EXPECTING THE UNEXPECTED

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In partial fulfillment of the requirements for the M.F.A. Degree Ms. Cody Trigger has successfully completed her oral defense, exhibition and written thesis.

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A B S T R A C T

"Design time - create experience" is the mantra of experience design. But how can time be designed? How can it be used as a material?

This master thesis project is developed around the element of time. Where I take my knowledge about time as a composer, I have tried to transfers the rather abstract term into elements like event, transition, expectation and suspense. To design time can only succeed if one considers the attendee, acknowledging his/her role in creating an experience. The result is a conceptual piece appealing to multiple senses and crossing the boundaries between art, design and technology.

Keywords: Transition, Expectations, Surprise, Sound

CONTENT

INTRODUCTION

To hang in the air for a split second, not knowing what will come, is a phenomena found in music. I and colleagues call it the lift, also this is no scientific name.

I was fascinated by "the lift" and wanted to see how I could apply it on Experience Design. To work with transitions means to shape and arrange expectations and how those expectations are met. It deals with emotional responses such as uncertainty, suspense and surprise. A transition is nothing that makes everything.

I have a previous background as a composer, but first my experience design studies taught me how I can use this knowledge outside the field of music to design time.

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BACKGROUND

THE LIFT

WHAT IS THE LIFT?

The lift* has been the starting point of my project. The lift is a phenomena found in music, which I find quite illustrative to show the potential of transitions. The lift is an emotion/reaction that occurs when a pattern changes or an unpredicted pause interrupts the flow of music. Your expectations are disrupted. For a brief moment one hangs in the air without knowing what will come next. A moment of uncertainty.

A simplified explanation of the structure of the lift: Having a 4/4 time in music, the different parts can be divided into 4, 8 or 16 bars. This is building up an anticipation in the listener - will there be a change after for example 4 bars? Expectations of what will happen are based on previous experience. As well as the ability to foresee depends on the complexity of the music. The composer often prepares the listener for a change in the end of a passage which builds up for the lift. Within the transition the listener feel uncertainty and searches for a new pattern with anticipation. Gradually he/she recognize the new pattern and the feeling of rest appears.

WAGNER, SCHÖNEBERG AND STRAVINSKY

Richard Wagner (1813-1883), Arnold Schöneberg (1874-1951) and Igor Stravinsky (1882-1971) have all manipulated implicit or explicit established musical expectations. They introduced compositional innovation that had an influence of the modernist musical language.

Wagner worked very much with cadences, doing everything to avoid, disguise, elide, suspend or delay the cadential transiton. A cadence is the way a composer concludes a phrase. It can be done harmonically, with for example different cords or rhythmically to indicated the end of a phrase. People seem to

*I have only encountered the notion of the lift in dialog with a percussionist but found it very illustrative.

respond to Wagner music emotionally, describing it as expressive, passionate or intense. Wagner uses "the language of longing" (Huron, 2007). He uses tension and magnifies it by delaying the expected outcome. Wagner use of delayed cadences can be observed by analyzing how he treat rest. In popular music rest appears immediately after the cadence. It is used in order to distinguish between two phrases. Wagner instead superimposes the rest in the middle of the cadence where the anticipation is on its peak level.
(*Listen for example to the "The Flying Dutchman"*)

Stravinsky's approach towards expectations has focused on meter. He takes advantages of temporal expectations. Sometimes he maintains a steady beat incessantly and on other occasions the metric and rhythmic elements are so complex that they appear to be just chaos. The probability of an event are when Stravinsky composes are less predictable then randomly created patterns (Huron, 2006). This leaves the listener constantly in a confused state, searching desperatly for patterns to hold on to.
(*Listen for example to "Augurs of Spring" from "Rite of Spring"*)

Schöneberg on the other hand is using the same strategy but on tonal material instead of metric. He uses different methods to compose music with a predictive accuracy that is worse than chance in order to create the experience of discomfort. The sounds themselves then are misattributed and the impression arises that the music itself is chaotic. (Ibid).

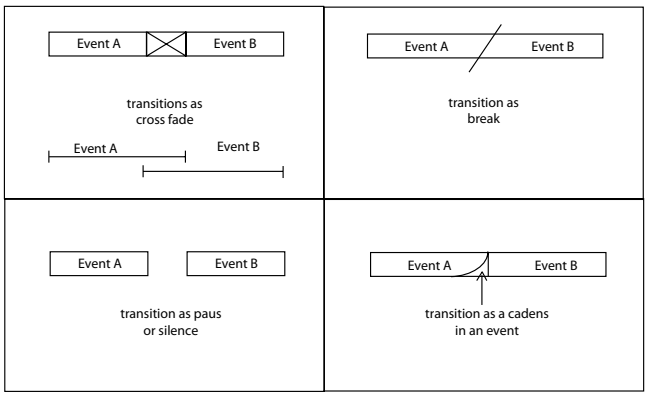
TRANSITIONS

WHAT IS A TRANSITION?

Transitions are in no ways limited to music. Transitions happen constantly in everyday life. Any passage from one state, stage, subject or place to another as well as any movement, development or evolution from one form, stage or style to another can be considered a transition. (Merriam-Webster Online Dictionary)

Transitions can be temporal, spatial and mental. Waiting for example is a temporal transition where you go from on state to another. More spatially oriented transitions are for example going through an entrance into a building. And an example of mental transition is an actor transitioning into his/ her character.

The way a transition happens can take many forms:



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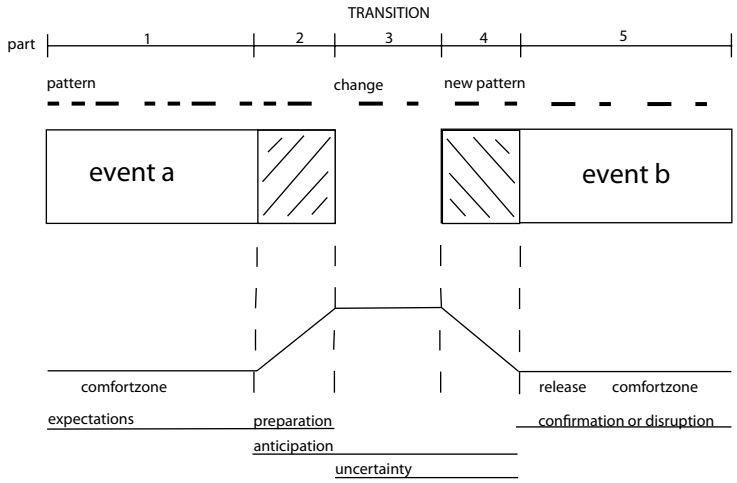
Stanford Kwinter is talking about transitions as energies that are going from one form to another and he equals energy with information. What becomes important within a system that performs over time is the transformation it undergoes. It influences the surrounding milieu as well as gets influenced by the surrounding. But the most obvious is the flow of information that travels within the system on different levels. When designing a system it is important to look at the classical problem of becoming instead of being (Kwinter, 2002)

Henry Bergson (1992) makes a distinction between qualitative (intensive) multiplicities and quantitative, extensive once. Where the quantitative is spatial and qualitative, intensive is the opposite, temporal. The problem of going from one event to another is not a matter of simple interior or autonomous moments but is always a larger system in which individual elements are caught up. It is the mapping from one such system to another that is of purely intensive nature.

In the early stages of this research I conducted some experiments like composing musical transitions in order to gain understanding for the phenomenon. Transitions in music can be a cadence or a pause or just a clean cut between two events. From this work I gradually came up with this illustration on how the mental process looks like, both cognitive and emotional. This resulted in this model of transition:



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TIME

WHAT IS TIME? HOW DO WE EXPERIENCE TIME?

Earlier the element of time has often just been an unconscious part in my work, till I through my experience design studies discovered that time is extremely crucial. But what is time? Despite the fact that we use and experience time constantly, it has puzzled scholars for centuries. Thousands of books and articles have been published on this subject, and yet it is still very difficult to grab what time actually is.

Many of us connect time with clocks, with hours, minutes and seconds. But the history of clock time is not very long. For most of human civilization there has been no way to insure being punctual. Ancient astronomers could at best calculate and mark years and months, but to distinguish hours and minutes is a much later invention.

We all can feel the passage of time, because periodic processes occur around us, and even within ourselves (breath, heartbeat and rhythms of the central nervous system). Those processes are not as accurate as a pendulum or a quartz crystal since they are affected by external stimulus or our emotional state. Which leads to different interpretations of how fast or slow time is passing.

While time is an abstract term, we can more easily speak about certain aspects

of time like duration, event , order, past, present, future and change.

WHY OR HOW IS TIME RELEVANT FOE EXPERIENCE DESIGN?

We usually experience the passage of time as a series of events. We often see time as linear, a succession of events in which earlier events imply later ones and later ones are consequences of earlier ones. But events don't appear nicely ordered one after the other, but in plurality of overlapping changes. The duration of a radio program, for example, can be combined with that of a breakfast, both being inserted within the longer period of an ocean voyage.

In non-linear time the order of events is not set. The Greeks had two words for time: chronos and kairos. Chronos means absolute time: linear and chronological, and quantifiable. Kairos, however means quality time - the time of opportunity, chance and mischance (Levin, 2006)

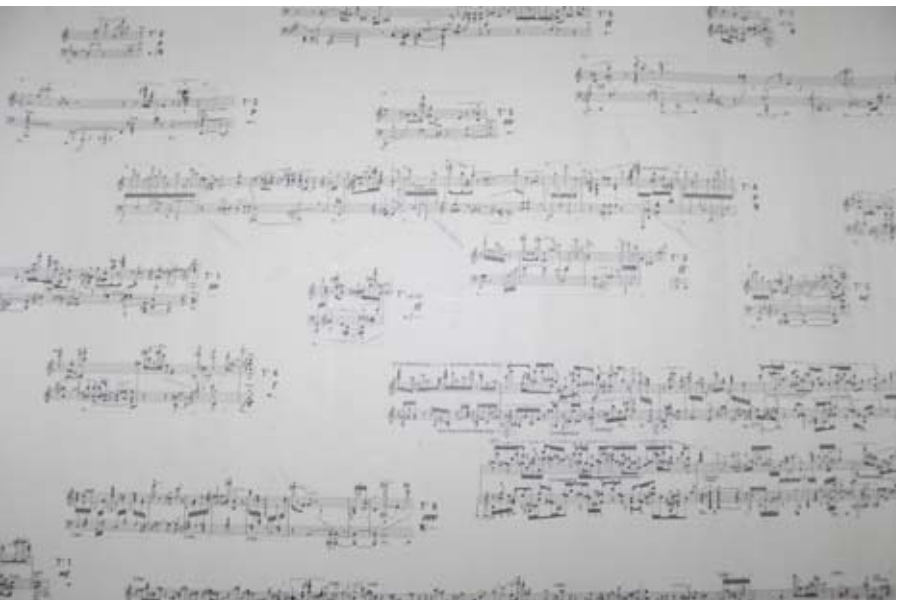
"In a world where time can not be measured, there are no clocks, no calendars, no definite appointments. Events are triggered by other events, not by time. A house is begun when stone and lumber arrive at the building site. The stone quarry delivers stone when the quarryman needs money." Levine, 2006 p. 81) Clocks have made people monochronic, preferring to just undertake one action at a time. The use of event time makes people polychronic, doing several things at once. There is particularly two interesting aspects of the notion of event time. First that an event has to take its time - appropriation of time. Secondly the polychronic quality that leads to an intuitive and exploratory approach. It reminds of the term Kairos - time of opportunity, that was used in ancient Greek philosophy. Time is layers of events that you can choose from, there is no set path that you have to experience time. It depends on your actions and your choices.

Designing time is nothing that can be solved by the book. One of the ideas in Slow Design is to conscious explore the pauses that the designer can generate and the purpose they serve, that is to say the rhythm between activity and inactivity (Thorp, 2007 p.187). Experience design and time seem to be connected. Elements like length, duration, timing are relevant in an experience, but neither a long nor short duration (or length) makes a good experience. An appropriate duration does.

THE ARROW OF TIME

There are irreversible processes, for example you can turn the egg into an omelet but not an omelet into an egg. That the past is different from the future and therefor we talk about the arrow of time. This idea goes back to the Australian physicist Ludvig Boltzmann who came up with the principles that later on was referred to as entropy. Entropy is a measure of how disorderly things are and that it tends to increase with time. Sean Caroll gives the example "if you neatly stack papers on your desk, and you walk away, you're not surprised they turn into a mess. You'd be very surprised if a mess turned into neatly stacked papers. That's entropy and the arrow of time." (www.wired.com 2010) What is concerning the scientist is why was the entropy low to begin with. This is something physicists are trying to understand who are investigating the properties of the Big Bang. The arrow of time is not to be found in the law of physics. It is a visible feature of the universe but not a feature of the law of the individual particles (Carroll, 2010).

TIME MADE VISIBLE



EVENT

Physics referes to an event as the physical reality represented by a point designated by three coordinates of place and one of time in the space-time continuum postulated by the theory of relativity (Merriam-Webster Online Dictionary, 2010). A more everyday life description of an event is; something that takes place, an occurrence over time. Unlike an object an event occurs while an object exists. While ordinary objects have relatively clear spatial boundaries and unclear temporal boundaries, events have relatively unclear spatial boundaries and clear temporal boundaries (Stanford Encyclopedia of Philosophy).

I find it relevant to compare an event with what is refereed to as phrase is music terminology. A music piece can be considered a system of phrases, what means

they are structured in a certain way and can be repeated and altered in different ways in a composition. An phrase is a unit of musical material that has a complete musical meaning of its own, it can consist of figures, motifs and cells. And those in turn have notes, pauses and articulations as their building blocks. If we exchange phrase with event we get this definition: An event is a unit of perceptible material that has a complete experiential sense of it own and it contains of smaller movements and building blocks.

But compared to music which is much easier to take apart, events are complex and take place in many different layers. Kwinter (2002 p. 111) is framing this problem of everyday life systems and mean that events do not obey the logic of succession. He differentiate between linear and homogeneous, numerical time as opposed to pure and plastic duration. Linear time can be measured and divided, it is with the spatialize time of the clock as a reference in which events occur while it is in the plastic flow of duration they arise.

Considerable psychological evidence shows that both the start and the end of an experience are most critical in determining one's memory of the event (this is called the serial position effect) (Norman, 2008)

WAITING

Waiting is a part of a temporal transition or an in-between state. And it is an unavoidable part of life. You go from wanting to be served to actually be served at the pharmacy or from expecting a baby to becoming a parent. Or something as trivial as waiting for the tea water to boil. Waiting has a goal and it is filled with expectations. Depending on those expectations and how they are met, different emotional responses are evoked.

Donald Norman says that if you have to make people wait it is important to set expectations and then meet them or exceed them (Ibid) Uncertainty is very often the source of emotional unhappiness. It is important to provide information about what is going on and how long things might take.

When John Cages famous piece 4'33'' was first performed, the audience was expecting music performed on a piano but was exposed to the sound of the concert hall and the audience. Most of the audience reacted strongly negative towards this experience because it clashed with their expectations. According to Norman Cages strategy would be a disaster in a commercial context. In his text "The psychology of waiting in line" he emphasizes the importance of letting people know why they have to wait and to provide ample feedback.

But Cages doing served his intentions, to question our notion of what music is and our perception of noise very well. As well as he definitely managed to engage the audience. It gives in interesting perspective on what a meaningful duration or not.

EXPECTATIONS

WHAT ARE EXPECTATIONS?

"Without transitions we have nowhere to place expectations"

Expectations are what is considered the most likely to happen. From a biological perspective expectations serves to make accurate predictions about future events and are therefore crucial to evolution. To be able to anticipate the future is a key aspect in order to better take advantage of opportunities and avoid upcoming dangers. Humans are equipped with mental capacities that help form expectations about what is likely to happen (Huron, 2007)

Anticipation is "a prior action that takes into account or forestalls a later action, ... the act of looking forward; especially : pleasurable expectations ...(or the) visualization of a future event or state."(Merriam-Webster Online Dictionary) Anticipation is fueled by the uncertainty of not knowing what will happen next and it can be experienced as negative as well as positive. Anticipation is a very powerful tool.

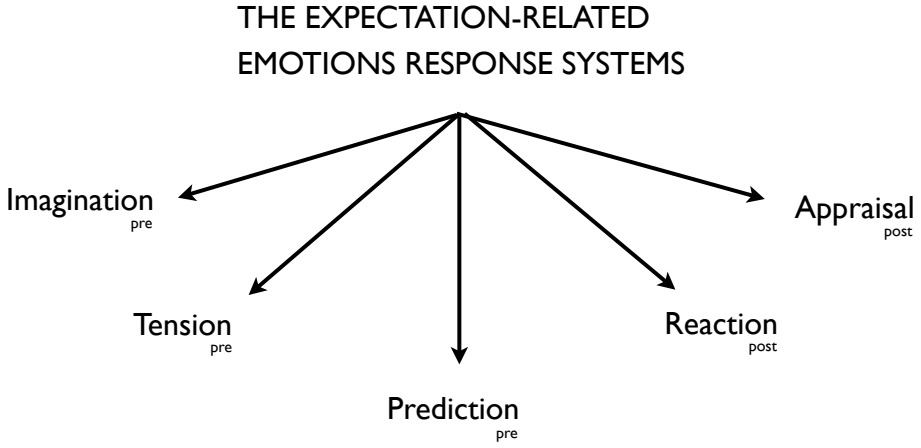
The object of expectation is an event in time. The expectation and uncertainty is pointing towards what will happen, when it will happen and where it will happen as well as way it will happen (Huron, 2007). It can be either of these or a combination. Sometimes the what is known but the when is uncertain or the when is know but not the where. Like earlier mentioned about music and our attempts to guess how a musical piece continues, we make those assumption every time we encounter change. It is something that goes on constantly, consciously as well as unconsciously.

WHY IS IT IMPORTANT?

People prefer familiar experiences (food, smell, faces...) rather then unfamiliar. This is defined as the exposure effect (Ibid). There are two theories that have been

proposed. Robert Zajonc means that the familiar stimuli reduce the likelihood of orienting responses, this gives that the organism arousal level is reduced. It is simply more pleasant. Familiarity allow us to pay less attention and to relax. The Second theory comes from Robert Bornstein and Paul DÁgostino, they mean that familiar stimuli is misinterpreted and attributed the ease of processing as a good stimuli. Huron (2007) propose that the relationship between exposure and affect is a consequence of prediction rather than exposure and refer to it as the prediction effect. It is the accurate prediction that is rewarded rather then the amount of exposure. In connection to the prediction effect it is worth mentioning the misattribution effect. Research has shown that within strong emotional experiences the brain tend to associate the emotional state with whatever prominent stimuli is at hand for the moment. (Ibid).

Huron (2007 p. 16) proposes a model explaining the expectation-related emotion response systems. Each system has its biological function. The first one, imagination response key function is to motivate behavior. This in order to increase the chances of future positive outcomes. The second response, tension response serves to prepare for expected events. It supports both motor preparation and perceptual preparation. The intention is to be prepared just in time, in order to conserve energy. If an organism need to be prepared for now reason there is a lot of energy waisted. The third response is the prediction response. Accurate predictions is crucial to an organism in order to take advantages of opportunities or avoid dangers. In addition something predicted is more accurately perceived. Reaction response is the forth in Hurons model and function as a worst case scenario reaction, generating an immediate protective response. The last response is the appraisal response and is providing negative or positive reinforcements on how things did work out.



Davd Huron's ITPRA-model

A SENSE OF THE FUTURE?

Our senses are considered to be sight, hearing, touch, smell and taste. But over the past centuries physiologist have established that there in fact exists many more. Can expectation also be considered a sense? Just like the sense of vision provides the mind with information about the world of light energy, the sense of the future provides the mind with information about upcoming events (Ibid).

SUSPENSE

The exhibition “Dialog in the Dark” tries to give you an insight into the experience of being blind. For more than one hour you walk through an exhibition space without being able to see a single glimpse - only guided by your guide and accompanied by other visitors. It is a very emotional and moving experience. Not being able to foresee what will happen next, put you in a constant state of suspense. Which is at first very scary, but turns into a good feeling when you start to feel you are actually able to handle the situation.

DELAY AND SUSPENSE

Delay can be used in order to increase tension. The tension response increases as the moment of the predicted outcome approaches. This in order to be prepared just in time before the anticipated event. If the outcome is late the tension peak will be passed and might amplify the tension response. The wait for the anticipated outcome will cause a longer and more intense period of tension (Huron, 2007)

Suspense is a state of mental uncertainty and anticipation. It is also used in film a lot and there referred to as the quality of uncertainty. There is the “paradox of suspense” - If suspense requires uncertainty, how can a viewer who knows the outcome still feel suspense? (Stanford Encyclopedia of Philosophy) This is the result of the prediction effect (Ibid) also discussed earlier in this thesis.

PREPARATION

In the exhibition Drömmens Syster at Världskulturmuseet in Göteborg both visuals and sound play a central role - in fact they supported each other in a effective way. We are not always able to understand a sound we hear, if we don't see the visual clue. In the exhibition a huge, back-lite picture of a snake is shown. When you first see it you do not pay to much attention to it but as you pass it your motion is triggering a sound of an attacking snake and you react very emotional to this. The image prepares you for what you hear. It happens quite unconscious - because you have a few seconds before looked at the picture of a snake, it comes to your mind when you try to interpret what you hear. Because you are prepared, you a) can categorize the sound and b) experience the thrilling feeling of "be aware".

From an evolutionary perspective one has to be alert and observe pattern changes, dangers, oddities. It is not a good approach, if not impossible, to constantly be prepared for all different kind of events. An organism needs to be economic, find a balance between full attention and relaxation.

Arousal is the body's preparedness for action. Attention is a network of mental processes that selects which sensation of thought become the subject of contemplation. Arousal and attention are from a physiological perspective two inter-

related systems that influence energy consumption. Heart rate, respiration and many bodily functions are controlled by the arousal system (Huron 2007). Attention is more a conscious system giving the brain signals to be alert and focused. Those reactions are fine-tuning our energy consumption. Typically both arousal and attention are involved in the preparation for an expected event. The goal is to synchronize the preparation with the right level of attention and arousal, in order reach the onset of the event at the "right" time and limit the energy consumption (Ibid).

Cues are very useful for experience design and can be used to prepare, to set the mood andto guide through a series of events. Musicians dress in a special way in a symphonic orchestra to set the expectations of the event.

When I write music for dance it is often necessary to juxtapose acoustic cues for the dancers as a references when a new event is about to take place. This is a very conscious sequence of action in order to stay in sync with the system.
The use of cues can also be used to raise expectations - that are than confirmed or disrupted.

SURPRISE

Expectations are either confirmed or disrupted. -obviously to different degrees. If you set expectations and want to create positive responses you have to either meet the expectations or exceed them (Norman, 2008). The role of confirmation in expectations was discussed earlier in connection to the prediction effect. Disruption or surprises are the antagonist to confirmation, but they can still evoke positive responses within an experience. It is also a rewarding tool for creating attention.

Earlier I described the role of expectations, that they serves to make accurate predictions about future events and when we fail to make accurate prediction it is not a good thing from a biological point of view. If surprises are biological bad how come that some surprises can be enjoyable? It seems like the contrast between predicted and actual outcome amplifies the emotional response. The fast reaction response (see Huron's ITPRA model) to a surprise is always negative but the appraisal response can also be of a positive nature. The contrast between those two states is the reason why we can enjoy surprises. (Huron 2007)

EMOTION

When we talk about emotions we tend to think about any of the so called primarily emotions. Anthropologist Paul Ekman set out to investigate if there is universal human emotions. He found out that this is the case. Researchers disagree on how many primarily emotions there are. But most agree on that the following emotions are included. Anger, fear, joy, disgust and surprise (Evans, 2001). But it is important to keep in mind that there are many more emotions like for example embarrassment, shame and pride, those are referred to as secondary emotions. Emotions are constantly influencing our perception. But when people are asked to give examples of situations that elicited emotions, you will most likely hear about events with great importance, like the beginning of a love affair or the end of one, or the death of a loved one etc. Such events are recognized as emotional in a human life (Desmet, 2008 p. 36).

But emotions are constituently part of our experience. In everyday life emotions are very important and not just a luxury. What we experience in this constant stream of emotions is what Damasio (2002) refers to as background emotions: sometimes are we very aware of them and are able to direct our attention towards them, sometimes we are not at all aware of them. Example of background emotions are to feel tiredness, energetic, excitement, sense of well-being and disharmony. Emotions constitutes qualities for adoption that are very important to humans in order to survive. For example our emotions are vital to how we focus and adjust our attention as well for unconscious reactions like arousal that help us to prepare for any given event. Emotions are also inseparable from the idea of positive and negative reinforcement, for example desire and dislike, personal advantages or disadvantages as well as our relation to good and evil. (Ibid)

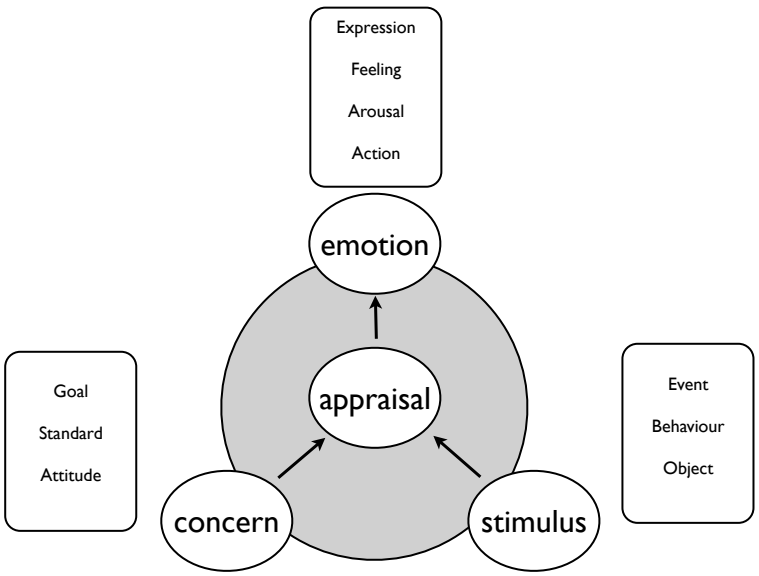
The origin of emotions are unconscious representations of possible activation patterns that occur in relation to different nerve centres. The accumulation of neural patterns occur from two different biological changes. There are those connected to bodily conditions and those that are connected to cognitive conditions. It is in the change of those patterns that emotions occur. When a pattern is activated several effects arise as a result and trigger responses both in the brain and in other parts of the body. When we are conscious of those emotions we have an experience. (Damasio 2002 p. 319)

What gives the distinctive phenomenological characters as a result from emotional reactions to for example anticipation and surprise? Emotions are amplifying motivation. Damasio (2002) mean that we don not think about future possibilities; we feel future possibilities. Emotions reinforce behaviour that is normally adaptive and avoid behaviour that is normaly maladaptive. This gives that emotions evoked by expectation do not differ in function from other emotions. It is all about reinforcing accurate prediction and promote appropriate event-rediness(Huron 2007). It all comes down to increasing the chance of a future positive outcome.

"We live in an designed environment, and to design an environment is to create context for emotion." Pieter Desmet

Pieter Desmet (2007) appraisal model of design emotion is describing the emotional process through a cognitive emotional psychology perspective. He identifies three key variables in the emotion process: Appraisal, concern and stimulus. Desmet means that emotional responses are derived from the appraisal of our concerns in a given situation in combination with the stimulus we are exposed to. Concerns can be things I aspire, things I expect or things I like or dislike. And the stimulus can be an event, behavior or object. All this can cause both positive and negative emotions such as joy, hope, pride and fear, disgust, anger.

"Design challenges have evolved from tangible to intangible, from permanent to temporal and from reactive to predictive." John Thackara



Pieter Desmet's Appraisal model of design emotions

SOUND

Sound has a lot of potential to evoke emotions by stimulating fantasy and re-calling previous memories. Even without us noticing it, it provides us with a lot of information (Dykoff, 2002). How we perceive a space or a material depends heavily on the sound it produces.

Sound exists or has a meaning first in the moment when someone hears the sound. To hear is a physiological process and is passive, while listening is a relation, where humans create something meaningful from what is perceived. To listen is to make choices. In todays society humans are constantly bombarded with sonic impressions and they must selected what has to be ignored and what perceived and processed. In this process again different choices are made and again decisions are made if the sound is of importance or not. This takes place in the reticular activation system (RAS) (Treasure, 2007). It is RAS that keeps track of what we are interested in or what kind of different needs we have at a particular moment.

The relation between the perception of sound and visual stimuli is very important. Humans sonic perception is very sensitive and small changes in a pattern are immediately noticed (Truax, 2001). If a sound is presented without any visual cue the perceiver will try hard to figure out its origin. If the perceiver can not figure out where it comes from we tend to search for previous sound-experiences to associate it to in order to make sense of it (Hällström, 2010).

Visual information and acoustic information is often used to accent each other. Sometimes it is even necessary to abstract either sound or visual stimuli in order to create an immersive experience. Direct replication of sound is sometimes not working and you have to manipulate it in order to sound “natural” to us.

2

AIM

AIM

Time is crucial for experiences and I believe that experience designers can learn a lot from composers and musicians about the nature of time and how to work with it intentional. Experience designers design systems and systems often contain a myriad of events and transitions on micro as well as macro level. Transitions are the glue in the system. It is what designer can use in order to connect different events and manipulate the attitude and emotional responses in the experience. A transition is nothing that makes everything. Although many point to the importance of temporality in design, there is a lack of investigations into how time and transitions can be used. To look at the aspect of time in experience design through the lens of music can be very beneficial and of great interest for the experience design community.

I am fascinated by "the lift" found in music and I have used it as starting point to explore the structure and ingredients of transitions. My goal is to transfer the knowledge gained into experience design. I want to experiment how one can use transitions intentionally - or to be more precise: how the elements expectation, and how those expectations are met, can be used to enrich an experience.
Can transitions influence the way we perceive and relate to a situation or environment? Can it alter the way we fell, think or act? Can it be an enrichment, or help to create attention or reflection?

With this project I want to apply a temporal and emotion-driven design approach. Initially it was a theoretical idea rather then the result that held a central place in my work. This gradually shifted when I started to realize the temporal qualities of transitions and its nature. I am going to use a very simple, everyday event/situation to explore the concept of transitions and to show its potential. My approach is going to be playful and performative. Also I have tried different approaches during my studies, my focus lies on working with acoustic experience.

3

RESULT

PROJECT

The result of my work is an installation that experiments with transitions and tries to make them visible and tangible. During my work I realized that transitions have a lot to do with expectations. In order to design interesting experiences, it is crucial to understand transitions. And in order to understand transitions it is important to understand people's expectations.

I have chosen a lamp to work with. A lamp is a rather common object. We do not pay too much attention to the interaction that happens between us and a lamp. It is there, we turn it on and off and that's it. The transition from on to off, from dark to light.

"Taking something that we think we already know and making it unknown thrills us afresh its reality and deepens our understaning of it" Kenya Hara

My intention was to show that interactions can be made more interesting or challenging if one works with transitions in a more deliberate way. I choose a lamp to explore how such an everyday interaction can be altered in order to create an experience for the user. I took everything I had learnt from looking at transitions, i.e expectations, anticipation, suspense, disruption and confirmation and tried to experiment with those moments.

My installation consists of a lamp from Fagerhult and a light switch from Elko. Built into the lamp are a pair for speakers and two RGB LED's. Above the ceiling is a sub bas speaker mounted and all the technology like the arduino microcontroller and computer are as well hidden there. A set of different sonic events that is randomly triggered when someone presses the light switch. Just on one occasion the light actually turns on.

EVENT

When pressing the light switch, sound instead of light appears. All sound pieces have been chosen according to their ability to surprise us, to play with our expectations. Many of the sounds used are usually connected to visual clues - but here we don't get them.

EXPECTATIONS

We have clear expectations connected to a light switch.

CLUES

When nobody is interacted with the lamp, the lamp itself and the light switch are producing a gentle glowing light that fades up and down in order to create an illusion of the system breathing. I needed a visual clue that attracted people, makes them curious to press the switch and also to a certain extend prepares them.

THE SOUND

To be honest, everything that you present instead of light, is not what people expect when pressing a light switch. And it for sure interrupts them for a second. But that would be making things quite easy. When one plays with expectations and tries to design surprises (or rewards) the quality of the event has to be taken into consideration. What is a surprise, but at the same time interesting, moving, entertaining or at least worth a discussion.

I have therefore chosen to work with sound that has the quality to surprise people. The sound they hear and what they see is out of sync. This is a powerful tool, that confuses us and creates interest. My work depends on that people keep pressing the light switch.

The different sounds are:
(1) Sound of a fly: sounds like a fly flying around in the lamp, but we just hear it, don't see it. I hope it makes people go examine the lamp.
(2) Sound of Rain and Thunder: a sound appealing to the senses - you almost feel it when you hear it. Once again confusion: sound without visuals.
(3) Sound of walking: a sound that very well could be perceived in the space but to hear it coming from above is unexpected.
(4) Sound from a metronome: producing a clock-like sonic space with connotation to meter in music. The steady pulse will be disrupted in order to cause an the lift experience.
(5) Sound of an Explosion: a sound I expect people to react quite heavily.
(6) Sound of a crowd: again playing with sound without the visual counterpart.
(7) Sound of a Subway train: sound well known but dislocated
(8) An abstract soundscape: something unfamiliar, can not be related to a sound source. I hope that people will spent quite a moment with the sound in order to figure out what they hear.
(9) Sound of movement: can I by using this sound, make people think the lamp starts moving?

The question regarding the sound is, if it is a) convincing and b) creating enough interest for people not to move to the next object directly. I do hope that the sounds used cause an emotional response, but I am also prepared to have a close look on how people react. Some sounds are probably going to be stronger than others.

The technology behind the installation consists of a computer that I have programmed to administrate the different sonic events depending on peoples interaction with the system. The program is made in MAX/MSP, hooked up with an arduino microcontroller board that receives the signals from the light switch and sends signals to relays turning the lamp on and off. To get a good quality for the sound and to produce a rich sound spectrum, especially of the lower frequencies I have built in a pair of speakers in the lamp and installed a sub bas speaker above the sound panels in the ceiling.

This is a very open system that can be configured in many ways. Different sounds can be applied. The light can be altered in so many ways and the interaction with the lamp can be expanded in many directions. For example you could use the lamp as a dial for interaction or just pure touch could lead to reactions. I have decided to scale down and try to find a balance between amount of information, interaction and poetry.

I have chosen to not to expose the actual bright light of the lamp too often because this is what you normally expect from a ceiling lamp. It comes on every now and then in the random cycle of switching to remind the user of its original function. The reason why I implemented the breathing LED's in the lamp and light switch is to create the initial disruption of the system to cause attention and curiosity. I have played with the idea to have a number of switches where each of them had its own function but rejected this idea because the impression of all those switches would steal to much attention and the user would spend to much time thinking about the amount and the function of each of them. I have chosen to use just one switch that triggers all the events randomly in order to keep the disruptive experience for a moment. This will eventuality turn into confirmation, the user start to expect the unexpected.

The placement of the lamp has also been considered. I wanted the lamp to be placed more then an arm length from the switch so that you can not stand under the lamp and press the switch. You have to walk back and forth in order to try out the different events. To make the experience more physical I considered to have the lamp placed so low that you have to bend in order to look into the lamp cone, but I have chosen to place the lamp so that you can stand under it and experience the sonic event directly. This also reveals that I have hacked the system by placing the loudspeakers and LED's well visible inside the lamp. It is important to make clear that I have not designed the lamp, I have hacked it in order to design an experience of time.

4

PROCESS

PROCESS

The process of this thesis has been very much explorative. I starting with something abstract and previously not much investigated. Therefor I first needed to explore and map the phenomena the lift. Besides listening to music, I composed short musical excerpts that illustrated different approaches to the lift. It became obvious that the lift is a transition.

The next questions to ask was what is transitions? Transitions can be described spatially, temporally or mentally. I wanted to focus on the temporal aspects. During that time I investigated non-linear storytelling as well as patina.

The problem was to find a context. Where and how could I explore the potential of transitions? Also transitions can be found everywhere, the main obstacle was the complexity of everyday experiences. Expectations are very important to understand in order to work on transitions. Either by rewarding or surprising the user, the transition always causes an emotional responses. I have put a lot of effort in trying different approaches in order to answer my research question how expectations and how those are met (temporal transition) can be used to enrich experience and cause attention.

I had many different ideas how to tackle the project (the costume project, the walking project - see my thesis blog, thesis.carleklev.se). Many of those projects helped me to develop my thoughts and finally arrive at the idea with the lamp. Another thing that helped me have been my small experiments , for example within Konstfack to explore if transitions can influence experience. I tried sound in the entrance - and learned that it was not a good place to add more sound. But through sonic interventions I understood what the space function is. I also made interventions in the hallway with different soundscapes. The lesson here was that sound we can not see or make out the source confuse the experience. This can cause negative effects as well as positive. Confusion, attention and curiosity.

5

DISCUSSION

DISCUSSION

TRANSITIONS
are
EXPECTATIONS
are
EMOTIONS

A MUSICAL PHENOMENA

My aim with this work was to take an element from music and apply it to design an experience. I feel like this has proven fruitful. Doing so can not just be a source of inspiration, but especially a source of learning and a possibility to increase the methods and vocabulary of experience design.
Working with the lift has taught me to pay attention to:

EXPECTATIONS

We as humans want to know what comes next, we want to be prepared. But we also want to learn new things, explore and create. I believe that a balance between the expected and the unexpected is the key to understand transitions. In order to compose a good experience there is a very thin line you can walk between the known and the unknown. If everything is too obvious we tend to get bored, or if there is too much surprise we get overwhelmed and shut off. This also leads to boredom. I think it is to easy to just say when you set expectations you either have to meet them or exceed them. You can very well also disrupt them in order to create an emotional response. The important thing is to be aware of this as a designer and meet the user, audience or participant in the emotional state he/she is. It all comes down to what experience you want to create
I have learnt to acknowledge how I can influence peoples expectations and that it is important to consider how we meet those expectations.

When pressing the light switch the expected outcome is delayed or is not happening. To just settle with taking away the expected outcome would probably leave a brief moment of suspense until the user is realizing that the lamp is broken. I want to take this some steps further by letting the tension response increase due to uncertainty to what comes next. My intention was to use a similar strategy that Wagner used with disrupted or thwarted cadences. To achieve this I use sound that is recognizable and cause different associations for the user depending on his/her background. Some of the sounds has more or less a common meaning to the different users, but the emotions, memories they evoke will anyway be very individual. I am also using sounds that are unknown/ abstract to the user to contrast with the known sounds and compare the different responses. What is disrupted is “what” will happen and “when” it will happen.

CUES

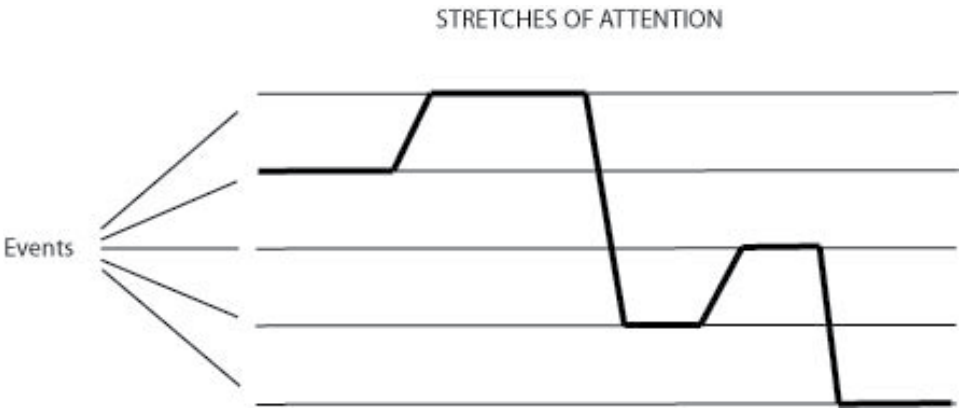
When making our assumptions about future events, we look for cues. Or we are presented certain elements that cause us to anticipate certain things. The basic

purpose of anticipation is to prepare for the future. Which is relevant for survival. It is the preparation act that initiate the transition, which is followed by anticipation, uncertainty and surprise. The transition is completed with release - a feeling of relaxation within the known of the new event. In my work with choreographers there is a quite obvious and good example how we worked with preparation - we often agree on inserting musical cues that initiate the transition to another event. Those cues does not necessarily need to be that direct. We can design cues that basically functions as attractors. This is the intention with the breathing appearance of the lamp and light switch, to disrupt the notion of the lamp and create attention.

STRETCHES OF ATTENTION

How do we prepare for a future that has untold possibilities?
It is very important when discussing systems containing human interaction that we leave the linear time frame and look at the system as unstable and non-linear systems (sanford). When we deal with humans and we want to provide some kind of participatory activity the system becomes unstable. We have to face it, those system is difficult to harness. We have to look at the system as fields of possibilities. Where each event has its own dynamic life that starts when the participant starts and ends when he/she ends. I see the possible passages that a participant can take within a system as parallel processes, therefore the non-linearity. As a designer you have to find ways to mediate relations within the systems. I have visualize this in a model below. It is crucial how we prepare the actant for the different events, and how we create the right attention. During the work with this thesis I have understood the importance of using disruption in order to create attention. But you have to consider the balance between disruption and confirmation in order to create an experience that does not bore you or on the contrary become elusive due to too much interruptions.

Transitions offer a lot of potential to design for experience. The challenge lays in how we connect different events in order to achieve certain emotional reactions like for example happiness or surprise or how to increase attention and sensitivity. To design stretches of attention is crucial when designing time.



QUALITY

I would like to mention an aspect of this work dealing with disruption used often both in art and design. It is easy to end up using disruption just to get attention. I think it is important to talk about the quality of disruption, is there a reason for them and a temporal connection to what is supposed to be communicated in the system. I am not interested in disruptive actions like turning up the volume,

printing bigger letters or provoke in order to get attention. The purpose of my installation is to wind up different aspects of expectation in order to find strategies to design time.

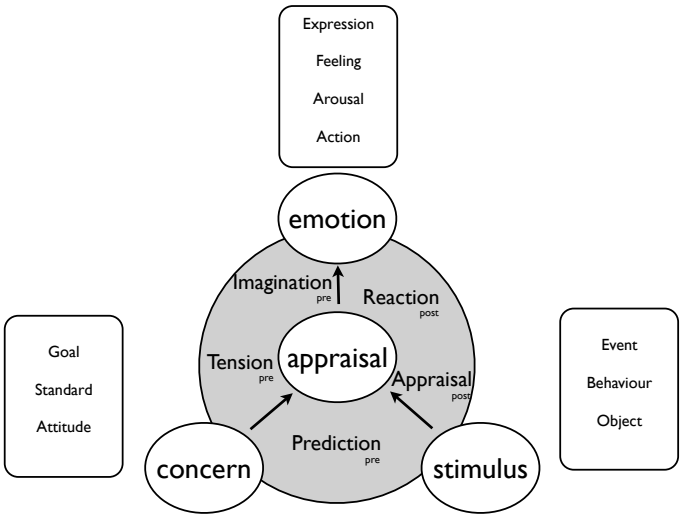
EMOTION

That design has an impact on our emotions is nothing new. Emotion or experience driven design can play an important role in this. It is important to take human emotion seriously and investigating what it is we really are designing.

It is the transition that connects different parts and transport the participant between different logical and emotional states. It provides convincing animations between different visual as well as sonic spaces in a designed system. When they are well performed they take the experience to a higher level and the content of the design gets the right framing. By taking advantage of emotional responses can cause interesting effects.

In this work I have developed my belief that it is very important to consider emotions when you design for experience. But it is not the big emotions we should aim for, like happiness, fear, sadness or anger. What I have been interested in are background emotions, those that are present all the time and enrich our everyday life. It can be good to feel energetic, excitement, pride or disharmony. What is so interesting about emotions is that they talk to us subconsciously as well as consciously. The knowledge that you can use expectations and how you meet them to evoke different emotions is what I think a really powerful tool for the experience design community.

Desmet's (2008) appraisal model of design emotion has helped me to understand if we as experience designers explore human appraisal through mapping concerns and stimuli in a specific situation and we are on a good way to understand how our designs evoke emotional responses. But I would like to propose to extend the appraisal part with what Huron (2007) is presenting in his ITPRA-model. What we gain with this is not just a more expanded view on how emotions are elicited. We also can see the temporal aspects of the experience, on micro level and macro level and everything in between. What we can learn from Huron (2007) is to compose experiences with events of attack, suspense and release. Where we design the emotional dynamics and the right balance between intensive events and events fold out to make room for rest.



First draft of a combination of desmet's appraisal model of design emotion and Hurons ITPRA-model.

SLOW DESIGN

In today's society we have many expectations. But the speed in which we move forward is constantly accelerating and soon we are going to move so fast that we can not anticipate the future anymore. To meet expectations with disruption and confirmation is a powerful tool to direct the pace and create a moments of rest and contemplation. To design a healthy balance between the known and the unknown, the expected and the unexpected were human emotion has the central place is a good strategy towards a more healthy and sustainable life.

6

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