

**DECK OF SOUNDS: USABILITY OF PATTERN LANGUAGE
FOR SOUND DESIGN IN THE DEAD SPACE FRANCHISE**



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**DECK OF SOUNDS: USABILITY OF PATTERN LANGUAGE
FOR SOUND DESIGN IN THE DEAD SPACE FRANCHISE**

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ABSTRACT

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The sound design process in games has a crucial part in a game's development cycle. Especially sound in horror games is one of the key parts of the game design since games give the tension better to the player with sound.

In this paper, we will use the deck of cards that has been established at the Audio Mostly 2011 Conference and released in the scientific article "Design Patterns in Games: the case for Sound Design" to inspect the Dead Space franchise's sound design. We have 77 cards to review, and we will try to link the cards using the games Dead Space 1, Dead Space 2, and Dead Space 3 and the pattern language and add new examples to the cards. Also, we will investigate if we can add new cards to the deck using the sound design decisions in the Dead Space Franchise.

Keywords: Game Design, Sound Design, Design Patterns, Deck of Cards, Design Pattern for Sound Design

ÖZET

SES DESTESİ: SES TASARIMI İÇİN DESEN DİLİNİN DEAD SPACE SERİSİ İÇİN KULLANILABİLİRLİĞİ

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Oyunlardaki ses tasarım süreci, oyunun geliştirme döngüsünde çok önemli bir yere sahiptir. Özellikle korku oyunlarında sesin oyunculara gerilim hissini çok daha iyi verebilmesi sebebiyle oyun tasarımının çok önemli bir kısmını oluşturur.

Bu makalede, Dead Space serisinin ses tasarımını incelemek için Audio Mostly 2011 Konferansında oluşturulan ve “Oyunlarda Tasarım Desenleri: Ses Tasarımı için Kullanımı” adlı bilimsel makalede yayınlanan kart destesini kullanacağız. İnceleyeceğimiz 77 kart var ve Dead Space 1, Dead Space 2 ve Dead Space 3 oyunlarını ve desen dilini kullanarak kartlar arasında bağlantı kurmaya çalışacağız ve kartların içine yeni örnekler ekleyeceğiz. Ayrıca, Dead Space serisindeki ses tasarımı kararlarını kullanarak desteye yeni kartlar ekleyip ekleyemeyeceğimizi araştıracağız.

Anahtar Kelimeler: Oyun Tasarımı, Ses Tasarımı, Tasarım Desenleri, Ses Destesi, Ses Tasarımı için Tasarım Deseni

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LIST OF ABBREVIATIONS

PSG	Programmable Sound Generator
NES	Nintendo Entertainment System
UFO	Unidentified Flying Object
DAC	Digital to Audio Converter
RAM	Randomly Accessed Memory
CD-ROM	Compact Disk Read Only Memory
MIDI	Musical Instrument Digital Interface
DVD	Digital Video Disk
CD	Compact Disk
DSP	Digital Signal Processors
AC-3	Audio Coding Three
DTS	Digital Theatre Systems
SFX	Special Effects
NPC	Non-Playable Character
PC	Playable Character

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Chapter 1

Introduction and Literature Review

1.1 Sound Design Definition

We should start with what a sound is from the game industry perspective. According to Gibbs (2007, p. 8) and many of the composers in the industry, sound can be explained as a collection of ideas of multiple harmonies and musical structures. The sound designers' perspective is slightly different from composers because sound designers define sound as "sound design". According to Kench (2020), sound designers define sound design as the aural world of the film to enhance the experience and atmosphere of the movie. So, we can say that sound has a hard definition to express since it is a general and complex structure. However, this definition can fit most of the cases of sound itself.

Sound design purely means deciding how to use these sounds in the applied field. Gibbs (2007, p. 86) explains deeply that, sound design mostly deals with how we can design and use sound itself to use it as the ideas or to simply put it: communication of ideas. Gibbs (2007, p. 86) continues that, we can use sound to pay attention to something particular; but here, the audience's expectations also have enormous importance, since not everybody will have the same expectations for the sound feedback of an object or an event, because most of the times, people does not have a direct experience of what that object or an event sounds like. Because of that, it's the sound designer's job to find what that event or object should sound like.

After the broad introduction of sound and sound design, it should be explained what sound design in games is. The sound design in games is the process of creating or designing sounds for the game's moments. That includes reloading sound in shooter games, an ambient sound when you enter a cave or a haunted house, or the background music that plays whenever a battle starts in the game. If we gather up all the sounds in-game and put in a set of rules (like trigger sound when an event happens) this is called game sound design.

However, the sound design in movies is sometimes also called "sound montage", which is a term used for George Lucas' first science fiction movie, THX 1138

(Whittington, 2007). The sound design process is done like this as explained by Whittington (2007, p. 29):

Using contrapuntal editing and extensive re-recording techniques, Murch experimented with sound perspective, tape-speed modulations, audio filters, and image-sound metaphors throughout the film. He created unique montages of sound, which included dialogue exchanges between robot police officers and controllers, the whine of jet car chases, and ambient cacophonies of overpopulated cityscapes.

As we can understand from this paragraph, the first stages of sound design in games and sound design in movies have different kinds of concerns that they needed to think about. One of the most important concerns for that sense is memory limitations. When we talk about memory, we are talking about the spaces in a device that can hold data inside so that the device itself can read data from that memory. In films, sound designers do not need to think much about memory limitations in their design process, since the sound is embedded in the images that we are seeing on screen. On the other hand, game sound design was struggling with memory and resource limitations while developers try to develop their games.

1.2 Game Sound Design History

As explained by Collins (2008, p. 8), at the very first stages of video game history, including William Higinbotham's never published tennis game of 1958, "Tennis for Two" and "Spacewar!" had no sound. However, the first mass-produced video arcade game, Computer Space (1971), included a series of different "space battle" sounds, including "rocket and thruster engines, missiles firing, and explosions.

When we look at "Pong", which is one of the most popular games in the world, the reason that the "beep" sound is used is that the technology is so limited at that time and there were no resources left to make sound, so he mixed some wires to sync generator and tried to find an appropriate frequency or a tone, as stated by Al Alcorn, the engineer of "Pong" (L. Kent, 2001, pp. 41-42).

These beginnings in sound design were a milestone for coin-operated machine

flyers' advertisements. This sound attribute is used as an attraction for customers. We can see examples in pinball and slot machines (Collins, 2008, p. 9). Collins (2008, p. 9) continues that, these early arcade games commonly used an attract function, which means calling players when nobody was using them. This function is used in Barrel Pong (1972) and Gotcha (Atari 1973). These games had electronic sounds that call players to these arcade machines.

At the start of the game consoles era, Collins (2008, p. 20) states that even though there was a console system in 1972 named The Magnavox Odyssey, the biggest hit was Atari's Pong (1972) on the Tele-Games, a system which was released in 1975. After the release, nearly seventy-five companies used the chip that has been used in Pong itself, leading to the sound chip also being reproduced in all these copies (Collins, 2008; L. Kent, 2001).

After the improvements in sound design at the end of the '70s and '80s, continuous music started to be used in the games. We can see the first precedence in the popular game called Space Invaders (Nishikado, 1978). In the game, while aliens are approaching, music that is made by a four-tone loop starts to speed up (Collins, 2008, p. 12).

In 1980, arcade machine manufacturers started including sound chips into their machines' circuit boards known as programmable sound generators or PSGs. After this development, games had more tonal background music and elaborate sound effects (Collins, 2008, p. 12). Below, you can see the basic progress of a subtractive synthesis (which is commonly used for PSGs in this era) of sound generation:



Figure 1. Subtractive synthesis of sound generation (Collins, 2008)

As we can see from Figure 1.1, the first oscillator creates a sound wave, then a filter cut some of the specific frequencies, and lastly, an amplifier controls the amplitude and envelope to create the final sound that we hear (Collins, 2008, p. 10).

Collins (2008, p. 24) continues that, while the gaming industry was suffocating by the sales of games and consoles, Nintendo's new entertainment console NES or Nintendo Entertainment System, so to say, saved the gaming industry from its dark days in the mid-

1980s. The console brought the players Super Mario Bros. (Nintendo, 1985) and The Legend of Zelda (Nintendo, 1986), which also helped make Nintendo popular in the western market.

In NES, a five-channel PSG chip is used for sound processing. Two of the channels could create sounds in the range of eight octaves. One of the channels had a function that can create a sound like a portamento, which is useful for creating laser guns or UFO sounds. One of the channels only had a 4-bit frequency control, also known as the triangle channel. The fourth channel is used as a noise channel which makes it useful for percussion and effects and the last channel is mainly used for sampling (Collins, 2008, p. 25). Collins (2008, p. 25) continues that; three of the channels are mainly used as lead, accompaniment, and bass and the other two are used for solo or chord lead, with bass accompaniment created by the triangle channel.

When we come to the late '80s, Collins (2008, p. 37) expresses that Nintendo was dominating the home console market with a huge number like 80 percent. Also in these times, arcade machines were starting to lose their charm against home consoles. Nintendo grew so much that they started to restrict their developers to create copies of the games for the older consoles, to eliminate competition and become a monopoly. However, this did not stop the other companies to sue Nintendo for such behaviour. In the end, Nintendo pulled out of the arcade market, and they started to focus on the home consoles that are currently so powerful (Collins, 2008, p. 38).

At the end of the '80s and the beginning of the '90s, Sega joined the competition of the home consoles; they came up with a new console called Sega Genesis. Not only did they create and port their old arcade machines to the console, but they also had a superior sound system in the console compared with NES, which is an 8-bit console. Inside Sega Genesis, an equivalent of PSG 3 + 1 chip which can handle effects and music, a YM 2612 (Yamaha FM) chip to handle synthesis and supported stereo sound; and one PCM 8-bit sample channel (Collins, 2008, p. 40). So, we can say that using 16-bit in Sega Genesis had created a huge competition between Nintendo and Sega, which right now Sega has more popularity because of the better graphics and better sound quality.

According to Collins (2008, p. 40), it was harder to program sound in Sega Genesis, because they need to create a communication between chips in assembly language. Masato Nakamura, composer of Sonic the Hedgehog says that:

Nowadays, you'd just be able to send the data through email, but at the time, I had to record onto cassette. The sound engineer would then listen to them and reproduce them for implementation in Genesis. Then, they'd send me back a bare game chip, and then I'd listen to it and check it. It's sort of unthinkable, now, but at the time, we just did that over and over until we got to the finished product.

Because of this development cycle, Collins (2008, p. 40) emphasizes that some types of sounds are needed to be used repeatedly. Examples of that are given as "fat square-wave-like organ sound" in *Shadow of the Beast II* (Ubisoft, 1992) used in other Psygnosis games.

Instead of the success of 16-bit consoles, there were some other companies which are trying to develop 32-bit consoles around 1995. One of them was Sega again, with Sega Saturn; and the other company is Sony, joining the competition with PlayStation. The biggest difference between these two consoles and the other ones is that Sega Saturn and PlayStation are using CD-ROM instead of cartridges (Collins, 2008, p. 68). Collins (2008, p. 68) states a fact about Sega Saturn that even though the console has 32 bit PCM sound generator and 16 bit Digital to Audio Converter (DAC) since the RAM in the Sega Saturn is limited, they needed to decrease the sample rate because there is not enough memory space in the hard disk in the device that can hold the decompressed raw sound. This means that programmers had to sacrifice some of the sound quality.

On the other hand, Sony had a huge success with their PlayStation system after they decided to create their consoles because Nintendo has refused to deal with Sony about integrating CD-ROM into their devices and agreed with Philips instead (Collins, 2008; L. Kent, 2001). Like Sega Saturn, PlayStation also supported MIDI for easy programming of sound. Inside PlayStation, there was 24 channel that can play CD-quality sound and allow effects like pitch modulation, reverb, and loops (Collins, 2008, p. 69).

When we reach the millennia, Sega was suffering from the Sega Dreamcast, the first 128-bit console has disappointing reviews and responses from players, even though it was an impressive device (Collins, 2008; L. Kent, 2001). However, Sony was in their golden age with their newly released PlayStation 2, which can also play DVD movies and additional hard-drive extensions. PlayStation had better than CD audio quality sound sample rates thanks to their new sound processing units which also support multi-channel surround sounds like Dolby Digital, AC-3, and DTS (Collins, 2008, p. 71). Even though

these technological improvements were not enough to make sounds play at their full potential, programmers still needed to make some compromises because of the limited resources, when we can hear beautifully crafted sounds in cutscenes, that quality was immediately dropped when we switch to the gameplay. This problem is solved with the PlayStation 3 release which can support 7.1 streaming audio, DSP filters in runtime, 512 channels, and higher bit-rate streams (Collins, 2008).

After the technological improvement over time, these kinds of technological restrictions are no more of the developers' and huge developer companies' concern. Even the bigger game companies have their audio team that focuses on the game studio's audios that are used in their games. These teams are consisting of sound directors, dialogue artists, audio programmers, sound designers and many more (Collins, 2008) since audio in games holds a huge role in game development. Still, in the game development field, recent authors state that sound is deserving greater attention in the game development cycle (Alves & Roque 2011; Collins 2008; Ekman I. 2008; Grimshaw 2007; Ekman I. 2005; Peck 2001).

1.3 Roles and Responsibilities of an Audio Team

As we talked about the audio team in a game development team, we also need to explain the role's responsibilities depending on the sizes and budgets of the companies.

1.3.1 Audio Team Sizes Depending on Size and Budget. According to Collins (2008, p. 87), audio teams in game companies vary significantly and this depends on both the budget and size of the project or the team itself. Most of the smaller companies have only one person who deals with everything for the sound of the game: implementation, sound design, voice-overs, dialogues, and music. However, when we look at the larger companies, Collins (2008, p. 87), states that they have a full team of sound designers, composers, and voice actors who work on one game project. Even though these large companies have their audio team, music is mostly done by contract from outsourcing.

1.3.2 Audio Production Process. According to Collins (2008, p. 88), the game audio production process is like the film audio process recording Foley and live sounds and using the same software and recording devices.

Firstly, there is a pre-production stage that consists of creating an audio design

document. This document contains the implementation and design of the game's audio. The audio team of a game development company gathers around and starts to talk about how the sound structure should be by looking at the concept arts, gameplay prototype, and the story that is created until that time. According to these parameters, mood and the style of the audio are determined. (Collins, 2008, p. 90)

After this part is dealt with, sound interactions in the gameplay need to be considered. Here, we are defining the rules of the interactions. After this part, there is another important part which is called *Spotting*, where we are determining where will we use the ambient sounds or music in the game, or where we trigger or stop the sounds (Collins, 2008).

After these phases, the production of the sound starts to take place. Collins (Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design, 2008) explains this phase as the start of recording audios, creating sound libraries, and using stock sounds. Also, voice-overs, or dialogues, are started to take place in this production phase, as well as the localization of the dialogues, which means creating dialogues in other commonly used languages like French, German, etc. After this part, an important part of the production phase starts, which is the placement of the sounds that are created for the world scene. This phase is mainly checking and adjusting the spatial positioning of the sound in the game environment. (Collins, 2008)

Finally, we are in the post-production process, where the mixing and polishing take place. This means which sounds should be emphasized and which one should stay behind when they are played at the same time. So, we can say that the mixing part mainly consists of ensuring frequencies of sounds are not overlapping and sound can be heard clearly in the game which can contain multiple playing sounds at the same time. (Collins, 2008)

1.3.3 Roles of an Audio Team. In this section, I will try to explain and define the roles of an audio team. Each team ideally consists of a sound director, sound designers, dialogue, and voice-over artists, licensing and contracting directors, composers, and audio programmers. Collins (2008, p. 87), starts to explain the roles starting with the sound director.

1.3.3.1 Sound Director. Sound directors are responsible for the overall audio vision and design of a game. In other words, he or she is responsible for the whole vision of the sound of that game. They use their creativity and share their vision with the team members. They also need to handle staff, technology that has been used in the sound

design process, schedules of the workloads, the budget of their team, and outsourced personnel (casting, engineers, mixers, and so on.). They can sometimes be responsible for mixing, editing, and creating sounds (Collins, 2008, p. 87). As we can see from here, a sound director is the heart of an audio team of a game company. They handle and confirm everything that the audio team creates and guide the team with their visions.

1.3.3.2 Sound designers. Sound designers are mostly responsible for managing the audio production pipeline and creating audio design documents. They are working with audio tool developers and integrators who integrate sounds into the game for creating and managing audio assets. Following that, they are also responsible for the sound effect libraries that the game uses. These libraries are consisting of the sounds that are purchased from outsourced designers or created by the audio staff itself (Collins, 2008, p. 87).

Especially in single-player story-driven games, sound designers' most important skill is the ability to design a linear sequence such as a pre-rendered cut-scene that plays at some point in the game (Stevens & Raybould, 2011).

1.3.3.3 Dialogue/voice-over artists. As the name suggests, these artists are responsible for the dialogues in the game. These artists can be in-house, but for the variety of sound of dialogues, game companies can hire external artists. Also, they can coach the artists who perform the dialogue vocalization (Collins, 2008, p. 87). Vocalization is a term that is used for creating a sound, that is mostly human dialogues, from your vocal cords.

1.3.3.4 Licencing and contracting directors. Licencing in games is mostly referred to as intellectual property (IP). Game studios can only use the names that have a licensed IP in the packaging and marketing of their games. These can include the voices and the main characters of a game (Kerr, 2006, p. 69).

To deal with these legalization processes, game companies hire licensing and contact directors. These staffs are responsible for legal issues like obtaining the rights of a licensed IP. (Collins, 2008, p. 87).

1.3.3.5 Composers. Composers are responsible for the music composition that has been created by the game. However, small-sized companies can be also responsible for the sound design itself. They are mostly dealing with contracting out and checking the live recordings that the orchestra has performed for the music side. (Collins, 2008, p. 87).

Composers and sound directors have a common workflow, which is writing some music according to the description of a sound director. When the creation and recording

of the music are finished, the composer cuts the music into pieces that can be looped or dynamically changed according to the gameplay actions. These gameplay actions can be consisting of battles or ambient music. (Peerdeman, 2010)

1.3.3.6 Audio programmers. Audio programmers are mainly responsible for the tools that have been developed for the game integration of sounds. However, if the company is small-sized, they can also have the role of a sound designer.

With the development of the game audio technology, audio programmers can use middleware solutions to facilitate audio development and integration. One of the most used software is called Wwise (Audiokinetic, Wwise, 2006), which is one of the most popular middleware solutions that most small, medium and large-sized companies are using right now. Right now, Wwise has been used in over 500 games every year (Audiokinetic, Wwise in Games, n.d.).

As we can see from the previous paragraph, attention to sound design and the sound process continues to develop with the useful tools that have been created by the industry veterans.

After looking at the responsibilities of an audio team, we need to understand and investigate the horror genre, which sound design and its implementation are essential in a horror game or a horror film.

1.4 Horror Genre in the Game Industry

1.4.1 Horror Genre in Literature. Horror gore and literature, starting from Edgar Allan Poe, Howard P. Lovecraft, Stephen King, and Clive Barker have always revealed a strong interest in the academic field and are one of the most popular statuses in the research field (Perron, 2009, s. 3). Perron (2009) explains the reason by giving a quote from Howard P. Lovecraft (Supernatural Horror in Literature, 1973): “THE OLDEST and strongest emotion of mankind is fear, and the oldest and strongest kind of fear is fear of the unknown.”

By externalizing our doubts and anguishes about death, transgression, etc., the horror genre helps us to express and understand our feelings about these topics (Perron, 2009, p. 3).

According to Prohászková (The Genre of Horror, 2012), the literature of horror is

derived from gothic literature, from the 18th century. However, some English authors developed and followed the gothic mindset, and this connects to the roots of the horror genre. The first peaks of this literature are in the 1790s, with the authors like Charles Brockden Brown, Ann Radcliffe, and Matthew Lewis, whose novels are the leads in the transformation from gothic novels to horror novels. What they did was create an irrational phenomenon that is still used today, like vampires and monsters. Most of the horror literature contains these kinds of archetypes in its narrative, like psychopaths, werewolves, and serial killers.

The definition of the genre differs from person to person. Many authors have tried to give a complete definition of the horror genre, but they failed because one factor or an attribute always contradicted other genres (Prohászková, 2012). Strinati (2000) tries to explain the horror genre as “a genre that represents the need for suppression if the horror shown is interpreted as expressing uncomfortable and disturbing desires which need to be contained.”. To define horror as a genre, Todorov (1973) splits the genre into three categories:

1.4.1.1 The Uncanny. This category is the supernatural, unreal, or impossible events that occur at the end of the story.

1.4.1.2 The Marvellous Horror. This category explains the incomprehensible or irrational phenomena that can be explained with a different kind of reality. We must accept the new laws of nature. Zombies, demons, and vampires are all examples of this category.

1.4.1.3 The Fantastic Horror. Instead of explaining the irrational, this category creates alternatives. Consumers can select which one of the phenomena they will believe or decide. This kind of horror raises hesitation and doubt about the alternatives: supernatural and natural, which consumers may not be sharing the same feelings with the main character. *Shining* (1980) and *The Innocents* (Clayton, 1961) are examples of this category.

1.4.2 Horror Genre in Games. The horror genre is not only popular in the academic field, but also popular in the video game industry. First examples of horror games start with the interactive fiction game called *Zork* (Blank & Lebling, 1980), which is mostly acclaimed as a fantasy game rather than a horror game (Perron, 2009, p. 15). Perron (2009) continues that, this game has a huge portion of dark cave systems in which players stumble around to escape from a creature called Grue, which can eat you if you

get caught by this enemy. This was terrifying for the players because this situation is not experienced by the players before in any other game, because death is happening to you, not to the other characters in the game.

Perron (2009) continues that, after the success of the Zork (Blank & Lebling, 1980), horror games kept growing and growing, starting with one of the first graphical games in the horror genre, Mystery House (Williams & Williams, 1980), following with Alone in the Dark (Raynal, 1992), Resident Evil (Mikami, 1996), Silent Hill (Toyama, 1999) up until F.E.A.R.: First Encounter Assault Recon (Hubbard, 2005) and Dead Space (Schofield, Dead Space, 2008), which is the main game that we are using for this thesis.

One of the common aspects of the games that are listed above is that in these games, you can protect yourself or fight with the enemies with a gun or a similar defensive gear. However, this kind of approach has changed in recent years. In other words, horror games evolved into some genre in that you control a defenceless character, and all the players can do is run from the enemies. According to Toniolo (Evolution of the YouTube Personas Related to Survival Horror Games, 2020), this turns towards survival rather than action emerged because of the YouTube platform. These kinds of horror games attained huge success and they became regular content on the YouTube platform. Toniolo (2020) exemplifies the games Amnesia: The Dark Descent (Frictional Games, 2010), Slender: The Eight Pages (Hadley, 2012) and Five Nights At Freddy's (Cawthon, 2014). These kinds of survival horror games helped some of the famous YouTubers like PewDiePie and Markiplier grow on the YouTube platform and because of that reason, game developers try to develop survival horror rather than action-horror games like Dead Space (Schofield, Dead Space, 2008).

1.5 Dead Space Franchise

Dead Space franchise is an action horror game that has been developed by Visceral Games and published by Electronic Arts for PlayStation, Xbox consoles, and PC. The first game, Dead Space was released on October 24, 2008, to the PlayStation 3, Xbox 360, and Windows PC.

In the first game, we are controlling Isaac Clarke, who is an engineer on the way to the USG Ishimura, the first planet cracker spaceship that sent a distress signal (Reeves,

Staring Into The Void: The Lore of Dead Space, 2009). However, after the arrival, the crew confirms that Ishimura is crawling with monsters that cannot be identified with their current information. The main mission of this game is to escape from the USG Ishimura. At the end of the game, we learn that these creatures are called necromorphs, and these creatures are crawling in USG Ishimura because of the founding of an ancient figure called The Marker. The first game has acclaimed success and has been nominated 7 times and 6 wins from the various game awards. (IMDb, 2008)

In Dead Space 2, we are again controlling Isaac Clarke after three years from the first game. We are awakened in a space station called Sprawl, which is located near Saturn's largest moon, Titan. The main objective of Isaac is that he needs to deal with the Necromorph outbreak in Sprawl. This sequel has also received favourable reviews from critics, with 87 Meta score on PC, 90 on Xbox 360, and 89 on PS3, calculated by Metacritic. One of the biggest changes in the game is that our main character, Isaac Clarke is speaking in the game. In the first game, our character was not reacting to the dialogues in the game. In other words, our character was not speaking, like Gordon Freeman in the Half-Life series (Valve, 1998). This difference in both games, Dead Space 1 and Dead Space 2, has resulted in a more action-paced and more story-driven experience in the second game.

In Dead Space 3, we can control two characters: Isaac Clarke and John Carver, to stop the Necromorph outbreak once and for all, on a planet called Tau Volantis. This game added new mechanics, like crafting materials and survival tools (Electronic Arts, 2013).

The second and the biggest change in the game is the co-op mode that you can play the campaign mode with two people, including you. As a result of this decision, the game became a more action thrilling game rather than action horror. (Lynch, 2013). Because of these changes, the game's critics were worse than the first two games, with 78 Meta score on PC, 76 Meta score on PlayStation 3, and 78 Meta score on Xbox 360, calculated by Metacritic. This resulted in the end of the game series, and the Dead Space franchise is currently on hold since the release of Dead Space 3.

In Dead Space (Schofield, Dead Space, 2008), which is used as the research game, the sound design process was treated more seriously than normal. As stated by Schofield (2020), the creator of the Dead Space Franchise, most of the games developed before are always leaving the sound design at the end of the game development cycle and are not

seen as important as the other sections of development. However, in Dead Space's development, sound was a key feature for the developers and this part of the development is a perfect candidate for experimenting with sound design research about Dead Space.

1.6 Game Design Pattern

Starting from the beginning, a pattern is a collection of conventions for documenting and describing a decision with the given context, like engineering or game design (Kreimeier, 2002). Kreimer (2002) explains that these patterns help us to communicate efficiently with different disciplines like engineers, designers, and gameplay programmers, to document and to organize an individual's knowledge and experience, and analyse other people's designs or your design.

With the patterns, we can create formal documentation which can lead to software tools to edit or maintain game design patterns. Most game companies have structures for their game design documents (Kreimeier, 2002). Kreimer (2002) continues that, by using a design pattern, we will have a document that is more maintainable and results in structural thinking. If a document lacks a clear organization, incomprehensible names, keywords and the complication of finding the relevant information in the document, that document is considered impractical. (Kreimeier, 2002)

1.6.1 Game Design Pattern Elements. Kreimer (2002) and Gamma et al. (1994) indicate that a pattern contains four elements:

1.6.1.1 Name. As the name suggests, this element contains the name of the pattern. In other words, a design pattern name is an occasion that we can use to describe a problem. (Gamma, Helm, Johnson, & Vlissides, 1994, p. 3). Also, Gamma et al. (1994) continue that, finding a good name is one of the hardest parts of developing a design pattern.

1.6.1.2 Problem. The problem explains when the design can be applied to a certain situation. It explains the problem itself and its main concept. At times, the problem can contain a list of conditions that must be met before applying this specific pattern (Gamma, Helm, Johnson, & Vlissides, 1994, p. 3).

1.6.1.3 Solution. The solution explains how we came up with a solution to the problem that we specified. This solution generally does not describe a concrete implementation or design because the template we created can also be used in many other

different situations. So basically, a solution to a problem simply provides an abstract description of the problem and how to solve it by using a general arrangement of elements (Gamma, Helm, Johnson, & Vlissides, 1994).

1.6.1.4 Consequences. Consequences are the things like trade-offs and results when we apply the pattern that we found. This helps to understand the trade-offs and benefits of this pattern if we apply it to the situation that we are in (Gamma, Helm, Johnson, & Vlissides, 1994).

There can be also a section called “References”, which can specify the origins of the problem. We can see an example of a design pattern that we can create using these titles as a reference:

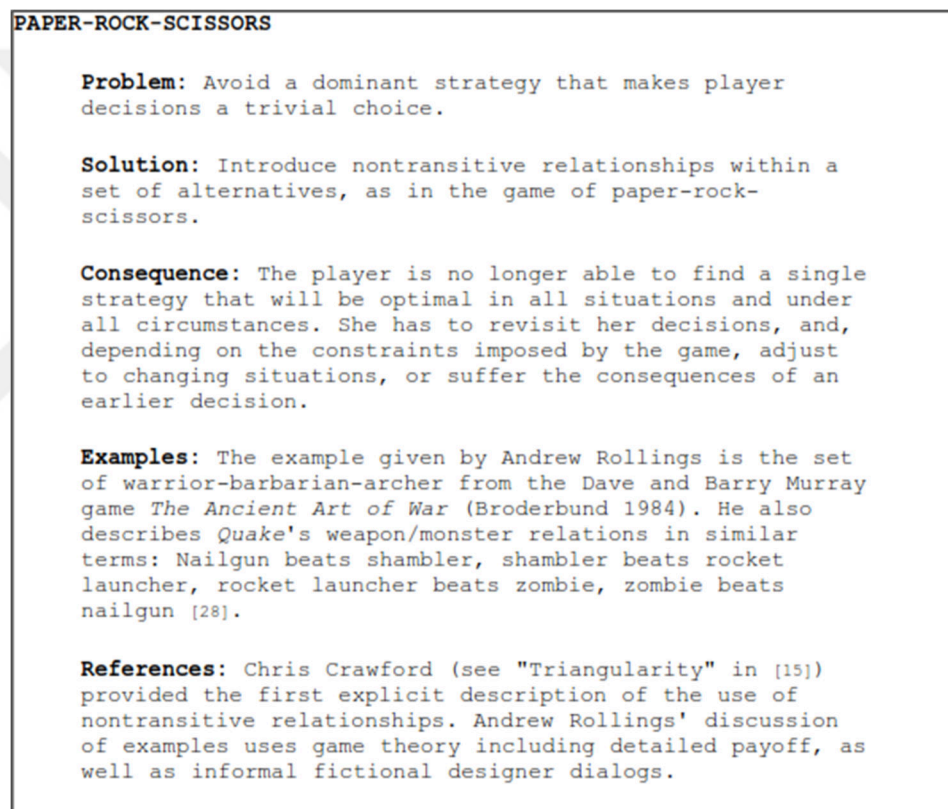


Figure 2. An example of a game design pattern (Kreimeier, 2002)

You can see an example of an implementation of the Paper-Rock-Scissors game using the elements that we discussed. As we can see, this pattern starts with a problem: to avoid a dominant strategy when players decide on their moves in the game. There is a solution to create a nontransitive relationship like paper-rock-scissors. We can see the consequences of this application of pattern, and we can see an example of an application in a situation.

1.6.2 Application of Game Design Patterns. This pattern implementation can be used in many ways in the game design field. Unlike the other patterns that are created for other purposes, the game design pattern does not propose a single use case for this pattern. This pattern can be a tool or a guideline to be used in several ways and reasons (Björk, Lundgren, & Holopainen, 2003). Björk et al. (2003) say that this pattern can be used as a tool because this can be used in different disciplines which have different working principles and methods. They are giving some examples of usages as below:

1.6.2.1 Idea Generation. Game makers may utilize the patterns to get ideas by randomly selecting a set and imagining a game utilizing them. In this approach, a different kind of game design pattern can be used to find a more novel way.

1.6.2.2 Game Concept Development. The time a game designer or developer creates an initial game mechanic or concept, that concept can be developed with the patterns. That game design can be divided into sub-patterns, like smaller patterns, to maintain and develop that concept easier and to make it more intractable.

1.6.2.3 Pre-Production Process. Using a pattern while designing a game can have a huge help while presenting the idea to other people. Aside from allowing for a systematic explanation of the design, justifications for specific design decisions (expressed as patterns) may be accomplished by relating to other games which use the same patterns or detailing how substituting the pattern with alternative patterns might modify the prototype.

1.6.2.4 Analysing Games. Existing games can be easily analysed using the existing pattern collection. We can iterate the collection of patterns to check if the pattern in the game exists or not. The information about the game may be obtained to examine whether unique features were incorporated, or previously discovered sub-patterns are used to generate a pattern.

1.7 Sound Deck of Cards

In current times, expertise in sound design in games is mostly tacit and held by senior professionals, who mostly work with resourceful teams (Sider, Sider, & Freeman, 2003; Marks, 2009; Alves & Roque, 2013). Because of that, independent game companies are having a hard time designing sound in their games.

Using the game design pattern technique described in the previous section, Alves, and Roque (2013) came up with a design pattern that can be used for sound design in games to help indie game developers to create the sound for their games easier.

According to Alves (2012), there are several reasons this research has taken place. One of the reasons is that since sound is so important that developers who are considered average can be able to master sound design in games. The second reason behind this is that these developers we call “average” represent most of the game developer environments. The third reason is that since independent games are more complex and innovative than big-budget games, they need a more robust guideline to design the sound in their games (Denooz, Thom, & Buck, 1998; Campbell, 2012; Alves, 2012).

Using this patterned format as a base, Alves, and Roque (2013) created a deck that consist of sound design choices in the games with changing some of the fields in the original pattern. Alves and Roque (2010) call this approach “Seminal Pattern Collection”. This pattern consists of 6 fields: Context, Problem, Solution, Examples, and Relations. We can see this pattern as a base for our actual deck that is created by Alves and Roque. You can see an example of how it is used below:

Name: Sound Layers and Semantics Context: In a project with a holistic approach to sound, it is necessary to manage diverse sound purposes that imply different categories of decisions. Problem: It is hard to manage the amount of decisions and implementation aspects regarding sound to consider in the course of a project. Yet, it is imperative to have an early perception of what kind of sounds can be designed. Also, it is fundamental that coherent treatment is assured for aspects that share close semantic relationship. Solution: Sounds can be structured in layers according to its semantics and communicative purpose: • Dialog: characters' discourse about the action; communicates story, what characters think and what they feel. • Music: sets the emotional tone of the scene; tells the audience what to feel. • Foley: sound of actions; makes visual field more believable or enhances perception of ongoing actions. • Ambiance: sounds of the environment; tells the audience where the action takes place; usually perceived when other layers are absent or low volume; • Sound effects: make abstract or imaginary objects concrete (e.g., sound of a laser sword) by enabling a multisensory perception. The differentiations evidenced by the layers do not compromise a holistic perspective on the decisions and developments regarding all layers. The idea is not to set things apart but rather to deal with specificities in sound production, exposing the agenda of opportunities [3, 4], always according to a coherent overall plan. It also helps organizing the job of audio professionals, which is interesting in terms of project management. Examples: These layers have been presented and adopted by sound designer Nick Peck [28, 29]. Other authors have evidenced to follow similar structure, in practice. The structure in layers has long been adopted in cinema, which, being a neighbor domain, has inspired several practices in game sound design. Relations: For example, this pattern calls for further addressing of each level's specificities, which is arranged through the patterns <i>Dialog</i>, <i>Music</i>, <i>Foley</i>, <i>Ambiance</i>, and <i>Sound Effects</i>. <i>Foley</i> is presented in this paper; the other patterns are to be specified. The concerns expressed in the solution also call for the pattern <i>Coherence</i> (to be defined), which includes aspects of overall coherence.

Figure 3. An example of Seminal Pattern Collection (Alves & Roque, 2010)

Using this pattern as a base, Alves and Roque created a new pattern that is used for creating the sound deck. The fields of this pattern are Name, Synopsis, Relationships, Description, Examples, Additional Comments, External Sources, References, Revisions, and Confidence Level. You can see the table below:

Table 1

An example of an updated Seminal Pattern Collection (Alves, 2012)

Field	Type of Contents
Name	
Synopsis	Shortest possible description
Relationships	Categorized list
Description	Description
Examples	Movies with descriptions
Additional Comments	Description
External Resources	Commented list
References	List
Revisions	List
Confidence Level	Expression

Alves (2012) explains each of the fields below:

1.7.1 Name. This is the name of the pattern that we are reading or researching. Since a name can be an expression for viewers' vocabulary, selecting a good name is a strategic choice. (Gamma, Helm, Johnson, & Vlissides, 1994; Borchers, 2000; Sharp, Rogers, & Preece, 2007; Alves, 2012).

1.7.2 Synopsis. A synopsis is a short description of the card itself. Mostly, this part includes the solution of how we solve the problem that we are facing. In cards, instead of starting with "Contribution of sound..." for the synopsis field, this replication is eliminated for better readability.

1.7.3 Relationships. This field refers to the relationships between other patterns that are created. This field consists of four sub-fields which are *Context*, *may relate to*, *differs from*, and *makes use of*.

1.7.4 Description. This field adds a detailed description and content to the pattern that we are using.

1.7.5 Examples. Most of the time, it's hard to understand a pattern without examples. This field helps us to understand the pattern with the examples from the games that are used to create this pattern. For the examples, not more than 30-second gameplay

clips are recorded by Alves and Roque.

1.7.6 Additional Comments. This field is used mainly for a piece of information that cannot fit into any other field in the pattern. This field is mostly used for the additional descriptions of the pattern.

1.7.7 External Resources. This field is nearly the same as the “*Additional Comments*”, but mostly a redirection link to other sources like articles, interviews, or other sources is included.

1.7.8 References. This field is typically holding references to the papers and articles that are used in other fields.

1.7.9 Revisions. This field consists of the revisions of this pattern, mostly what and when a part of the pattern is changed and the reason for the change.

1.7.10 Confidence Level. This field is used to define the level of confidence of the pattern itself. Most of the time, these patterns that we create are called “candidates” before this pattern is recognized by the community of applicants. However, this field is not considered as important, and it is not taken advantage of right now.

You can see an example of a card that you can see the examples and a little explanation of the design pattern:



Figure 4. An example of a Sound Card (Alves & Roque, 2013)

In its current state, version 2.0, the Pattern Language consists of a network of 81 design patterns (Alves & Roque, 2013). Also, each of these cards' connections between them (like May Use or Differs From) is included in the research.

Chapter 2

Methodology

In this research, I would like to add an example to the cards that have been already found. After that, I will try to find new sound design decisions to find new candidate cards for the Deck by analysing the Dead Space franchise by following the pattern format that is created by Alves and Roque (2010).

2.1 How to Analyse the Games?

Firstly, we will find try to find examples of the currently existing cards. To analyse the game, as stated by (Aarseth, 2003) there are three main ways of acquiring knowledge about a game:

- First, we may investigate the game's rules, mechanics, and design to the extent that they are accessible to all of us, for example, by speaking with the developers of the game that we are researching.
- Second, we may watch other people play or study their assessments and comments, hoping that their expertise is reflected, and their play is effective.
- Thirdly, the researchers can play the game themselves.

For this research, the third approach, which is playing games by ourselves, will be used to acquire knowledge about Dead Space sound design.

As stated by (Aarseth, 2003), In gathering information about the game, we should use as many sources as possible. For this purpose, we will use Alves and Roque's (2013)'s design pattern that is created specifically for sound design. While creating this pattern, the "*harvesting*" method is used (Björk, Lundgren, & Holopainen, 2003). The steps of this methodology consist of five steps: recognize, analyse, describe, test, and evaluate.

- The recognition step generates a rapid pattern candidate collection centred on a specific notion or interaction region.
- The collection is then analysed by explaining how the pattern is employed in sample games, then attempting to exclude the pattern from the games and describing how it might affect gameplay.

- The pattern will be explained by using the pattern template that was created.
- The candidate then will be validated by developing a simple prototype game based on the pattern.
- Lastly, the pattern will be evaluated by looking at the sufficiency and usefulness of the description as criteria.

As we try to find new candidates for the deck, we will start from the “recognize” state to the “describe” state, because here we are only trying to find a simple candidate with only one example that we can show and create a game prototype is out of this thesis’s topic. When we try to find new examples for the existing cards, we will use only the “analyse” part of the method, since we are only trying to find new examples.

2.1 Which Games Will Be Used?

While acquiring data from Dead Space by “playing the game by ourselves”, each game, Dead Space 1, Dead Space 2, and Dead Space 3, will be recorded from beginning to end and the videos will be divided into chapters of the games. In other words, every video file we recorded will include a chapter of the game. After that, the game will be analysed using the “*harvesting*” technique, the same as Alves and Roque (2013)’s proceeding.

As for the games, we will use Dead Space 1 as our primary game, and we will look for examples and possible new candidates for the deck from Dead Space 1 to prevent excessive and unnecessary data that can be found from Dead Space 2 and Dead Space 3. If there are some cards that we could not find an example to the current cards from Dead Space 1, then we will look for Dead Space 2 and if we still have some cards that we could not find an example, we will look for the Dead Space 3 for the examples. The same structure will be applied to find a new candidate for the deck.

Chapter 3

Analysing the Games for the Deck

As we gather data from the game, we will record the scenes for the examples. Each recording will be 30 seconds long, but we will provide the beginning point of the example in the format MM: SS (Minute: Second). We will also explain the scene where the example happens, to clarify the exact point in the scene. The cards are sorted in the order that they appear in the game. When we found all examples from Dead Space 1, we will switch to Dead Space 2, and when we found all examples from Dead Space 2, we will switch to Dead Space 3.

3.1 Cards That Have Been Found

3.1.1 Title Screens

Explanation of the Card: Sounds that have been used when the game is presented at the opening.

Game Name: Dead Space 1

File Name: Dead Space 1 - Title Screens.mp4

Starting From: 00:00

Explanation of the Scene: When we open the game, we can hear and see the title screen sound effects.

Screenshot:



Figure 5. Screenshot for “Title Screens” scene.

3.1.2 Menus

Explanation of the Card: Sounds that have been used in the menus.

Game Name: Dead Space 1

File Name: Dead Space 1 - Menus.mp4

Starting From: 00:00

Explanation of the Scene: When we open the game, we can see the menu screen and the interactions of the user interface elements. Also, there is a tense sound in the background to prepare the player for the game itself.

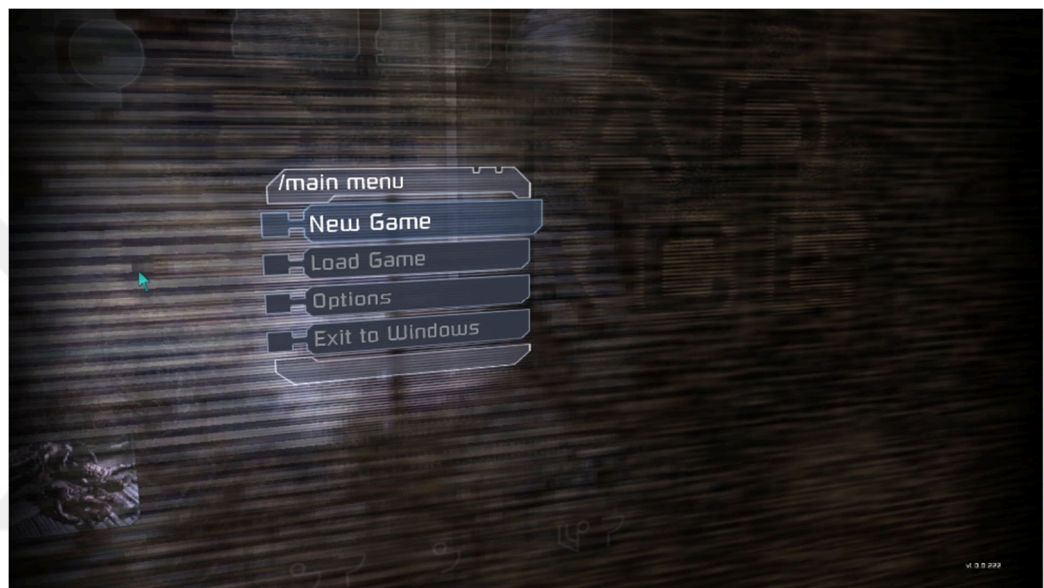


Figure 6. Screenshot for “Menus” scene.

3.1.3 Revelation

Explanation of the Card: Indicates an encounter or encounter of something special.

Game Name: Dead Space 1

File Name: Dead Space 1 - Revelation.mp4

Starting From: 00:13

Explanation of the Scene: At the beginning of the first chapter, we are in a spaceship, trying to locate a spaceship called USG Ishimura. After the player has visual contact with the spaceship, a piece of glorious music plays to indicate that player has discovered something special. In this case, the ship that the entire game is all about.

Screenshot:



Figure 7. Screenshot for “Revelation” scene.

3.1.4 Music

Explanation of the Card: Any kind of music that has been used in the game.

Game Name: Dead Space 1

File Name: Dead Space 1 - Music.mp4

Starting From: 00:03

Explanation of the Scene: After we crash into the USG Ishimura, we will leave the ship that we used to come to the spaceship. After Chief Officer Zach Hammond starts to talk, a piece of slow but tense music starts.

Screenshot:

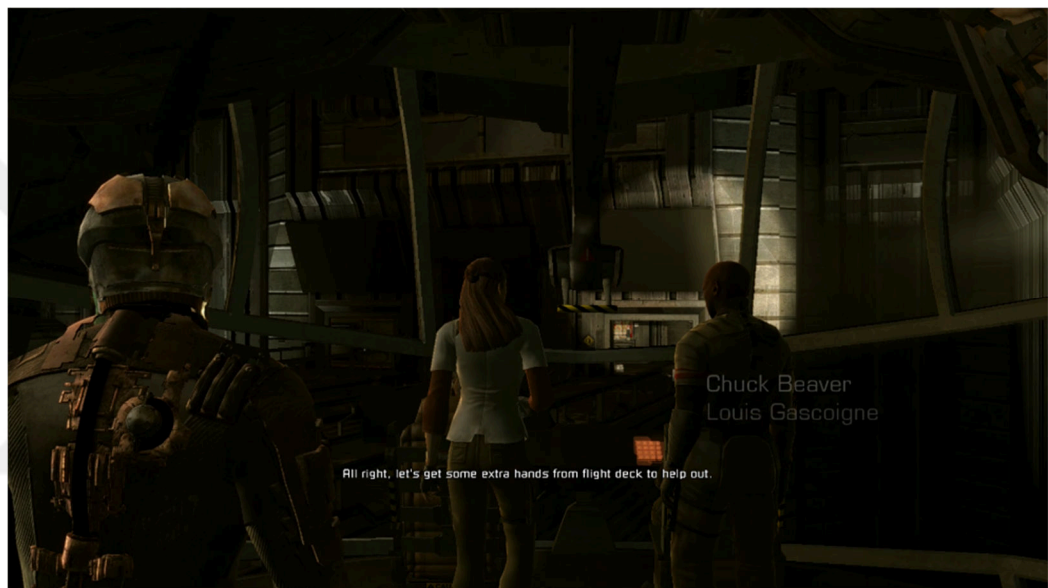


Figure 8. Screenshot for the beginning of the “Music” scene.

3.1.5 Achievement

Explanation of the Card: Giving positive feedback sounds like something has been achieved.

Game Name: Dead Space 1

File Name: Dead Space 1 – Achievement.mp4

Starting From: 00:31

Explanation of the Scene: When we complete an objective, we can hear a positive sound that indicates that we have completed the objective, followed by the “Objective Complete” text.

Screenshot:



Figure 9. Screenshot for “Achievement” scene.

3.1.6 R-A-E-D Iterations (Relaxation, Anticipation, Engagement, Decay)

Instead of finding individual examples for Relaxation, Anticipation, Engagement, and Decay, we will use all these four elements of this card and come up with an example that supports all these 4 cards. It is safe to mention that R-A-E-D iterations relate to these four cards. So, it is not odd to give one example that includes all of them.

Explanation of the Card: Application of the sequence: Relaxation (Resting state of the player) → Anticipation (Signalling that an engagement is approaching) → Engagement (phase of conflict) → Decay (Re-relaxation state after an engagement).

Game Name: Dead Space 1

File Name: Dead Space 1 – R-A-E-D Iterations.mp4

Starting From: 00:04

Explanation of the Scene: At the beginning of the video, we are in an elevator, which is a Relaxation state. After the elevator door opens, we can see a Necromorph at the end of the hallway appears with a stimulus sound effect that you can hear, and that is the Anticipation state. After seeing that again, Engagement starts with horrific music. After clearing all the Necromorphs, the Decay state starts where the engagement music disappears, and then, we return to the Relaxation state.

Screenshot:



Figure 10. Screenshot for the beginning of the “R-A-E-D Iterations” scene.

3.1.7 Sound Effects (SFX)

Explanation of the Card: Sounds that define imaginary or abstract objects or behaviours.

Game Name: Dead Space 1

File Name: Dead Space 1 – Sound Effects.mp4

Starting From: 00:02

Explanation of the Scene: We can hear Telekinesis SFX that Isaac uses to move objects with the Telekinesis module that he obtained. In normal life, Telekinesis doesn't exist, so a sound effect is created to define that object and the behaviour.

Screenshot:



Figure 11. Screenshot for “Sound Effects” scene.

3.1.8 Voice Acting

Explanation of the Card: Vocal performance of the characters and narrators if any.

Game Name: Dead Space 1

File Name: Dead Space 1 – Voice Acting.mp4

Starting From: 00:02

Explanation of the Scene: Non-playable characters in Dead Space frequently talk with Isaac using video communication. In this scene, Chief Officer Zach Hammond explains our next objective.

Screenshot:



Figure 12. Screenshot for the beginning of the “Voice Acting” scene.

3.1.9 Heartbeat

Explanation of the Card: Perceivable sound of a heartbeat.

Game Name: Dead Space 1

File Name: Dead Space 1 – Heartbeat.mp4

Starting From: 00:02

Explanation of the Scene: We can hear Isaac's heartbeat sound while we are out into the space. Also, as the oxygen level decreases, we can hear that heartbeat becomes faster.

Screenshot:



Figure 13. Screenshot for “Heartbeat” scene.

3.1.10 Awareness

Explanation of the Card: A sound that indicates some relevant information for gameplay.

Game Name: Dead Space 1

File Name: Dead Space 1 - Awareness.mp4

Starting From: 00:00

Explanation of the Scene: When we go out into the space where there is no air, our suit's breathing system is activated. When the player has not much time left to completely run out of air in the suit, Isaac starts to breathe a little bit heavy and the “beep” sound that we hear to indicate the countdown becomes more hearable.

Screenshot:



Figure 14. Screenshot for “Awareness” scene.

3.1.11 Hurry Up

Explanation of the Card: A stimuli that give the player the feeling of urgency.

Game Name: Dead Space 1

File Name: Dead Space 1 - Hurry Up.mp4

Starting From: 00:02

Explanation of the Scene: When we go out into the space where there is no air, our suit's breathing system is activated. When the player has a little time left to completely run out of air in the suit, Isaac starts to breathe more heavily than usual and the “beep” sound that we hear to indicate the countdown becomes much tenser.

Screenshot:



Figure 15. Screenshot for “Hurry Up” scene.

3.1.12 Helper Voice

Explanation of the Card: Giving guidance to the player using disembodied entities.

Game Name: Dead Space 1

File Name: Dead Space 1 – Helper Voice.mp4

Starting From: 00:04

Explanation of the Scene: When we are doing an action in the game for the first time, a lady tells us about that action, in other words, she explains to us the specific condition that we are in. In this case, the first time we are entering a zero-gravity zone.

Screenshot:



Figure 16. Screenshot for “Helper Voice” scene.

3.1.13 Affected Hearing

Explanation of the Card: Simulates hearing impairment.

Game Name: Dead Space 1

File Name: Dead Space 1 – Affected Hearing.mp4

Starting From: 00:04

Explanation of the Scene: When we go out into space, our hearing capability is drastically decreased since we cannot hear anything in space. However, in the game, we can hear the sounds in the space as the low pass filter has been applied to the sound.

Screenshot:



Figure 17. Screenshot for “Affected Hearing” scene.

3.1.14 Footsteps

Explanation of the Card: Sound of a footstep of any kind of entity in the game.

Game Name: Dead Space 1

File Name: Dead Space 1 – Footsteps.mp4

Starting From: 00:02

Explanation of the Scene: In the scene, we can hear the footstep of Isaac, both walking and running on a metal surface.

Screenshot:



Figure 18. Screenshot for “Footsteps” scene.

3.1.15 Time Twist

Explanation of the Card: Manipulating the sound so that it gives the feeling of time manipulation.

Game Name: Dead Space 1

File Name: Dead Space 1 – Time Twist.mp4

Starting From: 00:03

Explanation of the Scene: In the game, we can use the “Stasis Module” to slow down fast objects like broken doors, enemies etc., instead of slowing down everything. We can hear that slowed down object’s sound is also slowed down, with an additional SFX that indicates that the object is in stasis.

Screenshot:



Figure 19. Screenshot for the exact time that we apply stasis for the “Time Twist” scene.

3.1.16 Subtitles and Captions

Explanation of the Card: Texts that specify that occurring voiceovers or sounds.

Game Name: Dead Space 1

File Name: Dead Space 1 – Subtitles and Captions.mp4

Starting From: 00:01

Explanation of the Scene: We can find audio recordings scattered around the game to tell the backstory of the game. We can see the subtitles while the people in the audio log speak.

Screenshot:



Figure 20. Screenshot for “Subtitles and Captions” scene.

3.1.17 Acoustic Ecology

Explanation of the Card: The mixture of sounds that can be heard in the game.

Game Name: Dead Space 1

File Name: Dead Space 1 – Acoustic Ecology.mp4

Starting From: 00:01

Explanation of the Scene: Dead Space’s sound mixture is mostly environment sounds, SFX that has been created for interactions, which has a lot more than foley sounds since most of the objects or interactions in the game are abstract, and more. We can hear most of the sounds in this scene: Voiceovers, footsteps, environment, user interface sounds and more.

Screenshot:



Figure 21. Screenshot for “Acoustic Ecology” scene.

3.1.18 Death

Explanation: Sounds that are used to delineate death.

Game Name: Dead Space 1

File Name: Dead Space 1 – Death.mp4

Starting From: 00:09

Explanation: If you cannot lose yourself from the Necromorphs that grabbed you, a cutscene will start to show the player the death scene, with a bloody screen and a cardiac arrest sound.

Screenshot:



Figure 22. Screenshot for “Death” scene.

3.1.19 Silence

Explanation: Not hearing any sound effects or music, only naturally created sounds like breathing, ventilation etc.

Game Name: Dead Space 1

File Name: Dead Space 1 – Silence.mp4

Starting From: 00:03

Explanation: When we enter this specific room, the only thing that we can hear is the main character's breathing sound and the ventilation of the room. Also, we can hear some person whispering to Isaac.

Screenshot:



Figure 23. Screenshot for “Silence” scene.

3.1.20 Recordings

Explanation: Pre-recorded logs that have scattered around the game world.

Game Name: Dead Space 1

File Name: Dead Space 1 – Recordings.mp4

Starting From: 00:00

Explanation: In the game, we can find audio logs that are scattered all around the game world, to learn more about the backstory of the game.

Screenshot:



Figure 24. Screenshot for “Recordings” scene.

3.1.21 Ambiance

Explanation: Sounds of the environment.

Game Name: Dead Space 1

File Name: Dead Space 1 – Ambiance.mp4

Starting From: 00:02

Explanation: In this scene, we are in the engine part of the ship, so from the environment, we can hear all the mechanical sounds that we can feel that we are in a mechanical place.

Screenshot:



Figure 25. Screenshot for “Ambience” scene.

3.1.22 Grunts

Explanation: Indicates physical conditions or actions that a creature or person utters.

Game Name: Dead Space 1

File Name: Dead Space 1 – Grunts.mp4

Starting From: 00:03

Explanation: Isaac does not have any voiceovers in the game, but we can hear his struggles and grunts in the game while stomps on or fights with Necromorphs.

Screenshot:



Figure 26. Screenshot for “Grunts” scene.

3.1.23 Breath

Explanation: Breathing sound of living things.

Game Name: Dead Space 1

File Name: Dead Space 1 – Breath.mp4

Starting From: 00:01

Explanation: Isaac breaths constantly in the game. However, the most distinguishable breaths can be heard while we are in space.

Screenshot:



Figure 27. Screenshot for “Breath” scene.

3.1.24 Noise

Explanation: Perceiving a noise in the environment.

Game Name: Dead Space 1

File Name: Dead Space 1 – Noise.mp4

Starting From: 00:02

Explanation: After we restart the engines of USG Ishimura, we can hear a noise that is coming from the engines that suppress nearly every sound in the scene.

Screenshot:



Figure 28. Screenshot for “Noise” scene.

3.1.25 Ouch!

Explanation: Gives a damaging or painful signal.

Game Name: Dead Space 1

File Name: Dead Space 1 – Ouch.mp4

Starting From: 00:04

Explanation: When Isaac takes a hit from the Necromorphs, we can hear his pain using his “Grunts”.

Screenshot:



Figure 29. Screenshot for “Ouch!” scene.

3.1.26 Aesthetics

Explanation: The aesthetic of the sounds that are used in the game's sound design.

Game Name: Dead Space 1

File Name: Dead Space 1 – Aesthetics.mp4

Starting From: 00:00

Explanation: Sound design in Dead Space is a mixture of tense and mystical music, science fiction sound effects, in other words, futuristic sound effects that gives life to the abstract objects that are only available in the Dead Space universe, and the Necromorphs' natural grunts and yells. This scene shows the mixture of all the premises above and shows how the aesthetics of the Dead Space sound design.

Screenshot:



Figure 30. Screenshot for “Aesthetics” scene.

3.1.27 Trance

Explanation: Usage of sound to give the feeling of deep immersion or a flow of gameplay. Note that this card is deeply related to gameplay.

Game Name: Dead Space 1

File Name: Dead Space 1 – Trance.mp4

Starting From: 00:04

Explanation: In this scene, Isaac needs to destroy some asteroids manually until Zach Hammond reactivates the auto-targeting system for the weapon that destroys the asteroids. Music in the background and the sound of the turret keeps us in a trance until the auto-targeting system is activated.

Screenshot:



Figure 31. Screenshot for “Trance” scene.

3.1.28 No Can Do

Explanation: Beckons that something is not possible to do.

Game Name: Dead Space 1

File Name: Dead Space 1 – No Can Do.mp4

Starting From: 00:01

Explanation: There are some doors that Isaac cannot open. That is indicated with a red door and a sound that implies that is impossible to open that door.

Screenshot:



Figure 32. Screenshot for “No Can Do” scene.

3.1.29 Dialogue

Explanation: Any kind of conversation in the game.

Game Name: Dead Space 1

File Name: Dead Space 1 – Dialogue.mp4

Starting From: 00:01

Explanation: Isaac does not speak throughout the entire game. So, if an NPC talks with us, there is only that NPC or multiple NPCs that talk to each other. In this scene, we meet with Challis Mercer, who is a scientist that believes in Unitology, the religion that has been created for the Black Marker.

Screenshot:

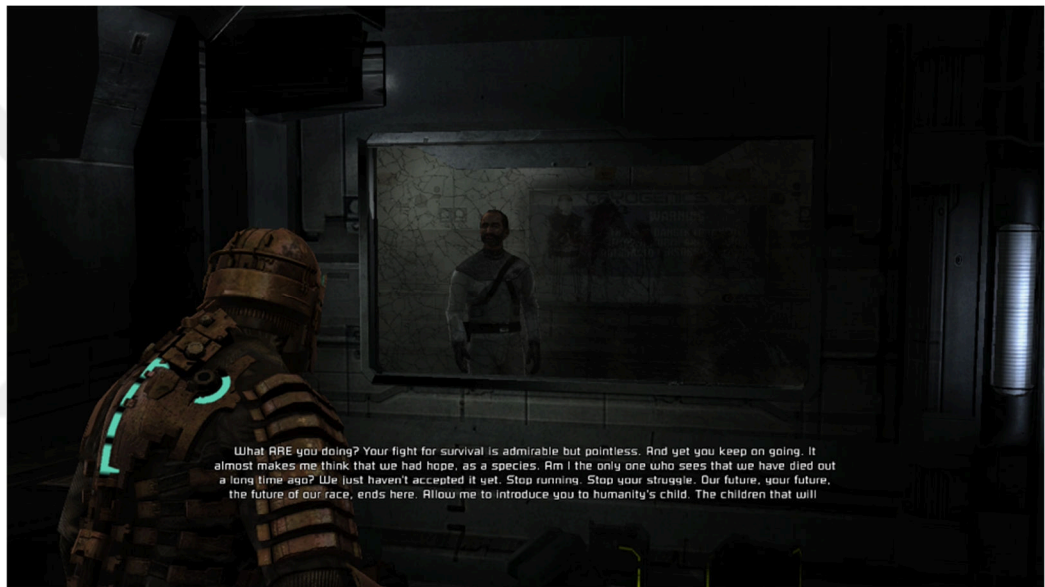


Figure 33. Screenshot for “Dialogue” scene.

3.1.30 Foley

Explanation: Sounds that characterize an event or an entity. Compared with Sound Effects, these sounds are not invented, but instead, they are recorded in a studio using real objects.

Game Name: Dead Space 1

File Name: Dead Space 1 – Foley.mp4

Starting From: 00:01

Explanation: There are not many Foleys in the game, since this game is science fiction, so most of the objects, interactions and events are not real. However, there are some dismemberment sounds and walking sounds that are considered foley. In this scene, Isaac is grabbed by a Tentacle and tries to escape from it. After hitting the weak spot of the Tentacle, we can hear the dismemberment sounds, and since the floor is covered with flesh, we can hear footsteps different from normal footsteps. According to Dead Space’s foley artist Don Veca, they used a bunch of fruits and vegetables to create these foleys (Reeves, 2009).

Screenshot:



Figure 34. Screenshot for “Foley” scene.

3.1.31 Directionality

Explanation: Finding a sound source using the direction of the source.

Game Name: Dead Space 1

File Name: Dead Space 1 – Directionality.mp4

Starting From: 00:04

Explanation: In this part of the game, we need to find some Necromorphs that create poison gas and make it hard to breathe. We need to find them from their breathing, and we need to listen to where they are coming from.

Screenshot:



Figure 35. Screenshot for “Directionality” scene.

3.1.32 Identification

Explanation: Recognize an entity in the game with its sound prints, in other words, their distinguished sounds.

Game Name: Dead Space 1

File Name: Dead Space 1 – Identification.mp4

Starting From: 00:03

Explanation: There is a Necromorph called Exploder in the game. When it appears in the game, we can identify that creature with its unique scream. If we hear that scream, we can understand that an Exploder is in the scene.

Screenshot:



Figure 36. Screenshot for “Identification” scene.

3.1.33 Variety

Explanation: Being able to trigger sounds that complete the experience of the game. Actions, objects and character sounds are in this category, along with Foley and Dialogue.

Game Name: Dead Space 1

File Name: Dead Space 1 – Variety.mp4

Starting From: 00:01

Explanation: In this scene, we can see that even though we are talking with Kendra Daniels, we can do other stuff and hear them clearly, along with Music, Foley and Sound Effects. This mixing gives a more complete experience in the game.

Screenshot:



Figure 37. Screenshot for “Variety” scene.

3.1.34 Character Soundprint

Explanation: The sound set of the NPC or PC.

Game Name: Dead Space 1

File Name: Dead Space 1 – Character Footprint.mp4

Starting From: 00:01

Explanation: Isaac's character sound print consists of Grunts like taking damage, hitting the Necromorph with his fists and stomping and Footsteps. In this scene, we can hear all the sounds that Isaac utters, along with the basic Necromorphs with their screams, dismemberment sounds, blocking the attack sound and attack sound.

Screenshot:



Figure 38. Screenshot for “Character Soundprint” scene.

3.1.35 Shout and Yell

Explanation: Loud demonstration of aggression.

Game Name: Dead Space 1

File Name: Dead Space 1 – Shout and Yell.mp4

Starting From: 00:01

Explanation: When Necromorphs identify Isaac, they start to shout and yell and run towards him to attack.

Screenshot:



Figure 39. Screenshot for “Shout and Yell” scene.

3.1.36 Dubbing

Explanation: Replacing the original voiceovers of the character to use them in another language.

Game Name: Dead Space 1

File Name: Dead Space 1 – Dubbing.mp4

Starting From: 00:01

Explanation: In this scene, we can hear Kendra Daniels's French dubbing.

Screenshot:



Figure 40. Screenshot for “Dubbing” scene.

3.1.37 Contextual Music

Explanation: Music that takes place at specific levels or events.

Game Name: Dead Space 1

File Name: Dead Space 1 – Contextual Music.mp4

Starting From: 00:05

Explanation: After we realign the satellites for an objective in the game, we can hear relaxing music while we are in that room of satellites. That music disappears after we leave that room.

Screenshot:



Figure 41. Screenshot for “Contextual Music” scene.

3.1.38 Narrative

Explanation: Addition of sounds that tells the game's story.

Game Name: Dead Space 1

File Name: Dead Space 1 – Narrative.mp4

Starting From: 00:00

Explanation: Isaac does not speak throughout the entire game. So, if an NPC talks with us, there is only that NPC or multiple NPCs that talk to each other. In this scene, we are witnessing that Kendra Daniels, the specialist who was with Isaac since the beginning of the game, betrays us and leaves the USG Ishimura without us. Then, Nicole, Isaac's girlfriend, contacts us to help her.

Screenshot:



Figure 42. Screenshot for “Narrative” scene.

3.1.39 Cutscenes

Explanation: Sound that added to the cinematic parts of the game.

Game Name: Dead Space 1

File Name: Dead Space 1 – Cutscenes.mp4

Starting From: 00:00

Explanation: From its design, Dead Space doesn't have cutscenes in the game, but there is one before the last boss fight starts. We can see that Hive Mind, the last boss's name, kills Kendra and then screams at us to start the fight.

Screenshot:



Figure 43. Screenshot for “Cutscenes” scene.

3.1.40 Diegetic Music

Explanation: Music that you can hear in the game's world, rather than background music.

Game Name: Dead Space 2

File Name: Dead Space 2 – Diegetic Music.mp4

Starting From: 00:09

Explanation: When we enter a corridor which has child shops and playgrounds, we can hear the music that is coming from there.

Screenshot:



Figure 44. Screenshot for “Diegetic Music” scene.

3.1.41 Beacon Locator

Explanation: Items in the game that generates sound to find their locations easier. For some games, this pattern is used for locating the enemies nearby.

Game Name: Dead Space 2

File Name: Dead Space 2 – Beacon Locator.mp4

Starting From: 00:13

Explanation: In Dead Space 2, a new Necromorph was introduced: Cyst. This Necromorph emits a sound to locate them easily. Since they cannot move and they are stuck on the flat ground, we need to listen to the sound they make to find them easily, because most of the time it is hard to find them by just looking for them since they are stuck to the ground that is hard to find.

Screenshot:



Figure 45. Screenshot for “Beacon Locator” scene.

3.1.42 Failure

Explanation: Gives feedback on something negative.

Game Name: Dead Space 2

File Name: Dead Space 2 – Failure.mp4

Starting From: 00:09

Explanation: In chapter 7, we need to find a puzzle that is reordering the magnetized materials to deactivate the electric shield of a place. If we place the magnetized material wrong, it plays a failure sound and a red light to indicate that it was placed in the wrong socket.

Screenshot:



Figure 46. Screenshot for “Failure” scene.

3.1.43 Chitchat

Explanation: Dialogues in the game that doesn't carry vital information to the game's story.

Game Name: Dead Space 2

File Name: Dead Space 2 – Chitchat.mp4

Starting From: 00:17

Explanation: In the Dead Space series, we cannot hear people talking with each other since the game's prime objective is to give the feeling of loneliness to increase the tension of the player. However, there is only one scene in which we can hear a little chat between supporting characters, Ellie and Stross, that fight with each other behind the door.

Screenshot:

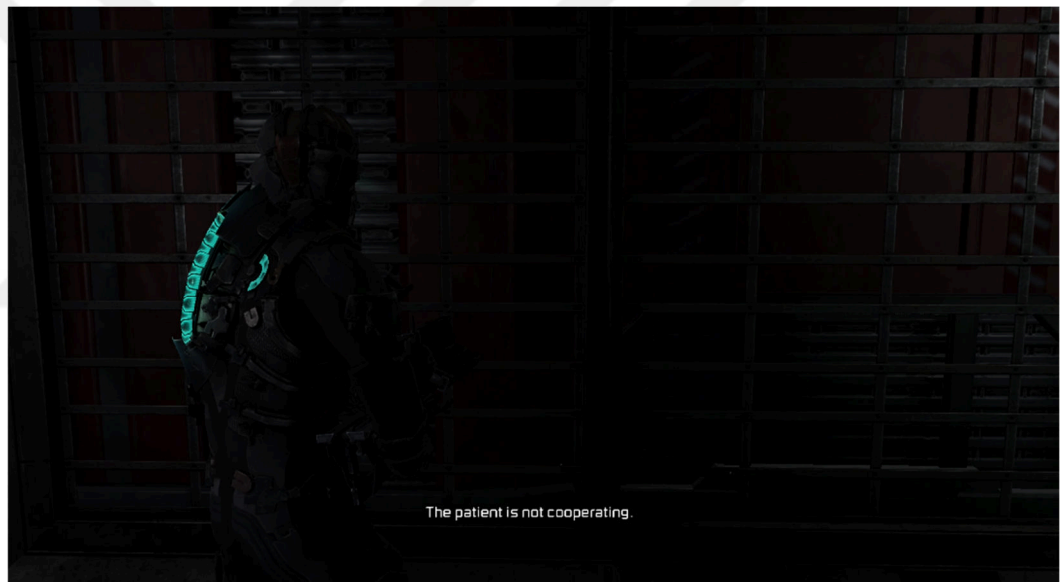


Figure 47. Screenshot for “Chitchat” scene.

3.1.44 Emotional Script

Explanation: Sounds that are used to bring out the emotions in ongoing experience.

Game Name: Dead Space 2

File Name: Dead Space 2 – Emotional Script.mp4

Starting From: 00:06

Explanation: There is one scene in Dead Space 2 where Isaac lets Ellie go on her own to save her and leaves himself behind to destroy the Marker in the Sprawl. The music, Isaac's, Ellie's and Nicole's voiceovers contribute to delivering that emotional scene.

Screenshot:



Figure 48. Screenshot for “Emotional Script” scene.

3.1.45 Thoughts

Explanation: Hearing what a character is thinking right now.

Game Name: Dead Space 2

File Name: Dead Space 2 – Thoughts.mp4

Starting From: 00:06

Explanation: Normally, Isaac doesn't talk with himself to reveal what he is thinking about at that moment. The only scene that happens in Dead Space 2 is after we let Ellie go and we have no one to talk to from the comms. When Isaac sees the lasers that he cannot stop with Statis Module, we can hear him tell the player how we should proceed.

Screenshot:

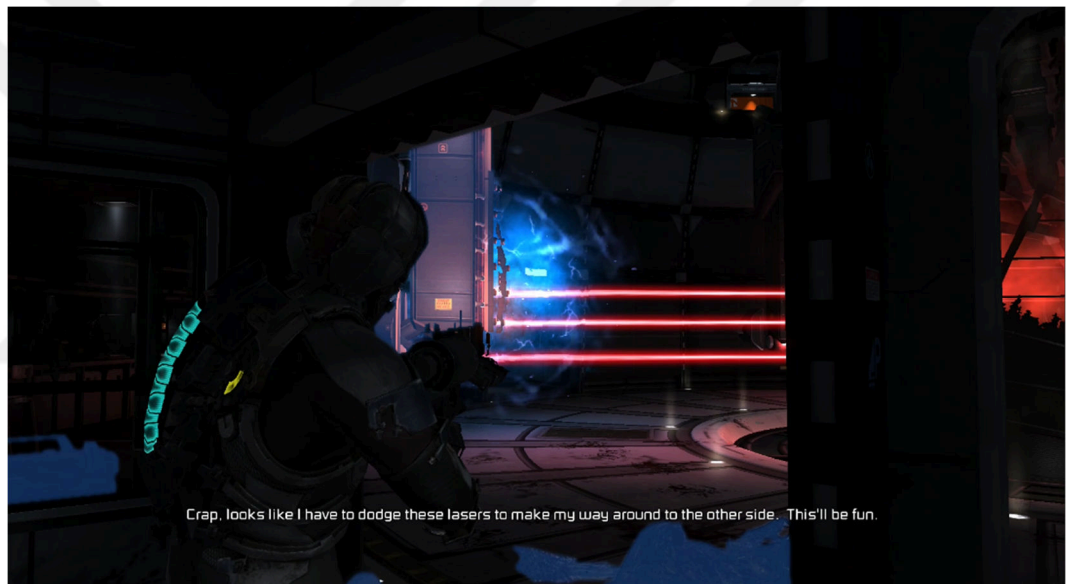


Figure 49. Screenshot for “Thoughts” scene.

3.1.46 Echolocation

Explanation: Using sound to observe the game environment

Game Name: Dead Space 3

File Name: Dead Space 3 – Echolocation.mp4

Starting From: 00:02

Explanation: In Dead Space 3, the bot that we found in the game can find resources for us. To find the place where we can drop the bot is indicated with a Directional Sound that you can hear. Then, we need to equip the bot and search for that place to let the bot find resources for the player.

Screenshot:



Figure 50. Screenshot for “Echolocation” scene.

3.1.47 Stealth

Explanation: Minimal behaviours such as using a limited soundprint.

Game Name: Dead Space 3

File Name: Dead Space 3 – Stealth.mp4

Starting From: 00:02

Explanation: We can crouch in Dead Space 3 to lower the soundprint of Isaac. We can use this feature to sneak past the Feeders, the Necromorph variant which has a skeletal appearance.

Screenshot:



Figure 51. Screenshot for “Stealth” scene.

3.1.48 Consequent Sound & Sound Decoys

Normally, Consequent Sound and Sound Decoys are two different cards. However, since Sound Decoys uses Consequent Sound, the example that we found serves for both cards.

Explanation (Consequent Sound): Designing the game world so that environment can react to sound interactions.

Explanation (Sound Decoys): Using sound to trick the enemies.

Game Name: Dead Space 3

File Name: Dead Space 3 – Sound Decoys & Consequent Sound.mp4

Starting From: 00:02

Explanation: We can throw objects to create sound and fool the Feeders to sneak past them to avoid conflict.

Screenshot:



Figure 52. Screenshot for “Consequent Sound & Sound Decoys” scene.

3.1.49 Unaware NPC

Explanation: NPC's behaviours that show they don't know the presence of the player.

Game Name: Dead Space 3

File Name: Dead Space 3 – Unaware NPC.mp4

Starting From: 00:00

Explanation: In Dead Space 3, we can use Stealth to avoid conflict between the player and Feeders. We can observe their behaviours in this state that they are not aware of the player's presence.

Screenshot:



Figure 53. Screenshot for “Unaware NPC” scene.

3.2 Cards That Have Not Been Found

Here is the list of cards that we could not find in the Dead Space series:

- 1) **Address Others:** Allowing the PC to address NPCs using sound.
- 2) **Eavesdropping:** Developing actions to obtain information via listening in on other people's talks.
- 3) **Entertainment:** Influencing the inner rhythms of the player by sonic stimuli, eventually eliciting behaviour and emotions.
- 4) **Foley Music:** Music that investigates the sounds of things or actions.
- 5) **Imminent Death:** Specifies a change of behaviour to escape death.
- 6) **Levelled Performance:** A progressive composure of performance-related actions using sound.
- 7) **Make Sound Not War:** Creating alternative solutions to the conflicts using sound.
- 8) **Musical Outcome:** Music that has been created by in-game actions.
- 9) **Narrator:** Using a narrator to tell the story of the game.
- 10) **Rhythm Gameplay:** Moving in sync with the rhythm in the game.
- 11) **Say That Again:** Grants access to the player to hear what the NPC said before.
- 12) **Seeking for PC:** NPC's attitude that indicates it's searching for the player.
- 13) **Sonic Weapon:** Using sound to damage enemies.
- 14) **Sound Input:** Representation of the sound that enters the world.
- 15) **Sound Suppressing:** Reduction of sound that the player is creating.
- 16) **Sound Visualization:** Graphical presentation of sound.
- 17) **Suspicious NPC:** NPC's actions that represent they are suspicious of the player's current presence.
- 18) **Window of Opportunity:** This shows that the player is in a more powerful or favourable state.

3.3 New Card Candidates

While we are playing the game ourselves, we found two candidates that are not fit any of the cards that currently exist. So, we recognized that these can be new candidate cards for the deck itself. These recognitions are called “Jumpscare” and “Insanity”.

Jumpscare is the state of the game where it tries to give immediate and loud sounds to scare the player. The name “Jumpscare” is for the card name since the same description is also used in other industries like movies.

“Insanity” is the voice of some person that the player can hear, but that sound source or that person who talks is not there. The name “Insanity” is selected for the name of the card because sounds that are used for representing a sound that is not there stand for the sanity of the character. This card is used to show that character is losing his or her sanity.

After that, we found some candidate examples in Dead Space, Dead Space 2 and Dead Space 3 and analysed them by lowering the volume in that scene to understand how it affects the gameplay.

In the Jumpscare case, when we disable the sound, that scene didn’t affect us at all. However, when we enable the sound again and play the same scene again, we realized that that scene frightened us much more than without sound.

In the Insanity case, we disabled the sound from the scenes that we found in the games. When we removed the sound, the tension and empathy that we felt for Isaac decreased since we cannot feel the mental issues that he has and hear the voices that he hears in the game. However, when we enable the sound in that scene, we can emphasize more for Isaac that he fractionally loses his mind. Also, this increases the tension in the game because we are controlling a character who is losing his mind.

Lastly, we created the patterns that can be new candidates for this deck using the design pattern that is already created by Alves and Roque (2010).

3.3.1 Jumpscare

3.3.1.1 Name. Jumpscare.

3.3.1.2 Synopsis. Giving immediate and loud sound impulse to scare the player.

3.3.1.3 Relationships.

Context: Engagement, Shout and Yell, Sound Effects

Differs From: Relaxation, Silence

Makes Use Of: Awareness, Engagement, Foley

3.3.1.4 Description. In horror games, some techniques are used for scaring the audience. The commonly used one is called Jumpscare. This technique is using immediate and loud sound to give the player the feeling of Engagement that something appears and is bad news for the player. Sometimes, it can be used to Awareness of the current situation that, something bad will happen in the future.

3.3.1.5 Examples.

Example 1:

Game Name: Dead Space 1

File Name: Candidates/Jumpscare/Dead Space 1 – Jumpscare.mp4

Starting From: 00:02

Explanation: While we are moving forward in the game, a looking-dead Necromorph rises immediately with a loud and immediate sound effect.

Screenshot:



Figure 54. Screenshot for Dead Space 1 “Jumpscare” scene.

Example 2:

Game Name: Dead Space 2

File Name: Candidates/Jumpscare/Dead Space 2 – Jumpscare.mp4

Starting From: 00:08

Explanation: There can be some power failures while we try to open doors in the game, and when that happens, a series of Necromorphs are attacking us, appearing with a Jumpscare.

Screenshot:



Figure 55. Screenshot for Dead Space 2 “Jumpscare” scene.

Example 3:

Game Name: Dead Space 3

File Name: Candidates/Jumpscare/Dead Space 3 – Jumpscare.mp4

Starting From: 00:03

Explanation: Necromorphs can use ventilations to catch the player unguarded. In this scene, we can see a Necromorph jump onto us using the ventilations.

Screenshot:



Figure 56. Screenshot for Dead Space 3 “Jumpscare” scene.

3.3.1.6 Additional Comment. Nothing to add now.

3.3.1.7 External Resources. Nothing to add now.

3.3.1.8 References. Nothing to add now.

3.3.1.9 Revisions. Nothing to add now.

3.3.1.10 Confidence Level. High.

3.3.2 Insanity

3.3.2.1 Name. Insanity.

3.3.2.2 Synopsis. The voice of some person or an entity that the player can hear, but that sound source or that person who talks or makes sound is not physically there.

3.3.2.3 Relationships.

Context: Aesthetics

Makes Use Of: Dubbing, Dialogue

May Relate To: Helper Voice

3.3.2.4 Description. In the horror genre, people losing their sanity is not a new concept since this phenomenon is used to give tension to the audience better. According to Stanley (2017), we can see this phenomenon used vastly in the movies *The Shining* (King, 1977) and *The Silence of the Lambs* (Harris, 1988).

In games, this can also be used to increase the tension in the game. This also helps us to emphasize and understand the main character more since we can also experience the character's mental situation.

3.3.2.5 Examples.

Example 1:

Game Name: Dead Space 1

File Name: Candidates/Insanity/Dead Space 1 – Insanity.mp4

Starting From: 00:02

Explanation: Starting from Chapter 1, According to Dead Space Wiki (2019), we can hear a lady whispering to us with spaceship related sentences like “Persistence may be labelled as obsession if you indulge and persist, you objectify the subject. Also be mindful of psychological rejection.”, “Voice analysis of the audio log detects various indicators of positive communication and physical behaviour.” In this example, Nicole, Isaac's deceased girlfriend, sings a lullaby to Isaac while he is in an elevator.

Screenshot:



Figure 57. Screenshot for Dead Space 1 “Insanity” scene.

Example 2:

Game Name: Dead Space 2

File Name: Candidates/Insanity/Dead Space 2 – Insanity.mp4

Starting From: 00:02

Explanation: In Dead Space 2, we are always dealing with Nicole in our heads. She sometimes calls to us, sometimes we can see her in front of us, but of course, she is not there. In this scene, we can hear Nicole calling to us and we can see she is sitting on the bed, trying to talk with us.

Screenshot:



Figure 58. Screenshot for Dead Space 2 “Insanity” scene.

Unfortunately, we could not find any proper example in Dead Space 3. So currently, we have two proper examples for the “Insanity” candidate card.

3.3.2.6 Additional Comment. Nothing to add now.

3.3.2.7 External Resources. Nothing to add now.

3.3.2.8 References. Nothing to add now.

3.3.2.9 Revisions. Nothing to add now.

3.3.2.10 Confidence Level. High.



Chapter 4

Conclusion and Future Work

The sound design in games holds a crucial part in the development cycle of any game. Without it, the game always will be half done. To ease the process of the development and integration of sound, we need some guidance that developers can understand and use easily. With the Deck of Cards, developers and sound designers have an easy way to design the sound for their games.

In this research, we tried to find new examples for the current cards of the Deck, by using the Dead Space franchise, looking through each of the chapters in the game, recording it and analysing it using the harvesting technique that Alves and Roque (2013) used to create the design pattern and the deck itself. After finding the examples for the current decks, we tried to find new candidate cards that can be added to the Deck, by using the harvesting technique again.

We were able to find 49 new examples from Dead Space 1, Dead Space 2 and Dead Space 3 combined. Our main methodology here was to find examples from Dead Space 1 first, and if we have some cards left that we couldn't find examples of, we will search through Dead Space 2 and Dead Space 3. The reason behind this choice was to eliminate redundant data that can occur from the other games since they are mostly using the same sounds and same sound design decisions from Dead Space 1. Hence, the examples are mostly found in Dead Space 1, our main game for this project.

We were expecting to find good and self-explanatory examples from this series since this game has a different kind of approach according to Executive Producer of Dead Space, Glen Schofield (2020). Our expectations were true, and we found some good and quality examples for the current cards in the deck.

While we were looking for examples of new cards, we also realized how the dialogue choice affected the narrative and emotion. In Dead Space 1, Isaac does not speak with other NPCs. However, in Dead Space 2 and Dead Space 3, we can see that Isaac speaks with other characters. According to Skolnick (2014), in traditional storytelling, there are three types of exposition: emotion, character and plot. For the plot side, games have a similar approach about telling the story, especially for the background story. All the games use audio recordings and video recordings to tell the backstory. However, when

we are looking for the character and emotion, we can observe that Dead Space 2 and Dead Space 3 are better to give these expositions. We can prove this by finding the example of Emotional Script not from Dead Space 1, but Dead Space 2. With dialogues of the main character, we can understand his/her current emotions better.

This thesis provided new examples for the forty-nine of cards in the Deck and provided two new candidate cards “Jumpscare” and “Insanity”. “Jumpscare” is the immediate and loud sound feedback that can be used to scare the player and “Insanity” is the set of sounds that are used to determine the sanity of the character that we are playing. We were expecting only one candidate card from the Dead Space series since most of the cards have been found by Alves and Roque (2012). We were expecting to find only one card or no candidate card at all while we research this game, but instead, we found two new candidate cards for the deck. So, we can conclude that researching through the Dead Space franchise was the right call.

These two candidate cards “Jumpscare” and “Insanity” are mostly used in horror games and horror films. Jumpscare is the most effective scaring technique that the developers and designers use because that is the easiest and cheapest way to scare the audience. The reason behind this is that person that watches or plays a horror film or game will create a flight response because the person will abrogate the conscious thoughts when encountered with Jumpscare. This specific reaction will increase the heartbeat rate, and increase the adrenaline on the body and pupils to dilate. This is the reason why Jumpscare is so effective in the horror genre, it creates a reaction instead of rationalizing the experience (Seyler, 2019).

For “Insanity”, we can say that this concept is also widely used in the horror genre. This phenomenon is used to give tension to the audience better. According to Stanley (2017), we can see this phenomenon used vastly in the movies *The Shining* (King, 1977) and *The Silence of the Lambs* (Harris, 1988). In both movies, insanity is the main driving point that we can observe while watching the movie. In games, this can also be used to increase the tension in the game. This also helps us to emphasize and understand the main character more since we can also experience the character’s mental situation. We can see the examples of Insanity in *Amnesia*, *The Dark Descent* (Frictional Games, 2010). In this game, insanity is used to alert the player that the player needs to find a light source, or else the player will start to see things that are not there. This game design decision is also backed up with the sound design to complete the experience. In *Dead Space*, this concept

is mostly used for feeling what Isaac s feeling right now. In other words, sounds that are indicating Isaac’s insanity are used to increase the empathy that we are feeling for Isaac.

This study is open-ended research, meaning that we can find new cards and examples for the current cards, as future work. Also, right now the deck doesn’t have an ordering method, meaning that cards are not ordered by their types or other ordering criteria. These orderings can be assessed for future research articles.



REFERENCES

- Aarseth, E. (2003). Playing Research: Methodological approaches to game analysis. *Digital Arts and Cultures Conference (DAC2003)*, (pp. 1-7). Melbourne.
- Alves, V. (2012). Sound Design Guidance as a Contribution Towards the Empowerment of Indie Game Developers. Coimbra: University of Coimbra.
- Alves, V., & Roque, L. (2010). A pattern language for sound design in games. *AM '10: The 5th Audio Mostly Conference* (pp. 1–8). Piteå: Association for Computing Machinery.
- Alves, V., & Roque, L. (2013). Design Patterns in Games: the case for Sound Design. *8th International Conference on the Foundations of Digital Games*. Crete.
- Audiokinetic. (2006). Wwise.
- Audiokinetic. (n.d.). *Wwise in Games*. Retrieved from <https://www.audiokinetic.com/discover/wwise-in-games/>
- Björk, S., Lundgren, S., & Holopainen, J. (2003). Game Design Patterns. *Digital Games Research Conference*. Utrecht.
- Blank, M., & Lebling, D. (1980). Zork.
- Borchers, J. (2000). A Pattern Approach to Interaction Design. New York: Association for Computing Machinery.
- Campbell, C. (2012). *AAA games: What lies ahead?* Retrieved 2021, from <https://www.gamedeveloper.com/business/aaa-games-what-lies-ahead->
- Cawthon, S. (2014). Five Nights at Freddy's.
- Clayton, J. (Director). (1961). *The Innocents* [Motion Picture].
- Collins, K. (2008). Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design. In K. Collins, *Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design*. The MIT Press.
- Denooz, C., Thom, R., & Buck. (1998). *What is the basic philosophy of sound design?* . Retrieved 2021, from <http://filmsound.org/QA/sound-design-philosophy.htm>
- Electronic Arts. (2013). *Dead Space 3*. Retrieved 2021, from <https://www.ea.com/en-gb/games/dead-space/dead-space-3>
- Frictional Games. (2010). Amnesia: The Dark Descent. Frictional Games.
- Gamma, E., Helm, R., Johnson, R., & Vlissides, J. (1994). *Design Patterns:*

- Elements of Reusable Object-Oriented Software* (1st ed.). Addison-Wesley.
- Gibbs, T. (2007). *The Fundamentals of Sonic Art & Sound Design*. Fairchild Books.
- Hadley, M. J. (2012). *Slender: The Eight Pages*. Parsec Productions.
- Harris, T. (1988). *The Silence of the Lambs*.
- Hubbard, C. (2005). *F.E.A.R.: First Encounter Assault Recon*. Vivendi Games.
- IMDb. (2008). *Dead Space - Awards*. Retrieved 2021, from <https://www.imdb.com/title/tt1267296/awards>
- Kench, S. (2020). *What is Sound Design for Film? Definition and Examples*. Retrieved 2021, from <https://www.studiobinder.com/blog/what-is-sound-design-for-film/>
- Kerr, A. (2006). *The Business and Culture of Digital Games: Gamework and Gameplay* (1st ed.).
- King, S. (1977). *The Shining*. Doubleday.
- Kreimeier, B. (2002). *The Case For Game Design Patterns*. Retrieved from Gamasutra: http://www.gamasutra.com/features/20020313/kreimeier_01.htm
- Kubrick, S. (Director). (1980). *Shining* [Motion Picture].
- L. Kent, S. (2001). The Ultimate History of Video Games: The Story Behind the Craze That Touched Our Lives and Changed the World. In S. L. Kent, *The Ultimate History of Video Games: The Story Behind the Craze That Touched Our Lives and Changed the World* (pp. 41-42).
- List of Hallucinations*. (2019). Retrieved from Dead Space Wiki: https://deadspace.fandom.com/wiki/List_of_Hallucinations
- Lovecraft, H. P. (1973). *Supernatural Horror in Literature*.
- Lynch, C. (2013). *Dead Space 3 Review*. Retrieved 2021, from <https://www.ign.com/articles/2013/02/07/dead-space-3-review>
- Marks, A. (2009). *The Complete Guide to Game Audio: For Composers, Musicians, Sound Designers*. Focal Press.
- Mikami, S. (1996). *Resident Evil*. Capcom.
- Nishikado, T. (1978). *Space Invaders*. Midway.
- Peerdeman, P. (2010). *Sound and Music in Games*. Vrije Universiteit Amsterdam.
- Perron, B. (2009). *Horror Video Games: Essays on the Fusion of Fear and Play*. Carolina.
- Prohászková, V. (2012). The Genre of Horror. *American International Journal of*

Contemporary Research, 2(4), 132-142.

Raynal, F. (1992). *Alone in the Dark*. Atari.

Reeves, B. (2009, 12 11). *Noises In The Dark: Exploring The Sounds Of Dead Space*. Retrieved from Game Informer: <https://www.gameinformer.com/b/features/archive/2009/12/11/feature-noises-in-the-dark-exploring-the-sounds-of-dead-space.aspx>

Reeves, B. (2009). *Staring Into The Void: The Lore of Dead Space*. Retrieved 2021, from <https://www.gameinformer.com/b/features/archive/2009/12/08/features-staring-into-the-void-the-lore-of-dead-space.aspx>

Schofield, G. (2008). *Dead Space*. Electronic Arts.

Schofield, G. (2020). *Dead Space Creator Glen Schofield: Extended Interview | Ars Technica*. (Ars Technica, Interviewer)

Seyler, S. (2019). *What Are You So Scared About?: Understanding the False Fear Response to Horror Films*. NC DOCS.

Sharp, H., Rogers, Y., & Preece, J. (2007). *Interaction Design: Beyond Human - Computer Interaction* (2nd ed.). West Sussex: Wiley.

Sider, L., Sider, J., & Freeman, D. (2003). *Soundscape: The School of Sound Lectures*. Wallflower Press.

Skolnick, E. (2014). *Video Game Storytelling: What Every Developer Needs to Know about Narrative Techniques*. Watson-Guptill.

Stanley, M. (2017, September 6). *'Is The Violence Really Necessary?' – Violence, Gore and Insanity in Horror Fiction*. Retrieved from Mary Stanley Blog: <https://marystanleywriter.wordpress.com/2017/09/06/is-the-violence-really-necessary-violence-gore-and-insanity-in-horror-fiction/>

Stevens, R., & Raybould, D. (2011). *The Game Audio Tutorial: A Practical Guide to Sound and Music for Interactive Games* (1st ed.). Focal Press.

Strinati, D. (2000). *An Introduction to Studying Popular Culture*. Routledge.

Todorov, T. (1973). *The Fantastic: A Structural Approach to a Literary Genre*.

Toniolo, F. (2020). *Evolution of the YouTube Personas Related to Survival Horror Games*. *Persona Studies*, pp. 54-68.

Toyama, K. (1999). *Silent Hill*. Konami.

Ubisoft, R. (1992). *Shadow of the Beast II*. Psygnosis.

Valve. (1998). *Half Life*. Sierra Studios.

Whittington, W. (2007). *Sound Design and Science Fiction* (1st ed.). Dallas: University of Texas Press.

Williams, R., & Willams, K. (1980). *Mystery House*. Sierra Entertainment.

