to specialize in producing in their fortress. A good example of emergent narrative directly connected to the virtual environment is a scenario in which a player has decided to build their fortress in a region where there is no access to iron ore. Without iron ore the players cannot produce iron or steel, which, in turn, makes production of good quality armour and weaponry very problematic and practically impossible on a greater scale. These factors mean that the emergent narrative potential of this specific fortress makes it easier for the player to create a narrative of this fortress as a trading outpost or a simple town, rather than a highly militarized place whose main function is to train soldiers for war and the conquest of other races of that particular gameworld.

The main reason many players consider *Dwarf Fortress* to be a game in which players mostly react to the gameworld around them is the way in which the game uses evocative

narrative elements. In this game those elements mostly do not consist of items hidden away, waiting for the players to discover them. In *Dwarf Fortress*, the most common type of evocative narrative element is a monster. When stripped to its bare basics, the gameplay of *Dwarf Fortress* can be described as a game in which the players' goal is to take care of a group of dwarves (in standard setting up to two hundred), build a settlement for them, provide for their basic needs (food, drink, clothes, medicine, etc.), and keep them alive, while the gameworld will try to do everything in its power to kill the players' dwarves and destroy their fortress. As mentioned before, depending on the region a player chooses to start in, their fortress will be attacked more or less often by monsters, varying from giants, dragons, rocks, hydras, or forgotten beasts (a type of giant monster living in underground caves specific to *Dwarf Fortress*), to different types of werebeasts and vampires. The arrival of a monster functions as an evocative narrative element forcing the player to deal with the situation. How the player gets through it has a great influence on the emergent narrative of their fortress from that moment on. One unfortunate and very short example of an emergent narrative created by an evocative narrative element in the form of a monster happens when a player fails to prepare any defensive positions or safe spots for their dwarves, and the monster just comes into the fortress and kills every single denizen of the player's settlement. The player's fortress will then be considered abandoned and the player will be forced to either start the game in fortress mode again in a different region or reclaim an abandoned fortress, while their previous one is added to the list of potential starting sites.

Another example of a more subtle evocative narrative element in the game may be found in a message for the player that the corpse of a dwarf drained of its blood has been found. The player then knows that one (or more) of the dwarves living in their fortress, or one of their visiting guests, is a vampire. This prompts and allows for the beginning of an emergent narrative about an investigation to identify the vampire before another dwarf (or person) dies. Furthermore, in some extreme cases, this particular evocative narrative element of a vampire showing up in a fortress may give players an idea for creating a narrative about turning all the dwarves in the settlement into vampires and leading a fortress populated by an army of dwarf vampires³. Nonetheless, *Dwarf Fortress* also makes use of a more standard or typical evocative narrative element in the form of items. As mentioned above, the game simulates not only the physical aspect of the gameworld, but also its history, introducing a plethora of micronarratives understood as localized events or short narrative units (Jenkins, 2004, p. 125). The gameworld is thus full of items and characters with their own histories waiting to be discovered. For example, a player's fortress is attacked by a giant wielding a legendary artefact, a bone spear. After defeating the giant, the player can take possession of the item and either keep it in a warehouse, put it on a display, or order one of the dwarves to use it, such as the dwarf that struck the killing blow to the monster. Thus the player encounters a micronarrative about a dwarf being rewarded for their deeds with an exceptional weapon. However, in *Dwarf Fortress* each artefact has its own story which players can explore. It is

³ An excellent example of a vampire fortress narrative is the main story point of the *Dwarf Fortress* video series called *Honeystoker* by the YouTube content creator Kruggsmash, https://www.youtube.com/watch?v=7HX40DXnst8&list=PLXX7Rp0iXj0nPwER_CwBDYSr0n1fE63KK [8.09.2020].

possible that this particular spear was crafted hundreds of years ago by an ancestor of the dwarf that killed the giant⁴. Moreover, in the history of the item the players might find that one hundred and eighty years ago the creator of the spear was killed by a giant in combat, and the giant then took the spear as a trophy. After several decades, that giant died and the spear was taken by their son (another giant) and that giant was the one to have attacked the player's fortress. In this way a simple story of a dwarf being rewarded for their deeds with an exceptional spear transforms into a tale of a multi-generational feud between a family of dwarves and a family of giants, ending with that particular dwarf avenging their ancestor and reclaiming a family heirloom. Through simulating histories of singular items and characters, *Dwarf Fortress* provides the player with a myriad of evocative narrative elements – in the form of both items and monsters – and possibly endless opportunities and potential for players to experience a multitude of various emergent narratives. Similarly, by making certain types of monsters indigenous to specific biomes, many of the potential emergent narratives in the game are directly linked to the environmental storytelling. For example, if players play in a region with a haunted biome, the characteristics of the immediate virtual environment will provide the potential for emergent narratives regarding ghosts or zombies – every living thing, including their parts, that dies in a haunted biome comes back to life as a zombie or another form of an undead creature – and thus, in a haunted biome players can experience the classic zombie narrative of (literally) being surrounded or besieged by hordes of the undead⁵.

The narrative potential of *Dwarf Fortress* surpasses its gameplay and influences even YouTube content creators, who have made numerous types of videos about this game. One type consists of various kinds of tutorial for the game (made by, e.g., DasTactic, Nookrium, and Salford Sal), which explain the basic mechanics of the game or very specific aspects of the gameplay like building and management of the mine carts or pump stacks. Another type consists of uncut and unedited recordings of live game sessions, which can be up to a few hours long (examples include content by BLindiRL, DasTactic, Nookrium, and Salford Sal). One final type of video is the most important in the context of this article: an often heavily edited, story-driven recording of the game. The main goal of the creator of this type of video is not to present the best possible way to play the game, or make a guide, or show how one can play the game – instead they present a series of events that happened during a game session and edit them together to create a cohesive and interesting story. Sometimes, this will cause players to sacrifice effective gameplay for the sake of presenting a better story. A YouTube content creator named Kruggsmash basically specialized his channel to present *Dwarf Fortress* videos of this specific type. As an additional narrative tool – directly resulting from the very limited graphics of the game – he adds hand-drawn images to his videos to better show the audience his vision of the gameworld and various elements of the virtual environment of his fortress, giving an additional layer to the narrative he is creating during gameplay.

⁴ In a YouTube video called *Dwarf Fortress: Legendary Stories* a similar example can be found. In this case a dwarf named Momuz kills a cyclops named Legon and named her 'Crossbow' to commemorate the kill, only to be killed nine years later by another cyclops, Omrist, who was Legon's mother. Omrist took the crossbow and made it a family heirloom, <https://www.youtube.com/watch?v=98CnBDoyS5I> [8.09.2020].

⁵ An example of a fortress built in such a biome can be found in the *Dwarf Fortress* video series called *Skullhorror* by YouTube content creator Kruggsmash, <https://www.youtube.com/watch?v=BG3e3wYCQU4> [8.09.2020].

FACING THE CHALLENGES OF
EVOCATIVE NARRATIVE ELEMENTS IN *RIMWORLD*

Another game considered by many players to be a type of game in which players mostly react to the gameworld is *RimWorld*. On its official Steam page, the game is described as “[a] sci-fi colony sim driven by an intelligent AI storyteller,” which “generates stories by simulating psychology, ecology, gunplay, melee combat, climate, biomes, diplomacy, interpersonal relationships, art, medicine, trade, and more⁶”. On the basic level of the main game, the goal of *RimWorld* resembles that of *Dwarf Fortress*, as both games focus mostly on the survival aspect of the gameplay and dealing with random events. In *RimWorld*, the players also take care of a group of people and focus on building a settlement and providing all the necessities so their colonists can survive. The most obvious differences between both games lie in the complexity of the graphics and the gameplay. The graphics in *RimWorld* are much more advanced, but, at the same time, the gameplay is much more simplified when compared to *Dwarf Fortress*. Moreover, in *RimWorld* players can take direct control over their colonists and order specific characters to perform specific tasks.

Every game of *RimWorld* also starts with generating a random gameworld for players to play in. Similarly to *Dwarf Fortress*, a gameworld is also created procedurally, with various terrain types, biomes and factions commanded by the game’s AI. The game also simulates those factions and many different events on the whole planet, regardless of which region the players choose to play in. Depending on the relation between the AI factions and the players’ colony, the game will assign appropriate events for the players; for example, if an AI faction is friendly towards the players, it will send them gifts or traders, but if the faction is hostile, the game will send raids of enemies from that faction to attack players; this illustrates the autonomous nature of the game world of *RimWorld* as a reactive game which focuses heavily on evocative narrative elements and emergent narratives⁷.

In *RimWorld*, the evocative narrative elements – similarly to *Dwarf Fortress* – take the form of various creatures and characters showing up randomly on the map of the player’s settlement. In many cases, the creatures and people are hostile towards the players and will attack their colony and try to destroy it. The main goal of the players is to survive those attacks long enough to find a way to escape the planet. The evocative narrative elements in *RimWorld* also take the form of random events, other than just enemies attacking the colony, which can vary from animals self-taming and joining the colony or random characters joining the colony, to infections striking the players’ harvest, livestock or colonists. If players do not have proper reserves of food or medicine, such events may, as easily as an overwhelming attack, end in the death of all the colonists and, in consequence, the end of that particular actualization of the game. The evocative narrative elements in this game may also appear in the form of items that the players can gain through quests or randomly showing on the

⁶ Steam *RimWorld*, <https://store.steampowered.com/app/294100/RimWorld/> [8.09.2020].

⁷ It is also worth noting that the main menu screen of the game states that *RimWorld* is “A story generator by Tynan Sylvester” (Ludeon Studios, 2018), which quite directly states that the primary goal of the game – at least according to its main creator – is to generate stories.

players' colony map (in *RimWorld* one of the events spawns drop pods on the players' map with random resources or items). However, because of how the game difficulty informs the general value of the items in the colony, finding a powerful or rare item too early in the game will lead to an overly fast rise in wealth of the colony, which, in consequence, will greatly increase the power of the next raid. In such a case, the random rare item, instead of helping the players survive, can lead to the fall of the colony and "game over". The consequences of such random events, as well as the way in which players decide to deal with them, have enormous emergent narrative potential. Because in *RimWorld* the players can directly control all the colonists, and the number of characters in the players' settlement is distinctly lower than those of *Dwarf Fortress*, the loss even of a single character has a much greater impact on both the gameplay and the subsequent game narrative. Oftentimes in *RimWorld* the loss of the only medically trained character may lead to a death spiral of all other colonists, as there is no one left to provide them with medical attention. It works similarly in the opposite situation, as the random encounter or recruitment of a colonist highly skilled in research may give a player the opportunity to greatly increase the tempo in which they gain new technology, which can lead the player's faction to quickly technologically outclass other factions, significantly reducing the danger of their raids. Precisely because of the smaller scale on which the gameplay of *RimWorld* operates, a single evocative narrative element such as the aforementioned loss of a character has much greater impact on the potential emergent narrative in this game, in comparison to *Dwarf Fortress*. One of the consequences of this is much less room for error during *RimWorld* gameplay, and, as a result, the play style of this game may be even more reactive than in *Dwarf Fortress*. Depending on the difficulty level and narrator that the players choose at the start of the game, the time between random events can be rather short, leaving players not much time for preparation to counteract as many potential events as possible, which further pushes players in the direction of a reactive play style.

In the context of this article, the aforementioned greater simplicity in the design of the game mechanics and gameplay elements of *RimWorld* – comparing it to *Dwarf Fortress* – has an intriguing consequence that can greatly influence the potential for forming new emergent narratives in the game. This simplicity allows for easier creation of mods for *RimWorld*, especially the setting conversion mods that change the original gameworld of the game into a different one – very often with a different set of additional rules and settings. Such types of mods add new terrain and biomes to the game during the world creation, as well as providing many new factions appropriate for the new setting. The changes can encompass adding new factions, different items, new playable types of characters, and even whole new technology trees. The new setting may restrict the technology available in the modded gameworld, limiting it only to the tribal and medieval levels, or it may add much more advanced science fiction technology, including that capable of creating sentient androids⁸. Several of the more popular setting conversion mods change the gameworld of *RimWorld* to resemble worlds from known franchises from other media such as *Lord of the Rings*⁹, *Warhammer Fantasy*, *Warhammer 40,000*, or *Star Wars*. There are also more historically appropriate mods implementing changes

⁸ Retrieved from: <https://steamcommunity.com/sharedfiles/filedetails/?id=1541064015> [8.09.2020].

⁹ Retrieved from: <https://steamcommunity.com/sharedfiles/filedetails/?id=1400245220> [8.09.2020].

to the game in such a way as to give players, for example, a simulation of commanding a Roman outpost – with all technologies and items changed to fit the classical Roman setting¹⁰. With setting conversion mods, the potential for environmental storytelling, the evocative narrative elements and emergent narrative of *RimWorld* greatly increase, as player experience of certain types of narratives is possible only through the use of those mods.

CONCLUSION

There is great potential for analysis of games in which almost the entire narrative capacity and elements of virtual environment storytelling lie in the events and stories occurring throughout the whole gameworld regardless of player's actions in a particular location. The discussion of all the above examples from *Dwarf Fortress* and *RimWorld* does not constitute an in-depth analysis of all possible uses and potential of environmental storytelling, evocative narrative elements, and emergent narrative in those games. Instead, the main goal of this article was to emphasize the role the emergent narrative plays in reactive games, with particular emphasis on the specific gameplay aspects which allow for that narrative. Additionally, the two games analysed in this article are especially noteworthy, as they are regarded by players as titles that define the reactive game genre. A closer look at *Dwarf Fortress* and *RimWorld* shows how the use of evocative narrative elements informs the play style to the extent where the players consider such games as belonging to a separate, unique genre. The very unusual and highly reactive gameplay experiences that *Dwarf Fortress* and *RimWorld* create for their players remain unique and deserve close academic analysis. This article is meant to create a potential point of reference for any scholar interested in researching digital games that push their game mechanics and gameplay style to their narrative limits – games in which the gameworld does not “wait” for the player to do something to change it, but appears to develop and transform on its own, inviting them to learn its stories.

REFERENCES

- Bay 12 Games. (2006). *Dwarf Fortress*. Bay 12 Games.
- Calleja, G. (2009). *Experiential Narrative In Game Environments*. Retrieved from: <http://www.digra.org/wp-content/uploads/digital-library/09287.07241.pdf> [8.09.2020].
- Carson, D. (2000). *Environmental Storytelling: Creating Immersive 3D Worlds Using Lessons Learned from the Theme Park Industry*. Retrieved from: www.gamasutra.com/view/feature/131594/environmental_storytelling_.php?page=1 [8.09.2020].
- Fernández-Vara, C. (2011). *Game Spaces Speak Volumes: Indexical Storytelling*, Retrieved from: <http://www.digra.org/wp-content/uploads/digital-library/Game-Spaces-Speak-Volumes.pdf> [8.09.2020].

¹⁰ Retrived from: <https://steamcommunity.com/sharedfiles/filedetails/?id=1808410483> [8.09.2020].

- Jenkins, H. (2004). *Game Design as Narrative Architecture*. In: N. Wardrip-Fruin, P. Harrigan (Eds.), *First Person: New Media as Story, Performance, and Game* (pp. 118–130). Cambridge, MA: MIT Press.
- Jennings, S.C. (2016). *Co-Creation and the Distributed Authorship of Video Games*. In: K. Duncan Valentine, L.J. Jensen (Eds.), *Examining the Evolution of Gaming and Its Impact on Social, Cultural, and Political Perspectives* (pp. 123–146). Hershey, PA: IGI Global.
- Jongeneel, J. (2013). *Environmental Storytelling in Games*. Retrieved from: www.jethrojongeneel.com/articles/T3.php [8.09.2020].
- Ludeon Studios. (2018). *RimWorld*. Ludeon Studios.
- Murray, J. (2017). *Hamlet on the Holodeck: The Future of Narrative in Cyberspace (Updated Edition)*. Cambridge, MA: MIT Press.
- Nitsche, M. (2008). *Video Game Spaces: Image, Play, and Structure in 3D Worlds*. Cambridge, MA: MIT Press.
- Rouse III, R. (2010). *Environmental Narrative: Your World Is Your Story*. Retrieved from: www.paranoidproductions.com/miscwritings/EnvironmentalNarrative.ppt [8.09.2020].
- Thon, J.N. (2016). *Transmedial Narratology and Contemporary Media Culture*. Lincoln, NE: University of Nebraska Press.

Internet Sources

- Blind. (n.d.). YouTube Channel. Retrieved from: <https://www.youtube.com/c/BLindiRL/featured> [8.09.2020].
- DasTactic. (n.d.). YouTube Channel. Retrieved from: <https://www.youtube.com/channel/UCHJM-Vd74Egk1xvGp4BHWBA> [8.09.2020].
- Dwarf Fortress. (Steam). Retrieved from: https://store.steampowered.com/app/975370/Dwarf_Fortress/ [8.09.2020].
- Krugasmash. (n.d.). YouTube Channel. Retrieved from: <https://www.youtube.com/user/krugasmash> [8.09.2020].
- Nookrium. (n.d.). YouTube Channel. Retrieved from: <https://www.youtube.com/c/Nookrium/featured> [8.09.2020].
- RimWorld. (Steam). Retrieved from: <https://store.steampowered.com/app/294100/RimWorld/> [8.09.2020].
- Salford Sal. (n.d.). YouTube Channel. Retrieved from: <https://www.youtube.com/user/salfordsal> [8.09.2020].

Submitted: 25.10.2020

Reviewed: 23.01.2021

Revised: 24.01.2021

Accepted: 25.01.2021

Published online: 30.06.2021