Resume

Dette projekt søger at identificere hvordan flow manifesteres i videospillet Celeste, samt hvilken indflydelse musik har på dette. Ydermere søger det at diskutere teorier som immersion, presence og trance med henblik på at kunne identificere ligheder og dertil at kunne konstruere mulige argumenter for, hvordan musik påvirker flowoplevelsen og andre lignende fordybelsestilstande. Projektet påbegyndes med en presentation of konceptet immersion, som forklaret af Douglas og Hargadon, og deres fokus på schema-teori, grundet dets betydning i fordybelsesprocessen. Det forklares hvordan schema-teori illustrerer idéen om hvordan kontekst-baseret viden, samt vores forforståelser i givne situationer, hjælper og guider os til bedre at forstå dem. Ermi og Mäyrä, som undersøger spiloplevelsen med specielt fokus på immersion, yderligere konceptualiserer denne idé i deres artikel fra 2005 *Fundamental Components of the Gameplay Experience: Analysing Immersion*. I denne artikel identificeres de utallige elementer og fænomener, der indgår i spiloplevelsen, hvortil de anerkender schema-teori som en stor faktor dertil, hvilket de visualiserer i deres model 'SCI-modellen' (Sensory, challenge-based og imaginative immersion). Efterfølgende kommer der en redegørelse af Mel Slaters tanker om den dissonans der er opstået omkring begrebsforståelsen af immersion og presence. I sin artikel *A Note on Presence Terminology* beskriver han sine forståelser af begreberne. Han forklarer hvordan, han mener, at immersion er en naturlig reaktion på virtuelle miljøer med teknologi fokuseret på at skabe høj fidelitet, hvortil presence er en emotiv reaktion uden behov for ny teknologi for at skabe resultater. Hans holdning er modsat den som tidligere nævnte teoretikere forholder sig til, og denne artikel er derfor inddraget for at konstratere dem samt for at give yderligere agens til den kommende diskussion. Ydermere, for at skabe indblik ind i andre grene af fordybelsesteorier, er Judith Beckers bog *Deep Listeners* inddraget. Hun beskriver heri similariteter til tidligere nævnte teorier – blandt andet hvordan musiklytning kan fordybe og involvere lytteren gennem emotiv respons og kontekst-baseret lytning. Slutteligt bliver der redegjort for Mihaly Csikszentmihalyis flow teori, for at skabe indsigt ind i den endelige fordybelsestilstand og hans beskrevede *autotelic personality*. I dette afsnit bliver der fokuseret på de otte kriterier, der skal overkommes for at kunne opnå flow stadiet; en udfordrende aktivitet der kræver færdigheder; koncentration på opgaven; klare mål og feedback; sammensmeltning af handling og opmærksomhed; kontrol over situationen; tab af selvbevidsthed; og tidsforvrængning. Følgende dette afsnit bliver Johnny Wingstedts koncept om musikalske narrativitetsfunktioner kortlagt for at belyse musikkens mulige påvirkning på narrativer samt

spiloplevelsen. Den efterfølgende analyse søger at identificere og kortlægge disse narrativitetsfunktioner i Celeste ud fra udvalgte interessepunkter, efterfulgt af en analyse af flowoplevelsen med fokus på de otte kriterier og hvordan spillet opretholder sig dertil. Resultaterne diskuteres herefter med det formål at belyse musikkens indvirkning på flowoplevelsen og immersion, samt en diskussion af hvorvidt der blev opnået flow eller ej. Det blev konkluderet at det musikalske narrativ i Celeste var et aktuelt håndgribeligt fænomen, som blandt andet blev illustreret gennem essentielle skift i instrumentation og modalitet i situationer hvor protagonisten var særligt angst eller overstimuleret, såvel som gennem ledemotiver der solidificerede og kommunikerede protagonistens samt antagonistens følelser. Det blev yderligere konkluderet at Celeste, objektivt, opretholdte sig til flow kriterierne, men at det i den eksperimenterende situation viste sig udfordrende at opretholde koncentrationen samt at den autoteliske personlighed var fraværende. På baggrund af disse resultater blev det argumenteret for, at der blot var tale om en fordybende oplevelse, da der blot blev beskrevet en subjektivt behagende spiloplevelse, og ikke meget andet. Slutteligt blev det konkluderet at Wingstedts musikalske narrativitetsfunktioner kunne anvendes på kriterierne for flow, og derved belyse hvordan musik direkte påvirker spiloplevelsen mhb. på flow. Det blev yderligere argumenteret for, at samme koncept kunne pålægges Ermi og Mäyräs SCI-model og immersion som helhed.

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Mathias Abildtrup Jørgensen

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Master's Thesis

3 June 2019

<div align="center">Music, Flow and the Video Game Experience of Celeste</div>

Theories that deal with the concept of immersion are highly explored and investigated, however, because of the abstract nature of the phenomenon, a dissonance has occurred regarding the actual results of the theory and its proper terminology. Immersion, presence, trance, flow, engagement, engrossment etc. are some of the ways that researchers explain the experiences that can occur when feeling immersed in a medium. They share many similarities yet differ slightly in some places - for example, immersion is sometimes confused with presence, and presence with immersion and so on. Based on some research (see Slater 2001), immersion is based entirely on the manner of technology used in the experience where senses can be fooled into tricking the subject into believing to be inside a high fidelity virtual world and thereby feel immersed, however, to some, this is what presence is, whereas immersion is a subjective state and reaction to the medium with no call for certain technology to be used, but is highly emotive instead (see Ermi & Mäyrä 2005).

In recent years, stemming back a few decades by now, research has taken a turn into newer technology-based entertainment such as video games. As is commonly appreciated, entertainment and immersion go hand in hand, though, not only in popular entertainment such as film, books, theatre, sports etc. but also in the multimodal world of video games – the seemingly fresh trend in immersive media. Not only are we experiencing the visual marvel of new age video games, but with it also the mechanics, the music, the narratives and stories and so on. It conceptualizes so many different angles that can affect the immersive state, where other media might not. And with these states of consciousness comes the phenomena with the power to alter it, to which this paper hypothesizes music as a major focal point to that process. Mentions from Johnny Wingstedt on music narrative functions and music's ability to affect the immersive experience of multimedia will be combined with Mihaly Csikszentmihalyi's flow theory. Based on this idea, the goal of this paper is to analyse how flow is manifested in the video game Celeste and to analyse and discuss the ways in which music plays a role in it. Theories related to flow such as immersion, presence, and trance will contribute to the discussion as well as a discussion of the narrative functions of music.

IMMERSION

Considering the purpose of this assignment to be to discern the ways of flow in Celeste, it seems only rational to first try and understand the underlying ideas of said theory. To do so, related theories – theories that some think are integral to achieving higher immersive states (Douglas & Hargadon 2000) – will be explained. Theories such as immersion, presence and trance are three borderline theories that are often spoken of in terms of immersive experiences especially in multimedia, considering their technological and emotional implications.

The first theory, immersion, concerns itself with the concept of being immersed, yet with explanations and studies into the resulting criteria and products of it. Being immersed in a task at hand is not likely to be the same as what is described by the theory on immersion, as immersive states can vary in type and intensity and so on. According to Douglas & Hargadon, in their 2000 article *The Pleasure Principle: Immersion, Engagement, Flow,* it is stated how immersion and engagement, different types of immersive states, are precursors to flow, in that you experience both phenomena before reaching flow. They describe their understanding of immersion as a subjectivity-driven experience in which we are exposed to narratives, characters, worlds, sounds etc. that we try to understand, follow and relate to. By doing this, the autonomous action of schema theory is used (158). Schema theory deals with people's pre-knowledge of things and situations and their ability to adapt to them:

> The fundamental building blocks of comprehension, our schemas guide us through our everyday lives, even making an unfamiliar city easily navigable. Based on countless encounters with other cities and towns - both firsthand and through films and documentaries - our schemas tell us, for example, to expect shops and restaurants in clusters or grouped blocks in cities like New York ... Similarly, schemas tell us how to make sense of the floor plan of most houses ... (154)

Adding to this, seen in the context of video games, schemas will guide you to understand basic mechanics such as knowing how to properly utilize the controller, adapting to in-game mechanics, but also to understand and emphasize with characters and their specific character arcs, or to guess the outcome of narratives and even to find your way around the map. By using schemas unwittingly, the game player will utilize their cognition to overcome the difficulties of the medium, and can as a result, become immersed.

Besides getting immersed through schematic interplay and sense making, they mention another theory closely related to this called *Engagement*, which describes how individuals

engage in the story physically and/or mentally (155). Being engaged in an interactive medium can result in similar experiences as immersion, yet the experiences are produced differently. It is the use of schemas in a different manner, where, instead of following schemas blindly and autonomously, you try and predict and make sense of what is shown to you. By doing this, the individual can either be disappointed by not proving worthy of prediction, yet still be pleasantry surprised by the outcome anyway. In newer technology, such as video games, where physical interaction is applied as well, engagement is not only the use of schemas, but also plain mechanical prowess, where the lack thereof might diminish the chance of proper engagement. If autonomous use of schemas results in immersion and the use of said schemas as sense making result in engagement, then it stands to logic that what Douglas and Hargadon are arguing, is that immersion is predominant to engagement, and that you cannot be engaged without first being immersed. This is further proven by their following statement: "… "flow," a state in which readers are both immersed and engaged." (1). If this is the case, then flow is the penultimate state of immersion and engagement, considering how it consists of all prerequisite states as well. The notion on immersion as a split theory connected on multiple layers is further discussed by Ermi and Mäyra in their 2005 article *Fundamental Components of the Gameplay Experience: Analysing Immersion* where they try to divulge their understanding of how immersion is to be understood, and how it connects to earlier discussions as well.

In contrast to the research by Douglas and Hargadon, Ermi and Mäyra endeavours to display the ways in which immersion is understood, by not focusing as heavily on researching the states of consciousnesses involved, but rather by discussing earlier research on the matter, and by focusing on the interplay between the gameplay experience and the gameplaying individual. They explain this particular focus thus:

> … the essence of a game is rooted in its interactive nature, and there is no game without a player. The act of playing a game is where the rules embedded into the game's structure start operating, and its program code starts having an effect on cultural and social, as well as artistic and commercial realities. If we want to understand what a game is, we need to understand what happens in the act of playing, and we need to understand the player and the experience of gameplay. (1-2)

The reasoning behind this idea seems to be that, considering how the immersion is such an extensive and abstract concept, it can be difficult to be precise concerning its capabilities, and by trying to research the actual experience of being immersed, taking in all the aspects and elements that occur before, meanwhile and after the experience, social and individual

constructs as well, could develop more precise results – or at the very least produce different and more concise argumentation to what immersion should be considered as. As part of their paper, they delve into previous research on immersion to argue how they think it should be understood. The research by Douglas and Hargadon is clearly stated as a very important factor concerning immersion as Ermi and Mäyrä also consider schema theory to be a major factor in achieving immersion (3-4). However, aside from adapting to already prudent theories, they also criticise those who they do not agree with, such as Brown and Cairn's theory that separates immersion as a threefold progress-based idea that begins with the individual being engrossed, to then become engaged and finally totally immersed. According to Ermi and Maÿra, however, this seems entirely impossible, considering that Brown and Cairn recognize total immersion as presence – as feeling present in a virtual environment – whereas engrossment is more alike to immersion as understood by Douglas and Hargadon (5). Now, not only do they not agree in the idea of immersion being threefold, they also do not believe that immersion and engagement should be divided into different theories or steps in an immersive experience. They, however, believe that:

> When playing games, it is not enough to just sit and watch and possibly activate some cognitive schemas. Instead, the player must become an active participant. When successful, this type of participation leads to strong gameplay experiences that can have particularly powerful hold on the player's actions and attention. This basic character of gameplay becomes even clearer when we study the way immersion is created in playing a game. (3-4)

Immersion, to Ermi and Mäyrä, is not multiple steps and conscious states that move next to each other with clear distinction between them. It is, however, a unison experience where numerous elements occur all at once, enveloping the individual in an immersive experience instead of individual steps where one excludes the other. Because of this particular thought, they have visualized the theory through a model called the SCI-model (see Figure 1), which stands for Sensory, Challenge-based and Imaginative immersion.
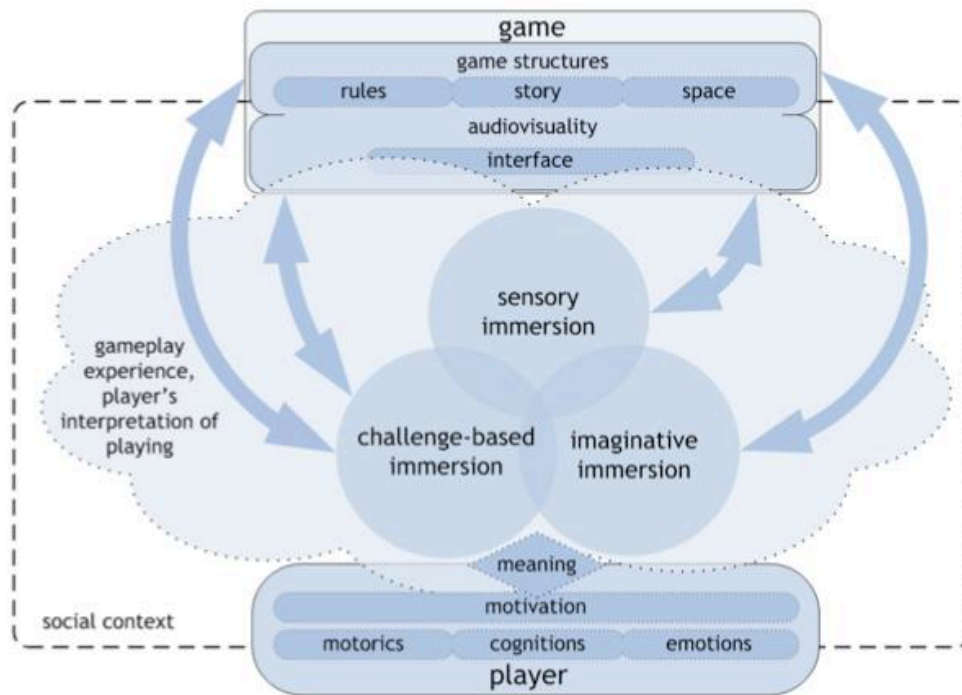
Figure 1 - SCI-Model

The model represents the entirety of the immersive experience in regards to the video game experience, and seeks to identify certain areas that are more pronounced than others, such as the visual aspects, the sound design, simple/complex mechanics, cognitive challenges etc. and instead of arguing that each element is a factor on its own that must be overcome in order to achieve any immersion, they consider them parts that can, and most likely will, present themselves at the same time working in unison, resulting in an immersive experience, where the game-player will be both immersed, engaged, engrossed, and so on, under the singular label of immersion.

Despite the thorough nature of the SCI-model, it still fails to portray a, possibly, very vital element in the gameplay experience, and by extension, the immersive experience: the music. It explains sound design as being an important factor, but that seems to simply imply proper sound quality and sound effects. Nowhere is it mentioned how music, as a subjective motivator in terms of interpersonal interpretations functions regarding immersion. They do, however, explain the importance of character relations (empathy/sympathy) and the narrative/story, yet the musical relations are nearly unexplained. The abstract nature of music and the debate on music and emotions and musical aesthetics might be the discussions that answers some of these questions, however, it is just as likely that the question lies in the personal relationship with music and its correlation with the characters and narratives that the

game player experiences and emphasizes with. To answer some of these questions Jiulin Zhang and Xiaoqing Fu have investigated the musical properties regarding immersion in their 2015 journal *The Influence of Background Music of Video Games on Immersion* stating that:

> The background music, referring to all the sound … is used to communicate aspect of the narrative, convey emotion, and enrich the experience of the player. Despite the interactive possibilities offered by background music of video game, few studies have explored its role empirically in the experience of the players. (1)

Multiple times do they argue that music is considered an indispensable part of the overall immersive experience, and as is written in the quote above, the ways that music affects the experience is through its communicative strengths by conveying tone, setting, narrative and perhaps even emotions, if one believes that music inhabits this ability. Despite this, however, they claim that the musical attribution to immersion is yet to be properly researched, which is why they endeavoured to investigate this particular conundrum. The resulting research clearly states that music inflicts some manner of immersion to the game players, however, mostly to what they call "low gamers" (participants who lack gaming experience) and less in "high gamers" (more experienced participants) as they tended to not pay attention to the music, but the mechanics and overall end goal of the game, whereas the low gamers focused on every detail, as they were more receptive to the overall experience, instead of being numbed to it by years of gaming.

PRESENCE

The intention of this paragraph is to delve into the debacle of immersion contra presence, as the dissonance that occurs in this area is particularly important to understand considering the purpose of this paper. According to Mel Slater, professor in psychology and researcher of the theory on presence, in his short article *A Note on Presence Terminology*, he mentions this dissonance, looking to put an end to the discussion. According to Slater, immersion is to be considered nothing more than the objective ability of the technology to convey high fidelity environments (1), whereas presence is the subjective and emotive reaction to in-game elements. This sentiment is the exact opposite of what is to be considered actual in this paper. Here, the groundwork of Ermi and Mäyrä and their SCI-model will be considered truthful, based on their further exemplification in their discussions on presence and flow (Game-flow). They explain how the term presence: "… relies heavily on the metaphor of transportation" (Ermi and Mäyrä 4), which then stands to logic that the concept of being transported into another game world, and truly feeling like you are in it, only happens through high fidelity

environments, as low fidelity simply cannot persuade the senses to believe that the virtual world is real enough, resulting in poor feeling of presence. Immersion, however, does not rely on fidelity, but emotive responses to the experience, yet the experience is still somewhat similar to that of presence in that the experience can result in a feeling of: "… being surrounded by a completely other reality [...] that takes over all of our attention, our whole perceptual apparatus" (4). This paper acknowledges the differences in these two theories, yet adopts the designs by Ermi and Mäyrä, as the terms they use seem to convey the experiences the best.

TRANCE

This paragraph seeks to deal with a concept that is somewhat related to the prior theories, yet often seen in a very different context and hence seldom mentioned in gaming relations. To some, trance might not be anything else than a product of meditation, however, according to Judith Becker, author of *Deep Listeners: Music, Emotion and Trancing* (2004) it can also be something entirely different and much more relatable. The title of the book represents a specific type of listener that, according to Becker, listens to music very emotively – an experience not to be confused with one where music is the inhibitor of emotions, but rather that deep listeners tend to identify certain emotions and past relations with music (2). Through this kind of deep listening, where emotions control the listening, the listener tends to become further enveloped in the experience, which sounds very familiar to the descriptions of immersion, seeing how it, according to Ermi and Mäyrä, is also an emotive response that results in further involvement. The reasoning behind using Becker's theory is based on her anthropological and psychological approach that resonates well with how Ermi and Mäyrä approached their research – by taking the experiences and people that experience it into account, and not simply focusing on the natural sciences and neuropsychological aspects of it. But more importantly, it is because of how she provides a grounded theory on trance that provides comparable products and results to immersion. She describes the concept of deep listeners, the personality type most prone to this type of trancing, as such:

> In my own definition, *deep listeners* is a descriptive term for persons who are profoundly moved, perhaps even to tears, by simply listening to a piece of music … These folks, I believe, experience a nearness to trance … Deep listening is a kind of secular trancing, divorced from religious practice but often carrying religious sentiments such as feelings of transcendence or a sense of communion with a power beyond oneself. (2)

An important element in her proposed concept is the detachment from religious necessity, which allows for everyday trancing experiences to occur, yet with similar products and results. The resulting experience is furthermore explained to be something very similar to that of immersion, presence and even flow:

> By enveloping the trancer in a soundscape that suggests, invokes, or represents other times and distant spaces, the transition out of quoditian time and space comes easier … another realm, another timer, with other kinds of knowing. (38)

She describes how music listening has the ability to alter the sense of time and space, and in this particular context, changing it to past spaces. She proposes the idea that music listening is context based in the sense that if you have listened to a piece of music following tragedy, listening to that piece in the future might invoke similar emotions attached to that moment. The music, then, is not the inhibitor of the emotions. They do however lay doormat in the listener simply waiting to be invoked. Imposing this on the theory on immersion and the videogame experience, then, is to understand that the context of the music and the emotions comes to fruition when learning the story and main characters therein, the worldbuilding, the music that connects those parts etc. so that people, through further gaming experiences, can develop connections with particular pieces of in-game (either diegetic or non-diegetic) music. The result of this, which is described in the above quote, is also similar to what happens when experiencing immersion – the alteration of time and space. Further similarities erupt when Becker explains how trance shouldn't be defined as:

> … "singly necessary" and "jointly sufficient" properties but, rather, should be thought of as … a set of similar events that bear … resemblances to one another, a family of events that have some overlapping, and some non-overlapping external symptoms (43-44)

It is a point that resonates well with Ermi and Mäyrä in terms of how the immersive experience shouldn't be considered a step-by-step approach, as proposed by Brown and Cairn, but rather an all-encompassing event with multiple experiences that work together to invoke this state of mind.

As several different immersion theories have now been examined and illustrated, with the purpose to better understand the underlying functions of the flow state, it is now time to investigate said theory.

FLOW

In his 2002 book *Flow: The Classic Work on How to Achieve Happiness,* which contains

summarizations and overall accounts on his work on flow, Mihaly Csikszentmihalyi explains how he observed a certain state of mind resulting in what he calls *optimal experience* in people who experienced sincere and absolute focus in their activities (4). This state of consciousness is being described through countless accounts, not only through the eyes of Csikszentmihalyi, but also his peers, and as he himself claims, through the years of evolution, as mankind has explained what it means to be genuinely absorbed in an action and to feel the flow of an experience. He himself, however, has now labelled the concept and has delved further into it, trying to discern what it contains, how it affects individuals who encounter it, and how to actively use it to better one's life with its resulting happiness.

Before delving into the actual contents of the flow state, it is prudent to understand the underlying ideas of it, as it is more than simply the act of focusing on the task at hand: it is how we seek it, in which situations we do it, and how we deal with what we have experienced, that is of most importance – for now at least. Csikszentmihalyi describes the intentions of the flow state thus:

> … *flow* – the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great costs, for the sheer sake of doing it. (4)
>
> Whenever the goal is to improve the quality of life, the flow theory can point the way. (5)
>
> Flow will examine the process of achieving happiness through control over one's inner life. (6)

The flow state, then, is not simply another theory on how to be immersed in the task at hand, but rather something so much more rewarding and fundamental regarding positive living, as it affects your entire being and constantly wanting more instances with flow experiences. The idea that we can seek these experiences also results in certain complications:

> I shall argue that the primary reason it is so difficult to achieve happiness centers on the fact that, contrary to the myths mankind has developed to reassure itself, the universe was not created to answer our needs. Frustration is deeply woven into the fabric of life. And whenever some of our needs *are* temporarily met, we immediately start wishing for more. (7)

As will soon be further explained, the constraints of human ability to look past anxiety and frustration can hinder one's ability to achieve flow. As these elements can halt the process, Csikszentmihalyi spends many of the pages in his book explaining the many ways to overcome these barricades and actively and mindfully seek flow:

How we feel about ourselves, the joy we get from living, ultimately depends directly on how the mind filters and interprets everyday experiences. Whether we are happy depends on inner harmony, not on the controls we are able to exert over the great forces of the universe. (9)

It would seem that to actively and mindfully try and separate oneself from external forces and instead focus on attaining inner harmony is the building block to possibly attain flow. Only when the mind is not being influenced by external duress is it able to concentrate on the task at hand without the possibility of a mental blockade – such as anxiety or frustration. Additionally, Csikszentmihalyi explains how the book does not reveal any "how-to" or any direct instructions, as they are highly individual. Although, he does present various tools at the disposal of every individual to try and alter their own reception of external forces, mainly by teaching the power of consciousness. This part, however, will not be further explained in this paper, as the components and prerequisite knowledge of flow are of more importance to the subject at hand.

To clarify, as it has not been transparently presented yet, flow is a state of consciousness in which high focus and engagement is present. The experience is reported to mirror the likes of immersion, presence, and even trance-like experiences, as can also be seen in the mimicking similarities from above paragraphs. The results of flow, however, seem to be highly different in that Csikszentmihalyi claims it can positively affect your everyday life and the way you choose to live it (4). As observed in the above paragraphs, such claims have not been made to suggest similar post-effects of immersion or presence etc. This topic is something that will be further discussed in a later paragraph. For now, the observed experiences in – or criteria of – flow experiences will be discerned, as well as the personality type most proficient in experiencing flow. Csikszentmihalyi presents eight factors that were shared between every description of enjoyment in the tasks at hand, be it rock climbing, playing chess, playing basketball etc. (48). No matter the challenge, if it was found enjoyable, very similar experiences were reported:

First, the experience usually occurs when we confront tasks we have a chance of completing. Second, we must be able to concentrate on what we are doing. Third and fourth, the concentration is usually possible because the task undertaken has clear goals and provides immediate feedback. Fifth, one acts with a deep but effortless involvement that removes from awareness the worries and frustrations of everyday life. Sixth, enjoyable experiences allow people to exercise a sense of

control over their actions. Seventh, concern for the self disappears … Finally, the sense of the duration of time is altered. (49)

The first criterion – a challenging activity that requires skills – is illustrated not only through games and sports, but also through simple everyday activities. The challenging activity is highly subjective, and by extension, so is the skill required to handle it. What this means is that whatever challenge you face, how you perceive it in terms of your own skills, is how you will conquer it. A challenge to some might prove boring to others, and vice versa. Additionally, he explains how some activities are made explicitly to provide enjoyment, such as video games, that contain great chance of providing a proper challenging environment, considering the possibility to alter the difficulty of the game to that which best suits your skills. Csikszentmihalyi provides a visual representation of this particular concept (see Figure 2), where, if the individual's skills are more than the challenge at hand, they will become bored of the activity. However, if the challenge is proving too tough, one will become frustrated and anxious. The challenge, therefore, needs to be just challenging enough so that the skills are enough to overcome it, and, hopefully, if provided with constantly improving challenges, can result in the individual being able to continuously better their skills.
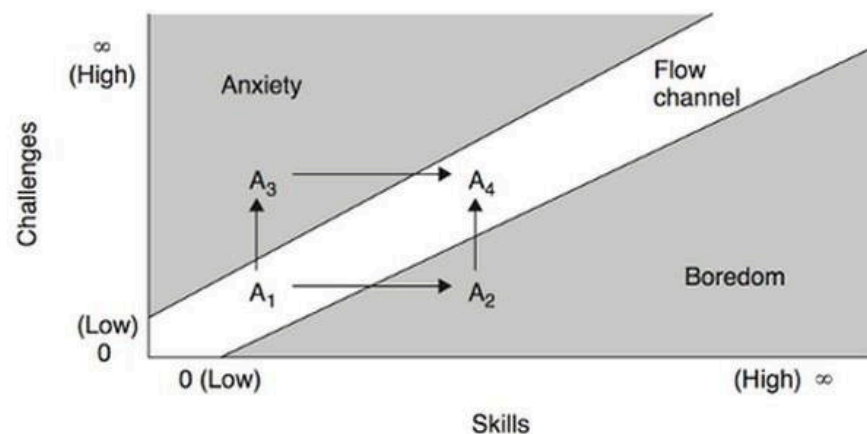

Figure 2 - Flow graph

The second element – concentration on the task at hand – refers to how the individual can become so engrossed in the activity that regular everyday thoughts are excluded from the mind, both because the activity itself can make that possibility quite difficult, considering the demanding nature of the activity, but also because if one allows the humdrum thoughts of everyday life to enter one's mind during the activity, one risks not being able to concentrate

at all. The challenging quality of the activity should diminish the risk of thinking of anything but that activity and your own prospects of overcoming it. This concept is very akin to the seventh component – the loss of self-consciousness – in that the high amount of concentration promotes the opportunity to lose one's awareness of the self. Csikszentmihalyi explains this phenomenon thus:

> So loss of self-consciousness does not involve a loss of self, and certainly not a loss of consciousness, but rather, only a loss of consciousness *of* the self. What slips below the threshold of awareness is the *concept* of self, the information we use to represent to ourselves who we are. And being able to forget temporarily who we are seems to be very enjoyable. When not preoccupied with our selves, we actually have a chance to expand the concept of who we are. Loss of self-consciousness can lead to self-transcendence, to a feeling that the boundaries of our being have been pushed forward. (64)

It is a very interesting note this explanation of how the loss of self-consciousness is not to assume that one is becoming mindless, or that we cannot recognize ourselves, but rather that we become so involved in the action that we simply do not think about our own self – there is no room for such thoughts, which in turn seems to provide a rather enjoyable experience. The third and fourth component – clear goals and feedback – involve the idea that the task at hand should be goal-oriented and that the way to the goal is proven by immediate feedback from your actions. These actions can be rather innocuous as they are not necessarily clear to everyone, which reflects the sentiment of the first component that not all challenges and skills are identical, and to some, the observed feedback might differ depending on what challenge they are undertaking and so on. The goal of a video game might be to simply go from point A to point B with feedback such as the visuals that display the character's movement between said points, or the simpler components of the gameplay such as mastering the controls and seeing the character move as you command it. As long as the feedback is immediate, and the goal is clear, the task at hand will become steadily more effortless, which Csikszentmihalyi claims is valuable when trying to achieve flow (55). Much like the second component, merging of action and awareness delves into the concept of the mind's ability to make the task at hand its singular focal point. It is being described as an almost effortless experience when one's skills match, or slightly surpasses, the required level and one's actions become almost automatic: "[i]t is for this reason that we called the optimal experience "flow." The short and simple word describes well the sense of seemingly effortless movement." (54) Following this quote, he explains how, even though the descriptions make it appear as if the

actions are becoming effortless and "flowing", it should be considered the exact opposite. When dealing with high pressure moments and demanding challenges, the experience may be retrospectively explained as an effortless experience, but the tasks often require intense mental and/or physical strain. The interesting part is, of course, that the mind can filter the excess negative or redundant thoughts away and focus entirely on the task at hand making it *seem* almost fluent.

The sixth component – the paradox of control – concerns itself not with: "… the sense of *being* in control, but the sense of exercising control in difficult situations." (61) By dealing with environments where the possibility of control can be attained through rigorous training and honing of skills, the ceiling of one's abilities rise as well. The risk of losing is still present, yet the opportunity to win can be attained, and even more so, focused on, when the excess thoughts disappear due to confidence and focus. Finally, the eighth component – the transformation of time – deals with the idea of time alteration while doing the task at hand. According to Csikszentmihalyi, this phenomenon is the most common denominator in the descriptions of the flow state. To some, time seems to go by faster than usual when in a high-pressure situation, but in the same moment, in the most intense situations, time can feel slowed down immensely (66). It is an odd occurrence, yet it seems to happen so often where the relativity of time seems to show itself during the most intense moments of a challenge, but it is also what can make these experiences so rewarding, considering how time, the phenomenon that hinges itself to everything at any moment, can become so innocuous during the most important times of demanding challenges that it does not occupy one's thoughts. Apparently, it can be quite the gratifying experience.

These eight criteria might display the ways that flow can occur during the experience, but not everyone is equally suitable, or receptive to, these experiences when they present themselves. To elaborate on this, Csikszentmihalyi explains the personality type called *the autotelic personality*. As explained above, a mind that is overly receptive to external forces, or is highly sensitive to their own mind and thoughts, can have a difficulty attaining flow experiences due to their inability to fully focus on the task at hand. This type of person is, in a sense, capable of the exact opposite of what the autotelic personality can do. Csikszentmihalyi defines the autotelic experience as: "… a self-contained activity, one that is done not with the expectation of some future benefit, but simply because the doing itself is the reward." (67) It refers to a type of person who is aware that, when they are doing the activity, they are not doing it for the sake of some future reward or contemplating on the consequences, but simply doing the activity for the sake of doing it, as it, in itself, is highly

rewarding. The intrinsic rewards are visualized through the honing of skills, meeting the challenges and overcoming them etc. – essentially to better one in subjectively difficult activities: "Most enjoyable activities are not natural; they demand an effort that initially one is reluctant to make. But once the interaction starts to provide feedback to the person's skills, it usually begins to be intrinsically rewarding." (68)

Finally, for the sake of consensus, closing remarks on how video games can be considered flow inductive environments will now be assessed. Essentially, there are activities that are directly designed to: "… make optimal experience easier to achieve," (72) by including attainable goals with immediate feedback, a requirement of a certain skill set, and which: "… facilitate concentration and involvement by making the activity as distinct as possible from the so-called "paramount reality" of everyday experience." (72) In video games one will be exposed to clear goals and immediate feedback simply by following instructions or by trial and error, with feedback as soon as the controller is used, or when said goal is attained and so on. Furthermore, considering the latter point made by Csikszentmihalyi, distinction from reality can be quite the enjoyable experience, which is easily attainable in video games based on their interactive and virtual nature. It is also based on this that research done on immersion oftentimes cover the theory on flow as well, or is at least considered in hindsight, as it seems to hold its ground in that research. Additionally, Ermi and Mäyrä candidly confirms that video games can be flow inductive:

> Digital games are generally excellent in providing opportunities for flow-like experiences since the challenges they present are often gradually becoming more demanding and thus players end up acting at the limits of their skills. In addition, the feedback given to the player is immediate. The activity of playing a game is a goal in itself. (Ermi 2)

NARRATIVE FUNCTIONS

Throughout Csikszentmihalyi's book on flow, the aspect of music is only mentioned in brief instances and often as musical performance and composition. However, what he omits to relay is how music listening might affect us, and in the spirit of this paper, how the interaction with music in games can ensnare and maybe even create further focused attention in the gamer. Johnny Wingstedt mentions in his 2004 publication *Narrative Functions of Film Music in a Relational Perspective* how:

> In new communication media, such as computer games or the Internet, the
> dimension of interactivity affects the level of immersion and agency related to the

musical experience. The audience/user is given the opportunity to influence, shape
and determine the form and content of the information flow. (53)

This quote sparked an interest in writing this paper due to the notion of musical narration being able to further immerse and involve the game player, and even impact the overall experience – maybe even in terms of optimal experience considering how further concentration, focus and perhaps even challenge, can occur when music is considered a cornerstone of the overall experience. To relay this thought, Wingstedt presents six classes each with their respective categories, all communicating an aspect of the different narrative functions that can be produced in the musical score. The first class, called 'the emotive class', consists of just one category, 'the emotive category', and is explained as a class that works in tandem with, and around, all other classes as a: "… fundamental ingredient of the narrative structure." (55) Its major function is to communicate emotions displayed between characters and the feelings that fit certain situations in the narrative. The second class, 'the informative class', is divided into three categories that all seek to convey meaning rather than emotions; 'the communication of meaning', which deals with clarifying ambiguity and confirmation of the game player's interpretations; 'the communication of values', which is the communication of societal association such as: "… evocation of time period, evocation of cultural setting and indication of social status …" (55) The third category, 'establishing recognition', deals with the concept of leitmotifs, which is a concept that involves the representation of characters and relationships within the diegetic world, but through the use of non-diegetic music. It can display itself through short motives or full-scale compositions, however, it is most likely to take shape as short melodies and themes. It can be a strong way of portraying characters and their actions in the narrative and is a very crucial way of acknowledging that a specific character is the main protagonist or antagonist. 'The descriptive class', which is the third mentioned class, has two categories: 'describing settings' and 'describing physical activity'. Both categories are rather non-ambiguous as they deal with exactly that which they seem like – it is the description of flowing water or stormy weather and the fast-paced movement of a horde running on a field etc. It can be subtle musical cues or actual compositions of droplets falling from the sky using triangles and harps, or thunder by use of bombastic percussion etc. It can, through above examples, help to further empower the already established mood of the scene, or be the indicator of said mood, if, for example, the weather is not already known through the narrative. The fourth class is called 'the guiding class' and deals with the ability to use music as a guiding element to avert the eye towards specific information – or to do the exact opposite. Through the two

categories 'the indicative category' and 'the masking category', the possibility of synchronizing music and on-screen actions allows for communication of said actions to be the focal point. It can also be the opposite, as music can function as a masking technique to ignore specific things in the diegetic environment. The fifth class, 'the temporal class', involves the concept of music as a time-based phenomenon. Much like the emotive class, this is also ever-present, as all music is considered to fill space and time. It is divided into two categories called 'providing continuity' and 'defining structure and form'. Wingstedt mentions this regarding the first category and its importance in video games:

> … continuity can be accomplished by using recurring motifs (such as leitmotifs) that are varied and developed according to the dramatic situation – or to use a consistent instrumentation, genre etc. throughout the movie. In interactive non-linear media, such as computer games, music's ability to provide continuity is an important quality with strong potential. (57)

The second category seek to convey the ways music can structuralize the narrative or specific scenes by providing more, or less, music – finishing a scene with music can provide a "path" towards the next scene. It can provide the audience with a certain element of understanding of what comes next. The final class, 'the rhetorical class', regards the possibility of music as an alienating or estranging phenomenon. It can take on the role of actual commentary and give pointers to how certain aspects of the narrative "should" be understood – heavily influenced by the director/composer as they give the audience the "proper" viewpoint, so to speak.

As a final comment on the many different musical narrative functions, Wingstedt explains how music:

> … typically operates simultaneously on several different levels, performing in different parallel dimensions. In one given scene, many of the discussed narrative musical functions will be active at the same time, overlapping. The salient functions will quickly and dynamically change. This is characteristic for the entire experience of multimedia, which is determined by a continuous interaction of a multitude of factors. On the musical level, we have the interplay between musical parameters such a rhythm, harmony, melody, timbre etc. (58)

The musical narrative functions will work as a mapping tool of how the music affect the narrative, and by extension, the overall experience of the gameplay, in the analysis.

METHODOLOGY

Through this paragraph the methodological foundation and analytical approach will be made clear as to be more transparent with how the coming results will be handled and approached as a whole.

Scientific Method. This paper will make use of the ideas of phenomenology as its main scientific method. The reasoning behind this choice is due to its approachability when it comes to interpretation and meaning making – especially so, using retrospective analysis which will be present in the coming analysis. The abstract nature of the theories provided in this paper makes this scientific theory more reliable, as it can be difficult to determine meaning in abstract phenomena without the option to interpret what is experienced. Furthermore, the use of hermeneutics will also be present, as it will be necessary to analyse and discuss the smaller parts separately to better understand their correlation. However, it is through cohesion between both scientific methods that it becomes possible to properly analyse and discuss the experience of the gameplay in relation to flow and music and, hopefully, gain interesting and qualitative results.

Analytical Approach. Several points of interest were chosen in the playthrough of Celeste, to which Wingstedt's musical narrative functions were applied. To properly convey progression, the analysis follows the natural chronological structure of the game itself but omits levels that were deemed inconsequential. The levels were determined based on important moments in the narrative as well as places where the interplay between music and on-screen action seemed of highest importance. Additionally, to fully appreciate the impact the music has on the narrative, it was deemed necessary to choose levels in the beginning, middle and at the end of the playthrough.

Following the musical analysis, an analysis of the gameplay experience in relation to flow was constructed by focusing on the subjective experience of playing Celeste, and, as above, the same points of interest in the gameplay were analysed. They were put to the test of Csikszentmihalyi's flow theory by analysing how they proved to uphold themselves to the criteria of flow (altered sense of time, loss of self-consciousness, matching set of skills etc.) The results of both analyses and their correlation will then be a topic for discussion in a following paragraph, to try and uncover how music might affect flow in Celeste, in the context of musical narration.

ANALYSIS

Before the analysis begins, a short presentation of the story of Celeste, the gameplay, and, last but not least, the music, will be conveyed in the following part.

The video game Celeste is about Madeleine's ascend of Celeste Mountain in an attempt to overcome her issues with anxiety. On her journey, however, she quickly notices how Celeste is no regular mountain, but a mixture of magical and cursed phenomena that dives into her core and seeks to conquer her before she can conquer it. On her ascend, her anxieties become personified into Badeleine. Badeleine is essentially all of Madeleine's worst aspects sculpted into another being who will come forth whenever Madeleine is feeling particularly anxious or overly stimulated. In contrast to Badeleine, though, Madeleine runs into a friendly face on her way to the peak: Theo. Theo is another traveller seeking to traverse the mountain who deals with his own issues. They both have a mutual understanding and a friendly and quickly developing relationship. As she climbs and dashes upwards hitting nags and obstacles along her way, she quickly notices how difficult the climb is, and her anxieties (Badeleine) immediately try to talk her out of it. Theo, however, as the complete opposite of Badeleine, functions as Madeleine's rock and teaches her breathing techniques to counter her anxieties and follows her as far as possible. Through much turmoil, Madeleine reaches a part where she confronts Badeleine as she finally thinks she has realized how she can overcome her anxieties by destroying and discrediting Badeleine, as if she doesn't need her at all, as if she is better off without the part of her mind that deals with anxiety. Badeleine, however, is not so easily overturned and crushes Madeleine, throwing her off a cliff deep down into unknown territory, further down the mountain. Crushed and defeated, Madeleine reflects on her actions, as she doesn't seem to understand why she cannot *win* against Badeleine, when she reaches a broken-down elevator and an old woman who wanders around the mountainsides. As if she understands Madeleine's struggles, she asks her why she seems to want to destroy Badeleine and if it wouldn't be better to simply ask Badeleine why she is *scared* – to which Madeleine takes notice.

The point of no return happens in this moment as she decides to ascend Celeste for good and find Badeleine and confront her on her struggles. Badeleine, of course, takes offence and tries to defend herself and Madeleine then has to fight for her survival as she pursues her through the mountain. When she finally reaches her lying powerless and crumbled on the ground, they discuss their wrongdoings and conclude that it might simply be easier if they instead work together instead of against one another. Through cooperation, now

stronger than ever, they reach the peak of Celeste Mountain. They realize that once they get off the mountain, the embodied version of Badeleine would disappear and once again settle inside Madeleine's mind as her own thoughts, however this time, they have agreed to listen to what they say, instead of fighting each other.

The story of Celeste, then, is a very heart-warming one with a great set of characters as well as fantastical and magical elements supporting it. It is a story that deals with psychological struggles, such as anxiety, and seeks to show it in a more relatable and understandable manner. Not only does it display the struggles that people such as Madeleine deal with, but also brings ideas to cope with it, albeit through heavy use of storytelling, of course.

As the story and setting have now been exhibited, the gameplay will now be confronted as well as the music that accompanies it.

As is apparent by now, the controlled avatar and protagonist is Madeleine, who can jump to, dash from and grab onto surfaces, however each dash must be reset by touching the ground, and each jump after touching any surface. Her grabs are limited as well, as she can only hold on for so long before she starts to slip. Jumping, however, requires no stamina. The objective, then, considering that this game is a 2D-platforming game, is to manoeuvre your way from point A to point B by use of few and simple mechanics. This is done to make the player struggle with the very clever level design instead of difficult mechanics. Throughout the game, the levels become increasingly difficult and a small number of new mechanics are introduced as well, such as floating feathers that make you temporarily fly, dash-restoring crystals, a double-jump etc. As a side note, there are no specific combat mechanics in the game, however, at some point Madeleine is subjected to her inner demons that try to devour her, most literally. In these situations, the player can choose to jump on them and temporarily stun them or to simply dodge their attacks. No actual combat means that the things that are supposed to be overcome instead, are the inner struggles of Madeleine, which happens to be further conveyed to the game player as their own skills in overcoming the difficult level design and so on. It is a very clever way of portraying the anxiety displayed by Madeleine through the player's ability to overcome the delicate mechanics that can be easy to learn, but difficult to master, much like Madeleine's control of her own thoughts. Accompanying the mechanics is a very subtle and charming choice of graphics that take hold in retro bit-game design, yet modernised with crisper animations, colours and overall "feel" of the experience. Comparatively to the graphics, the music and sound design is very akin to the 8 or 16-bit era, yet highly modernised and individualistic, made to fit the world of Celeste specifically. The

music makes heavy use of synthesizers, piano, deep bass, strings and fast paced drum beats to match the setting of the game. Lena Raine, the composer of the soundtrack, explains her thought process behind the music of Celeste:

> Celeste is a game about climbing a mountain. The game involves physically climbing one, but it also exposes another kind of mountain to ascend. Much like Madeleine, I approached the project as a literal thing … I struggled with anxiety and depression. I fell a lot, and climbed a lot. What came out the other end was this soundtrack. In this set I've tried my best to illustrate a narrative experience not just from start to finish, but also within each side. Follow along with Madeleine on her journey to the mountain's summit, as well as her own. (Raine vinyl cover page 2)

Forsaken City. The first levels proved to be great points of interest regarding the musical narrative, as most of the introductory and fundamental components are revealed here. In the opening level, called 'Prologue', we are introduced to the protagonist Madeleine and the world that she inhabits – more precisely – the base of Celeste mountain. The opening sequence is modest in goal and design, as Madeleine is to begin her journey by following the road towards the mountain. The music seems to lead this simplistic design by playing calm, high pitched, echoed piano notes with slight variations that slowly turn into an actual theme (see Figure 3).

Figure 3 - Prologue Theme

The in-game setting reveals a gentle star-studded sky and crumbled ground signifying the area at the base of the mountain. The music is already speaking volumes concerning the narrative, and, using the emotive class, it becomes clear that the music communicates Madeleine's calm and collected mindset. Not only that, but by use of the informative class, bits of Madeleine's leitmotif seems to be slowly materializing as well – which will be fully apparent in the coming level – and using the descriptive class, it becomes apparent how well

the music conveys the mood and physical setting of the level as well: the gentle piano and calm ambience creates a symbiosis with the night time, clear skies and bright stars. The overall feeling of the first level is introductory to the mood of the game and to how the player should think of Madeleine, the protagonist. Wingstedt mentions this phenomenon in the rhetorical class, which is when the music tries to guide the player towards a certain understanding of something. In this instance, the major modality (and occasional sus4 chords) signifies confident and hopeful music, compelling the player to like Madeleine, which is an important element to the musical narrative, as seen in the coming levels.

At the end of the level, however, the music takes a step closer to the diegetic world as it describes the on-screen action. As Madeleine reaches a bridge that starts collapsing under her feet, the music picks up the pace with added drums and short, faster melodies which solidifies the intense feeling happening on screen. It does not, however, describe the physical actions of Madeleine's movement or the crushing of stones etc., merely the fact that action is happening. Not only is this descriptive, but it also functions as a guiding mechanic, guiding the player to the fact that something is happening which demands immediate attention.

The following level 'First Steps' sings a similar song of confidence, yet greater than before, as it instigates with a full musical piece with Madeleine's leitmotif which is heavily characterized by major modality, signifying how in control she feels (see Figure 4).

Figure 4 - Madeleine's Theme

As Wingstedt mentions, the emotive class is a class that is constantly present, and it is clearly shown in this level through her leitmotif always communicating her state of mind and how she feels about the situation. Another interesting part of the music accompanying this level, and in general throughout the game, is how it makes use of the concepts of the temporal class. The piece of music that is used in this level is merely 3:38 minutes long on the released soundtrack, however, depending on the skill of the player, that piece of music will be prolonged indefinitely until the level is complete. It changes at certain points in the level to keep up with the in-game narrative – an example of this is when, near the end of the level, the music modulates and makes a noticeable shift from the confident and hopeful feeling to an uneasy and harsher tone, signifying her crippling anxiety and loss of control. Once again, several classes overlap (informative, descriptive, rhetorical, guiding) and, together, communicate the negative crippling anxiety that is now beginning to come forth. The theme that is played when it occurs, is a new leitmotif that is present at times when anxiety, or as seen in the coming level, Badeleine, is present – or close by (see Figure 5).

Figure 5 - Anxiety

The music in the first two levels, then, communicates a narrative that is mirroring the actual narrative: that Madeleine, feeling confident and ready, sets out to climb Celeste mountain, but, as she reaches the end of the level, realizes how hard the climb is, and her anxieties begin to show. Solidification of the musical narrative is intensified at the very end, just as the anxious and uneasy theme have finished playing, Madeleine sits at a fireplace and says: "this might have been a mistake" and falls asleep.

Old Site. This level functions as a contrast to the first two, as the music and setting is turned upside down. Madeleine now finds herself in a dream world, however, not knowing whether it is real or not, continues her journey forward. By use of the information class, it is noticeable how the music conveys this change through deep synthetic soundscapes and long reaching and repeated arpeggios with slowly changing harmonics, that, as Madeleine clearly is not in control, revolves around minor modality with clever use of sharp notes (g#) that does not belong in the current key – clearly signifying her helplessness in this situation (see Figure 6).

Figure 6 - Arpeggios

Also, for the first time, Madeleine's theme is absent, and a new one that hints at the anxious synth from last level, is present. This resonates well with what the emotive class concentrates on and is one of the clearest signs of Madeleine's emotions being communicated in the music in this level. As you progress through the level, the music once again adapts to certain important moments; when Madeleine reaches a mirror, briefly seeing Badeleine before it shatters; when they meet for the first time; when Badeleine chases Madeleine through the old site; and at the very end of the chase. At each of these points, the music adapts with added instrumentation, newer and crisper soundscapes, clearer themes, faster pace, and in general, higher intensity – especially during the chase. These are very clear examples of how the music can provide continuity throughout the game, as it will only change to new segments,

when you reach them in-game. In tandem with the temporal class, the guiding class does a good job of assisting with recognizing the points where music adds to the shifts in narrative – for example by breaking or fading away to, sometimes, make room for the on-screen action. Another important moment is when Madeleine and Badeleine meet for the first time and the chase commences. In this moment, the music turns increasingly fast paced and intense with a low, aggressive, phaser-infused synth bass and quick melodies. As the information and rhetorical class suggests, this clearly helps with establishing recognition and enhances the notion that Madeleine is good and Badeleine is bad – especially as the on-screen action is Badeleine physically chasing Madeleine with harmful desires, while Badeleine's theme is playing.

Finally, when the chase is over, and Madeleine wakes up, she realizes how weird but true the dream felt. She walks through a level that resembles the one from before, yet much easier and shorter. In the meantime, a simplified version of the song before is playing (see Figure 7).

Figure 7 - Badeleine's Theme

It is much gentler and slower paced, emphasising Madeleine's confusion, guilt and continuing overstimulation – confused of the dream and reflecting upon it, and guilty of letting her anxieties get so out of hand so soon into her journey. The emotive class is therefore heavily present in these last screens. Additionally, an interesting point is how the

music went from exclusively synthetic instrumentation in the dream world to acoustic instrumentation, as soon as she wakes up. It seems to signify the transition very well and is a clever way of informing and describing the changes in narrative and space – or perhaps the change in personality.

Reflections. In contrast to the prior levels, this one contains five different tracks from the soundtrack, as opposed to one or two, which is based on its heavy use of dialogue and screens that are without any physical obstacles to overcome. It begins after Madeleine and Theo's narrow escape from 'The Mirror Temple'. They are sitting at a bonfire talking about their close encounter with the demons that resided inside, and discuss what they should do next, reminiscing about their journey so far. The tone is very gentle and calm now that the danger has passed, and the music seems to communicate that very feeling, as an acoustic guitar is added to the instrumentation. It plays a peaceful folk-like piece that is accompanied by Madeleine's theme slowly materializing as calming piano notes. Once again, the music seems to inform the player of, not only the feelings of those involved, or the leitmotif signifying Madeleine's state of mind, but also the setting that it takes place in. It resembles the first level 'Prologue' in the same way with the gentle piano theme and the star-studded sky above them, only this time, Theo, perhaps communicated through the acoustic guitar, is present as well. However, very slowly, as the player is choosing different dialogue options and progressing in their conversation, the crippling anxiety comes back once again, only this time, it is communicated through a bright, and very slowly intensifying synth that plays a simple and staccato ostinato in the background, not really a part of the actual music, but also not so amiss that it just might be.

The dialogue stops when they fall asleep and, once again, Madeleine finds herself in a dream, and as before, it is signified through the change from acoustic to synthetic instrumentation. The slowly intensifying synthesizer from before is now fully represented in the soundscape and is quickly becoming progressively more menacing. The on-screen action depicts Madeleine trying to confront Badeleine in her dream – where she has access to her – and tells her that she has no need of her, to which Badeleine takes offence. The emotive and information classes show the power structure of both characters, as the music gets increasingly intense while Badeleine's temper rises. In contrast to other scenes with both characters in them, no leitmotif is present in this one, however, the destructive and aggressive nature of the music makes the obvious suggestion, that it is indeed Badeleine that is in

command. Another element that suggests this, is when Madeleine tries to recover control over the situation by doing a breathing technique, the music suddenly drops in volume, making her breathing sounds the focal point. As she fails to recover, Badeleine and the music comes back in full force, knocking Madeleine of a precipice. Additionally, as this screen functions primarily as a cutscene without any actual required action from the player, except from pressing a button to continue the dialogue and holding a button to breathe in a steady and slow rhythm, the music seems to play very straightforward, which is a new concept in this game. So far, the music has adapted to the actions of the player. Now, however, it seems to be much more reliant on the automatic actions in-game – almost film-like.

After her fall, Madeleine once again finds herself at the base of the mountain, yet in another area than the first time. Beaten and hurt, both physically and mentally, she reflects upon her choices so far, which the music conveys through long and solemn ambience. The music creates space by using simplified instrumentation and smoother soundscapes to communicate the process of Madeleine's reflections – another example of the constantly present emotive and informative class. The music continues in this manner for a long time, until Madeleine reaches the old woman. This is a breaking point in the story: the old woman tells Madeleine that Badeleine is simply afraid, rather than evil. After this point, Madeleine slowly regains confidence in herself and in her ability to confront Badeleine. This element is not shown in the game through dialogue but by use of her leitmotif, which is slowly reclaiming control in the musical score. The information class best explains this notion, as it seems that meaning is solely conveyed through the music in this instance.

Something unexpected happens in this level as well: as Madeleine falls down the mountain, she lands in a deep puddle of water, and as she does so, the music of the level begins. However, as the player makes the avatar dive underwater, the music becomes muffled as though listening to it from underwater. The play between diegetic and non-diegetic music is questioned here, signifying that the music might in fact be diegetic, or that the music narrative, at least, is supposed to be understood that way – that the music has agency in the diegetic world. This notion can be further argued at the end of the level. Here, Madeleine is chasing Badeleine who is trying to defend herself as much as possible. The goal in this part is to dash into or jump onto her to make her move on to the next screen. As you touch her, however, the music becomes distorted, reminiscent of a tape recorder being briefly rewinded, which is not a sound effect, but an actual distortion of the music, and by extension, the musical narrative. It is not a part of the released soundtrack, and only happens in the game, which is, once again, further agency to the musical narrative being both diegetic and non-

diegetic. This does not have anything to do with Wingstedt's proposed classes but is an interesting element to the idea of musical narrative, and a clever way of portraying it in the game world, forcing the player to realize its significance, feeling almost as if the players are shaping the actions themselves.

As the chase sequence begins and the on-screen action takes a noticeable turn, a drastic change in music happens as well. Shortly before Madeleine reaches Badeleine, the ambient-defined music, with hints of Madeline's leitmotif, disappears completely with the intent to further intensify Badeleine's climactic music that fills the entire following sequence: 'Confronting Myself'. In this piece of music, we are introduced to an entirely new feature in the soundtrack: a female choir. Again, as Wingstedt mentions, emotions are an ever-present context-based concept, and in this sequence, it is no different. The music is energetic, intense, fast and loud which signifies the conflict and discord between Madeleine and Badeleine. Additionally, the female choir could signify the climactic clashing of the two women. Normally, in situations where Madeleine is losing control, Badeleine's theme is crippling through the musical soundscape. In this instance, however, even though Badeleine's synthetic theme is the focal point, the combative choir and striking confidence of Madeleine, makes it seem as if she is fighting the theme, both in the music and on-screen – the theme/Badeleine no longer holds any power over her. When the on-screen activity is very action based and fast-paced, multiple classes always seem to overlap more frequently than in the quieter moments. In this entire sequence the music seems to inform the player of conflict and power with its rhythmic drum beats and aggressive bass riffs. Furthermore, it instantly establishes recognition with the leitmotif, and even further intensifies it through the combating choir. Additionally, the music heavily describes and guides the player of action, danger, response and reaction, communicating it with its fast-paced and intense nature. Finally, through use of the rhetorical class, it was made clear how, once again, Badeleine is presented as the bad antagonist and Madeleine as the good protagonist with the conflicting elements of choir vs leitmotif. It is interesting that it is a choir, and not Madeleine's leitmotif, which fights Badeleine's theme. Perhaps it wouldn't clash in the same clear way that the choir does, but it seems like a missed opportunity.

Madeleine manages to subdue Badeleine and, as a result, Badeleine now feels hurt and misunderstood. They talk for a moment, and Madeleine reveals to her, that she understands that she is simply afraid, and that they should try and work together from now on. The music mirrors the change in tone as well, but it does something even more interesting as well: in the chase sequence, the entirety of Badeleine's leitmotif uses synthetic instrumentation, but now,

as she is defeated and subdued, a version of her leitmotif is playing, taking form as a piano arrangement, fully acoustic (reminiscent of 'Awake'). Shown by use of the emotive class, a humanization of Badeleine is happening, which adds a new layer to her character. Because of the music, both the player and Madeleine sympathize with her and feel pity for her. Badeleine, although reluctantly, agrees to cooperate, and as a result Badeleine disappears into Madeline's mind again – physically shown in-game by altering Madeleine's hair colour to pink instead of red, signifying her ability to double dash (going from pink to red to blue). The remainder of the level is defined by the same calm and solemn music, that, because of their newfound friendship, suggests a mutual understanding. Regarding how we establish recognition, it seems as if the subdued and anti-climactic version of Badeleine's leitmotif suggests a less controlling Badeleine. Finally, in contrast to every other episode with Badeleine where she was clearly depicted as the antagonist because of the boisterous leitmotif and aggressive behaviour, the rhetorical class, this time, seems to pinpoint the most important shift in the narrative, where this last version of her leitmotif, stripped of power and aggression, is left with an acoustic piano arrangement, humanizing her in an unexpected manner – the leitmotif is altered, and so is our perception of her.

The Summit. The goal of this level is to ascend Celeste mountain once and for all, and in the process, reaching areas akin to the all prior levels. The piece that accompanies this level ('Reach for the Summit') is an 11:08min long piece and is primarily structured around Madeleine's leitmotif as heard in 'Forsaken City', however this time, something interesting happens. For each of the prior levels she reaches, the music adapts to that place by adding the "flavour" of that level – it changes to the soundscape which that level occupied, but still plays the leitmotif and arrangement of 'Reach for the Summit'. 'Forsaken City', then, makes use of piano and string arrangements, whereas when she reaches 'The Old Site', it incorporates the dreamlike synth and phaser-fused rhythms and so on. By use of the emotive class it becomes clear that it, apart from it being incredibly confident and focused, brings forth all the emotions that Madeleine and Badeleine went through, throughout each of these levels. The narrative is, in a sense, being revisited here and works as a reminder of what has happened on their journey, and now, with such confident music, their cooperation and determination seems stronger than ever. Information – both meaning and establishing recognition – description of setting, guiding class and the temporal class all work in tandem in this level as they all communicate essentially the same thing: the last push towards the summit. The music

permeates confidence and determination, mostly seen through the subtle and constant changes in instrumentation which each of these classes take part in. Finally, in contrast to all the other episodes where leitmotifs have been present, this one does not show who is better than the other. The fusion of the flavours of each level equals a piece where Madeleine's leitmotif together with the instrumentations of Badeleine's themes fuse together to make something greater – a synthesis of them both.

Most of the musical narrative functions have been accounted for and proved to be present in Celeste. Leitmotifs were created to create associations between characters and narratives, specifically in the cases of Madeleine and Badeleine, who both had distinctive themes applied to themselves and their actions in the overarching story. Functions such as the emotive class and the informative class seemed to be ever-present and constantly communicating facets of the narrative, even without dialogue or character interactions. In other cases, the descriptive class conveyed the setting of the levels by i.e. changing the instrumentation from synthetic to acoustic when alternating between dream world and real world. Finally, there seemed to be a definite use of the rhetorical class in that the music portrayed the characters as good and evil through a shift in major and minor modality in tandem with a change in instrumentation – an intended portrayal of protagonist and antagonist entirely through musical cues.

Now that the musical narrative functions have been analysed and accounted for, it is time to analyse and reflect upon how the game upholds itself to the criteria of flow. Following this analysis, a discussion of how the musical narrative affects the flow state will take place.

Flow analysis. The first mentioned criterion is that the medium must be a challenging activity that requires skill to overcome. In the case of Celeste, the movement of the avatar, and the responses that is given to these movements, are easy to learn and understand, yet it quickly became clear that they were hard to master. The actual challenge, however, did not lie in learning how to dash properly, knowing when to grab onto surfaces or when to climb instead of jump, but in the intrinsic and clever level design. The moving pieces and constant inclusion of new obstacles made it clear that I had to keep practicing and hone my skills to keep up – the obstacles, to me at least, only seemed to increase in difficulty, even though I had mastered the basics of the mechanics. Even after I completed the main storyline, new additions of the levels became available in the shape of b- and c-sides. Each of these levels

were different versions of the level, in that they included the same mechanics and similar backdrop, but with different and much harder level design. Additionally, they also included b- and c-sides of the soundtrack to accompany them. The result of this is an incredibly varied and very challenging activity that constantly kept me on my toes and challenged me to continually keep honing my skills to keep up with the game. With the commitment of constantly trying to overcome difficult challenges through trial and error, comes the next criterion that is the merging of action and awareness. The levels that were especially demanding often took countless tries, and it sometimes became apparent that I had not been paying attention to much else than the actual gameplay. Oftentimes, as I had been struggling with an incredibly difficult screen, I slowly learned how to overcome each obstacle and, one by one, they became easier and easier until they became muscle memory – they became almost automatic, and as a result, I didn't overthink or stoop to anxious behaviour – a merging of action and awareness took place. Usually, in casual gaming sessions, this concept can be difficult to achieve, as everyday thoughts can enter one's mind and disrupt it, and in this experimental setting, it was no easier. The third and fourth criteria – that the game must have clear goals and immediate feedback – were found to be handsomely generous in this case. For example, in the level 'First Steps', the primary goal is to start the journey and begin the climb of Celeste Mountain, whereas the simpler goals are jumping and dashing over obstacles, or even simpler, to go from one screen to the other. The feedback I got was immediate, in the sense that as soon as I pressed the command to jump or dash, Madeleine jumped or dashed, and as soon as I managed to go from one screen to the other, the game visually showed a change in setting, and, of course, as the level finished, I understood that I had reached a major goal, as I was not told to start over, but to continue to the next level. Every touch of the controller equals feedback, and every time I progressed, I got the feeling that I was going the right way. However, the primary goal always seemed to be the narratives and storylines, whereas the mechanics and minor goals of each screen seemed less important, and more autonomous, in the moment. The next criterion, that states a required concentration on the task at hand, was less achievable than surmised, however, it became clear that the casual nature of the gameplay experience might have affected this criterion as opposed to having played in competitive one. It can be difficult to fully concentrate on the task at hand and not become subject to disruptive thoughts, which was the case in this experiment, as the idea that an experiment was taking place, was almost constantly present. However, objectively, it is certainly possible that full concentration can occur, especially to people who have the autotelic personality and are more prone to having these experiences. Additionally,

as the game is made with the option of speed-running it, there is an actual competitive side to it, if one opts to try it – which also induces further challenge.

The next criterion mentions the paradox of control, which was explained as the idea that we try to minimize danger and assert control over the situation we find ourselves in and is indeed achievable in this medium as well. However, as the medium is a video game which cannot physically harm the player in any way, the element of danger is suddenly less influential. Not actually suffering any real casualty when dying in-game, made it a much more risk averse activity. However, dying in-game still resulted in less, or slower, progress, which I wanted to avoid, so I attempted to minimize the dangers by trying to master control of the environment and of the avatar itself. There is not as much at stake as in i.e. extreme sports, though, it still played a part in how I approached the gameplay. The seventh criterion, the loss of self-consciousness, sometimes became difficult to identify as it was hard to be so fully absorbed by the gameplay that I felt it happening. However, at some points, the game's narrative, story and characters (Madeleine specifically) became so much more important to me than the feeling of hunger I felt, or the late-night drowsiness that crept over me – to me, Madeleine's struggles sometimes seemed more important in the moment. Finally, the last-mentioned criterion, the altered sense of time, was always something that occurred to me, and always as a retrospective element. By being so focused on improving my skill, practicing for hours on end, or simply when I was playing for the first time trying to understand the narrative and mechanics for the very first time, made time seem like it went by in second. However, considering the length of the game, and the lower intensity, based on it not being extreme or life threatening etc., makes it seem less plausible that time would go slower, as observed by Csikszentmihalyi. The intense situations are quick to end and as such, time was not something I actively considered in those moments. It is entirely possible that it can happen to others, of course.

In conclusion, it seems as if Celeste, in this case, upheld itself well enough to the criteria of flow, however, to obtain actual solid proof, more and larger experiments must be made. Personally, it seems as if flow was a state of mind that sometimes happened, or something like it, as most of the criteria were accounted for, only I cannot say whether they were all present at the same time, or if the lack of concentration on the task at hand practically made it impossible. However, it seemed as if something else was as much a part of the experience as the gameplay itself, namely the music and the narratives. These elements were not particularly incorporated in the criteria of flow, which made it difficult to fully explain to myself how I felt absorbed in the medium. Because of this, a discussion on how

music can affect the criteria of flow will now take place to shed some light into my actual experience with absorption in Celeste.

DISCUSSION

The manifestation of flow in Celeste seems to not only be actualized through the criteria applied by Csikszentmihalyi, but also by another, until now, seemingly unimportant factor: the music. During the gameplay and experimentation of flow in Celeste, it became clear that the music played a major part in the overall experience, and additionally through further analysis, the music narrative functions seemed to play a major part in the flow criteria as well. Looking at the second criterion, for example, it is not only through the constant trial and error that the player can familiarize themselves with the mechanics and level design and, in turn, become more aware and skilled in overcoming the level, but also through listening to the same piece of music that accompanies said level. As the music often tries to match the speed of the game, it becomes a synthesis of music and movement, which creates a rather flowing experience in itself. Furthermore, the music also aids in conveying the goal of the level – mostly, as proven through the emotive class where the emotions and information communicated often tells the narrative as a constant component – but it also gives actual feedback. In most instances it is the sound effects that communicates a player made action, however, as proved earlier, in Celeste the music holds diegetic agency and seems to actually be affected by player made decisions, such as dashing into enemies and diving under water. In the same sense, it can help maintaining the concentration on the task at hand, as its deliberate choice of instrumentation and mood, that suits the game world and on-screen action, keeps attention on the game whenever thoughts that are disruptive to the flow state creep through. It is entirely possible that the music played just as big a part in my concentration as the actual gameplay did, simply by so splendidly accompanying it – it also helped that it was subjectively pleasing to listen to as well. Additionally, it can also aid in the loss of self-consciousness. The feeling of not thinking about your own self while being in flow can be further amplified through music, and more specifically, leitmotifs, as they can solidify the feeling and thoughts of someone else than yourself, which in turn minimizes how much you reflect upon your own self-consciousness. Moreover, with its continuous and progressive nature, the feeling of being in another place doing these actions with other people can create a feeling of fusion with others, which is another point Csikszentmihalyi mentions (Csikszentmihalyi 63). Finally, the most obvious one is the continuous music that makes the feeling of time so obscure that it only enhances the already established time distortion. What

this means, in the great scheme of things, is that as a component that has been almost completely overlooked by some of the aforementioned theorists and their respective theories, music most definitely seems to hold agency in how the gameplay affects the player, albeit the immensely small sample size in this paper. Csikszentmihalyi mentions music as a flow inductive element in performance and composing situations, though, in multimedia, it seems there is a consensus that sound effects and their ability to provide feedback is the most important factor. However, as mentioned above, musical narrative functions are heavily influential in five out of seven criteria, and not only did they accompany the already established feeling of flow from the gameplay experience, but in some cases positively enhanced or enriched it.

There are those who question the concept of music in video games, such as Jiulin Zhang and Xiaoqing Fu, who try to uncover how individuals are affected by the accompanying background music. However, in contrast to this paper, theirs resulted in higher levels of immersion happening in "low gamers" instead of "high gamers" because of their higher receptiveness to new experiences as opposed to high gamers being numbed to the experiences (5). Based on the results of this paper, however, this notion seems baseless, based on how much music positively affected the continuous gameplay, instead of dulling it. However, it should be understood that they did not experiment with flow, but immersion, and that there is conflict in the comparison, and so it seems sensible to instead discuss how Wingstedt's musical narrative functions might affect different theories on immersive states, before finally discussing whether the experiment really did result in the feeling of flow instead of perhaps other borderline immersion theories.

Much like Csikszentmihalyi, Ermi and Mäyrä also only briefly and offhandedly mentions music and were more interested in sound quality and sound effects as an element in attaining immersion. As mentioned earlier, they produced the SCI-model to visualize their idea of the gameplay experience and immersion, which concluded in three types of immersion categories called sensory, challenge-based and imaginative immersion, where music/sound occupied the sensory category. However, in the light of present research it seems ignorant to ignore the possibility of music as more than simply good sound quality and sound effect feedback that accompanies the actions of the avatar, when music could be argued to be applicable to both the imaginative and challenge-based category. The imaginative category, which deals with narratives, is now in discussion as a transformed category, as it not only deals with schemas and the understanding of narratives in the general sense, but also through music narratives in the same manner as in flow, as it now changes the

way we approach the gameplay experience as a whole. It can affect the challenge-based category as well, as it influences the feedback that is provided in certain challenges, such as dashing or jumping into enemies, changing the flow of the experience. It is understandable that music is put into its own category, much like logic puzzles and other challenges are placed in the challenge-based category, however, as such a constant element with strong potential for continuity and progression, it seems wrong to discredit the idea that it holds agency in every category as much as everything else does. To further defend this, the idea proposed by Judith Becker on deep listening seems to apply to the notion of music as something more than simply some additional component in the medium that it is applied to. Furthermore, through deep listening, a further involvement, or immersion, will happen as a result. In the theories on immersion collected in this assignment, there seems to be a consensus that music is not a primary component in the immersive progress, both in the articles by Douglas and Hargadon and by Ermi and Mäyrä, where immersion stems from schemas and context-based experiences. Music obviously does apply to both those terms, however, as proved in the analysis, it has the ability to be so much more.

Now, it was mentioned how some criteria of flow were harder to uphold than others. For example, concentration on the task at hand was considerably more difficult to keep at certain points of the gameplay experience, whereas time distortion happened almost all the time, given the more subconscious nature of the act. Because of this, it can be argued that the result of the gameplay experience might not have been flow, but rather something similar in nature. The argument is sparked by admitting the cruciality of the criterion 'concentration on the task at hand', and the exclusion of the autotelic personality. Both crucial aspects of the flow experience seemed lacking and almost excluded in the experiment. At times, constant concentration on the gameplay and overall goals of the gameplay was difficult, not only because of the experimental nature of the gameplay setting, but also because of simple everyday thoughts ruining the attention. As mentioned, music had the ability to apply further intensified concentration, however, in this case, it was not constant and was unreliable. Furthermore, if the experiment was done on a person with the autotelic personality, the flow experience might have been better and the results clearer. Another important point is the fact that the resulting experience of playing Celeste, did not result in any personal gain, retrospectively, as was an important result of flow, but rather, simply resulted in enjoyment with having played a game that was personally pleasing. Flow state, and trance, was mentioned as resulting in a feeling of enrichment and fulfilment, whereas immersion has no mention of such resulting feelings. It is merely the theory on what it takes to become

immersed in a medium, much like Presence. As no such resulting feelings were had, it could be argued that this experiment resulted in nothing but an immersive experience. It is further argued by acknowledging music's ability to alter the immersive experience and not only the flow state. The reason why said experiences were not present after the gameplay experience, could be argued to be because of its lacking continuity. Csikszentmihalyi explains how flow states often occur through multiple and on-going sessions with the task at hand with the possibility of increasing one's skills and prowess to overcome new and more challenging tasks (Csikszentmihalyi 21). With Celeste, the possibility is there, as new challenges do occur, however, they are short-lived and limited. Additionally, the option to speed-run the game is there but was never actually tried in this experiment. This option adds a layer of competition that could have otherwise altered the feeling of completion upon playing, as competition is another important factor in flow. Additionally, with the lack of high-fidelity factors, the possibility of attaining a feeling of presence seems highly unlikely in this medium, whereas certain components suggest the achievability of trance, but only regarding how positively music affects the overall immersive experience – it allows the player to be further involved in the experience. If players are given more time to establish a relationship with the music and characters, it might heighten the chances of deep listening and trance, however, the time span of the gameplay experience was limited. In answer to this, then, it seems most likely that an immersive experience took place - one that could have resulted in attaining flow, had the paper had a larger sample size and been tested on subjects with the autotelic personality.

CONCLUSION

This paper first unveiled how theories such as immersion, presence, trance and flow operate. They were explained with a focus on the community discord on whether immersion is an emotive response to context-based experiences that rely heavily on schema-theory, and that presence is a reaction to high fidelity virtual environments, or vice versa. Trance was discerned with a focus on a specific theory by Judith Becker that relied on the notion of "deep listening", with a resulting experience, reminiscent to that of immersion, as it heightens one's involvement in the moment. Finally, flow was described from Mihaly Csikszentmihalyi's idea that when a person is so fully invested in the moment, full involvement and concentration occurs, which, if handled correctly, results in a life of positivity. Additionally, the works by Johnny Wingstedt on music narrative functions in multimedia was elucidated as well, to gain insight into how music might affect the gameplay experience. These theories

have been illuminated with the envisioned purpose of clarifying how the video game Celeste upholds itself to the seven flow criteria and how the music narrative influences it, as well as to bring further agency to the following discussions.

It was further concluded that the music of Celeste clearly influenced the overall narrative. It was deduced through classes such as the emotive class and the informative class, that the setting of each level and the emotions displayed by both the protagonist and the antagonist, was conveyed through clever musical adaptions such as a change in instrumentation and switching between major and minor modality to convey the presence of Madeleine's crippling anxiety. Moreover, Celeste proved to uphold itself to all eight flow criteria and were thus, objectively, an admirable candidate for flow. However, further investigation proved that the test subject was prone to let disruptive thoughts disturb the possibility of actual flow, and that people with the autotelic personality would have been more suitable test subjects. Finally, it was argued that the musical narrative functions positively affected the flow criteria so that the overall involvement and engrossment were heightened, and that the music held actual diegetic agency, as it was influenced by in-game decisions.

For further research, it would be prudent to construct similar experiments with other video games, larger sample sizes and to attempt to locate people with the autotelic personality, so that, potentially, clearer results are achievable. Additionally, it is important to maintain a qualitative approach, as quantitative experimentation with such abstract and subjective phenomena seems contradictory to the notion of immersive states.

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