"Waiting for the Bass to Drop":

Correlations Between Intense Emotional Experiences and Production Techniques in Build-up and Drop Sections of Electronic Dance Music

Feature Article

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Abstract

This study investigates the correlations between theories of intense emotional experiences and production techniques used in electronic dance music (EDM), commonly known as "build-up" and "drop", which are designed to create tension and a heightened emotional intensity among clubbers. This is done by descriptive and interpretive music analysis, where spectrograms and a schematic model visually represent the dominant production techniques. Through a theoretical framework consisting of musical expectancy and gravity, an analysis of two recently produced EDM tracks suggests that i) extensive use of uplifters, ii) the "drum roll effect", iii) large frequency changes, iv) removal and reintroduction of bass and bass drum, and v) a contrasting "breakdown" cause tension and anticipation, which seem to correlate with a possible intensification of emotional experience. This is furthermore discussed and more broadly related to the club experience, drawing on the psychological concepts of Peak Experience, Strong Experiences with Music and Absorption.

Keywords: emotional responses, EDM production, club experience, musical expectancy, gravity

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Dancecult: Journal of Electronic Dance Music Culture 6(1): 61–82
ISSN 1947-5403 ©2014 Dancecult http://dj.dancecult.net
DOI 10.12801/1947-5403.2014.06.01.04
dancecult
JOURNAL OF ELECTRONIC DANCE MUSIC CULTURE

Introduction

Music has the capacity to induce intense emotional and bodily experiences, and these experiences can occur when we are listening and dancing to music both in everyday life and on special occasions. For decades, scholars from a vast number of academic disciplines—philosophy, psychology, anthropology, sociology, musicology—have sought to find out why music evokes such reactions in us. The psychological approach to music and emotions seeks for an explanation to whether, when, how and why individuals experience emotional responses to music, and how, why and where we experience music as expressing or inducing emotions (see, for instance, Juslin and Sloboda 2001; Juslin and Västfjell 2008; Hallam, Cross and Thaut 2009; Juslin and Sloboda 2010).

The studies on how music can shape emotional peaks and intense experiences are many, and several academics have coined a number of related notions to describe these types of experiences. A point of departure for many of the scholars concerned with the phenomenology of musical listening has been the humanistic psychologist Maslow's term Peak Experience, defined as "the most wonderful experience of your life: happiest moments, ecstatic moments . . . from listening to music, or suddenly 'being hit' by a book or a painting, or from some great creative moment" (1968: 71).

Gabrielsson, a pioneer within music psychology, continued this research by collecting and systematizing interviews and self-reports of Strong Experiences with Music, with the primary purpose to "describe what reactions may occur in particularly strong experience with music, to explore which factors can elicit such reactions, and to consider what consequences the experience may have for the individual" (Gabrielsson 2011b: 547). Others have further developed this line of work; for instance, Herbert (2011) with the term Absorption. This notion refers to an effortless engagement that is not directed to any particular goal, but rather describes "a particular mode of engagement – one that is less pragmatic, often spontaneous and unconcerned with task completion *per se*" (2011: 86).

The scope of this article is solely focused on intense experiences in the club context, but obviously a range of desirable experiences may occur in this setting, and clubbers' motivations and reasons for seeking out this arena are manifold (see, for instance, Malbon 1999; Jackson 2004; St John 2004; Garcia 2011). I am, furthermore, familiar with similar notions of extreme experiences such as "limit experience", applied by, for instance, Bataille and Foucault (Jay 1995), where the state of ecstasy and euphoria is not present. However, in this article the psychological concepts of Maslow (1968), Gabrielsson (2011a, 2011b) and Hurbert (2011) serve well as holistic and overall categories to describe and discuss intense pleasurable musical experiences taking place in the club context. Scholars have often tended to theorise musical affect as an emotional "response", but using these latter psychological concepts as a basis, I conceptualise this as an emotional "experience", thus underlining the role of the culturally situated listener who is contributing, rather than merely responding, in the shaping of musical and emotional experiences.

These kinds of strong emotional experiences are accompanied by physiological responses. Recent studies within music psychology show that certain musical features and musical passages seem to correlate and further intensify emotional experiences. For instance, increases in heart rate and galvanic skin response, experienced as goosebumps, chills, thrills or shivers, can be triggered when perceiving music.[1] Studies suggest that changes or expansions in, for instance, dynamics, texture, structure and volume are associated with these types of physiological responses (see, for instance, Rickard 2004; Gomez and Danuser 2007; Guhn, Hamm and Zentner 2007; Dibben and Witek 2009; Grewe, Kopiez and Altenmüller 2009).

Musical tension and expectancy can furthermore shape one's musical experience (Meyer 1956; Huron 2006). In *Emotion and Meaning* (1956), music theorist Meyer develops his theory on how musical expectation and tension shape musical meaning by evoking emotional reactions, thus marking the starting point of studies concerned with positive and negative emotional responses to musical structures. The correlation between musical expectations and emotional responses has been further investigated and refined by Huron (2006), who coined the ITPRA theory of expectation, which attempts to explain how expectation is a source of musical pleasure. This theory consists of five physiological and expectation-related emotion response systems—Imagination, Tension, Prediction, Reaction and Appraisal—and each response is related to physiological and psychological changes, and may cause changes in attention, arousal and motor movements. These responses subsequently follow each other, and can be grouped into "pre-outcome responses" and "post-outcome responses". The *imagination response* is the ability to *feel* an outcome as if the outcome has already taken place. The feeling we get by imagining possible outcomes motivates us to act in certain ways to increase the possibility for favourable outcomes. The aim of the *tension response* is to prepare us for an approaching event by "tailoring arousal and attention to match the level of uncertainty and importance of an impending outcome" (2006: 15). The next level, the *prediction response*, deals with humans' ability to have an accurate prediction of what is to come; motor responses will come more rapidly and be more accurate if one can manage to predict the outcome, and it will also convey positive emotional responses if one succeeds in predicting the outcome (2006: 12–13). The *reaction response* has a fast onset and establishes if the outcome is pleasant or unpleasant. The function of this unconscious response is protective, typically activating either reflexes or learned behaviour schemas. While the reaction response constitutes a raw evaluation of the event, the appraisal response provides a conscious appraisal and a slower and complex evaluation of the event often drawing on a compound interrelation consisting of both social and contextual factors (2006: 15). The club experience stands out as a culturally dependent phenomenon and experience, and even though Huron both implies and includes cultural influence and significance, some critical remarks can be made about the theory's heavy reliance on biological processes, thus leading to a misunderstanding as Huron reduces complex musical emotion to a simple "cause and effect" pattern for musicians, producers and composers to use. Nonetheless, the responses Huron describes are applicable to EDM and serve as a pertinent explanation model of the

musical devices in "build-up" and "drop", which I find largely related to musical expectancy and biological and cultural processes combined.

A flourishing branch within music psychology, which is concerned with the role of the body when perceiving music, is embodied music cognition. One field of interest is how acoustic features afford certain kinds of bodily movements and also emotional experiences (Lakoff and Johnson 1999, 2003; Leman 2008; Godøy and Leman 2010; Larson 2012). Lakoff and Johnson have approached this by using metaphors (1999; 2003), and one of their metaphor concepts is orientation metaphors. This gives a concept spatial orientation and has basis in the body's experience with both the physical and cultural world around us (2003: 14), and they argue that:

> Since there are *systematic correlates* between our emotions (like happiness) and our sensory-motor experiences (like erect posture), these form the basis of orientation metaphorical concepts (such as happy is up). Such metaphors allow us to conceptualize our emotions in more sharply defined terms and also to relate them to other concepts having to do with general well being (2003: 58).

Larson (2012) expands on this and explores how musical meaning is shaped and both bodily and emotionally experienced through musical metaphors, movements and forces such as gravity, magnetism and inertia.

Musical expectancy and the orientation metaphor gravity constitute this article's theoretical framework, and the connection between these can be established by using Huron's ITPRA theory (2006). My suggestion is that we have an auditive expectancy based on gravity of what will happen when something ascends, descends and becomes intensified. Through repetitive encounters with objects reaching their maximum energy potential, we can imagine and predict the process and the outcome. Furthermore, we have expectations about how we emotionally and bodily experience gravity and auditive stimuli related to this. For instance, when sitting on a plane ready for take-off, we will have a clear expectancy of the further movements and accompanied sounds of the plane and how the movement and sounds will go in an upward direction to reach its maximum energy potential. We can at an early stage imagine and predict the outcome based on our experience with gravity and spatial orientation; objects that go up eventually come down.

Elements and passages related to orientation metaphors and musical expectancy can to a great extent be found in newer electronic dance music (EDM) tracks, and particularly in the sections "build-up" and "drop". These sections are filled with intensifying features, and DJs and producers are highly attuned to what production techniques "move the crowd", as in causing pleasurable states such as euphoria and ecstasy. However, studies on EDM and the club experience have primarily been concerned with sociological and anthropological aspects of clubbing (see Thornton 1995; Collin and Godfrey 1997; Reynolds 1998; Rietveld 1998; Fikentscher 2000; Jackson 2004), even though an awareness of the intense musical and emotional experience occurring in the club context is clearly stated in many of the above-mentioned works. Some thorough contributions regarding analysis of the musical design and aesthetics of EDM exist, with special focus on rhythm, sound, meter and structure

(see, for instance, Hawkins 2003, 2008; Butler 2006; Snoman 2009; Zeiner-Henriksen 2010), but generally EDM has not been subject to much music analysis of its production techniques, and especially not the production techniques in the sections "build-up" and "drop". When it comes to issues regarding correlations between musical features in EDM and emotional responses, they have not been explored in depth despite clubbers' utterances about clubbing being an activity causing intense emotional responses and the music being a powerful agent offering these experiences (Malbon 1999; Garcia 2011).

The club experience is a multisensory experience marked by an intricate intertwining of musical, personal and contextual aspects. As I will argue, the music has the strongest position, and the genre name reveals the primary objective: to trigger movement and make people move their bodies to the music in ways they find pleasurable. Thus, the music is one of the main reasons why most clubbers go out clubbing; to listen and to respond to the music presented to them in this arena.

This article investigates and theorizes how the dominant production techniques used in "build-up" and "drop" can potentially induce and intensify emotional responses in the two recently-produced EDM tracks "Body" by Cinnamon Chasers (2013) and "Icarus (Extended Version)" by Madeon (2012).[2] There are several possible approaches to this, but my focus is on the role of musical expectancy in peak emotional and bodily experiences in EDM, and I use gravity as an explanatory musical force and orientation metaphor to underline this. I have chosen to limit the analysis to this theoretical framework since my assumption is that they will offer a closer mapping of musical passages of EDM, but music-induced emotions are always a result of the complex interplay between contextual, personal and musical factors.

As previously indicated, not much of the research on EDM gives a detailed account of the musical features. However, the moments of building affective intensity are addressed by several of the scholars concerned with the music-theoretical aspect of EDM (Fikentscher 2000; Butler 2006; Montano 2009; Snoman 2009; Zeiner-Henriksen 2010; Garcia 2011), and especially the terms "breakdown" and "build-up" seem quite established within this literature. However, there is less consistency around the terms used to describe the section following the breakdown and build-up. Terms characterizing what the DJ does, such as "peaking the floor" (Fikentscher 2000), "peaking the crowd" (Montano 2009) "dropping (down) the bass" (Garcia 2011) and "dropping (down) the beat" (Butler 2006), occur frequently in this literature, but not a specific term defining the section as a whole. I therefore choose to refer to this section as "the drop", after its most prominent and audible feature, namely the reintroduction of the bass and bass drum. This way of producing EDM has expanded post-2010 in newer EDM genres such as dubstep, trap and electro-house, and can also be found in EDM-inspired pop music, but nonetheless the previous literature review gives indications of these ways of building tension as not an entirely new phenomenon.

Other metaphors have also been used to describe this intense experience, for example comparing it to a sexual climax (Fikentscher 2000: 41). However, my suggestion is that the production techniques relate to the feeling of being lifted, held in suspense, then dropped

down and grounded. A peak and a drop may be considered an antagonism, but I argue that the clubbers' affective intensity peaks when they experience being dropped back down into the anticipated and rewarding steady framework.

Musical expectancy and tension in EDM

Several perspectives on DJing have been offered and examined (see, for instance, Langlois 1992; Brewster and Broughton 2000; Butler 2005, 2006; Montano 2009; Greasley and Prior 2013), and there is widespread agreement that one of the DJ's and EDM producer's main roles is to create a dynamic dance night for the dancing crowd.[3] The DJ's interplay with the dancers is characterized by her/his awareness of and ability to both adjust to and move the clubbing crowd. My claim is that the DJ and EDM producer have a whole set of production techniques and methods explicitly intended to build emotional peaks, thus intensifying the clubbers' emotional and bodily responses. However, these correlations between musical features in EDM and emotional responses have, as previously mentioned, not been given much scholarly attention.

Musical structures in EDM are often characterized as highly repetitive, and EDM tracks follow an anti-teleological formal principle where the basic unit, often consisting of 2 or 4 bars, is repeated and developed throughout the track. The musical elements are built layer upon layer, and are most often introduced, changed and removed after 2, 4, 8, 16 or 32 bars. The groove consequently expands in textural density rather than length. With its repetitive grooves consisting of a complex web of rhythmic and melodic structures built layer upon layer—with variation, but not too much—one experiences how one can evolve *with* the groove and inside the groove. Several focus points are offered through the complex grooves, and one can shift focus by picking and choosing from the rich musical stimuli that are presented in addition to the obvious and gradual breaks and builds of tension; an issue further explored in Butler's article (2005) focusing on rhythmical and metrical qualities of EDM. My assumption is that this formal principle, by repetitive exposure, is well known to most clubbers.

Butler (2006) and Snoman (2009) identify structural conventions in EDM, which they associate to temporal changes in affective experience (fig. 1). According to this analysis, an EDM track consists of two build-ups and drops, where the second pair of build-up and drop is even more intense than the first pair. Due to repeated experience with EDM tracks and DJ sets in the club setting, clubbers predict and expect change after a certain amount of time, and they also anticipate tension-building with regard to breakdowns, build-ups and drops throughout the track. However, a DJ cannot just carry out this "cliché" the whole club night through without listening to and interacting with the clubbing crowd. DJing is highly complex, spontaneous and creative, and seldom does the DJ use a prearranged playing order because "such practice is frowned upon within DJ culture, and seen as contradicting the very notion of spontaneity that underpins DJing" (Montano 2009: 86). Creating emotional peaks and building musical tension is essential to the DJ or EDM producer, and

to the clubbing crowd; the clubbers know they will receive their build-ups and drops, but the uncertainty and the surprising element lies within the questions of precisely *when* and *how* it will be done. The DJ can toy with and excite the crowd by playing on elements of expectation and uncertainty, but has to be in tune with the crowd or else negative emotional responses can also occur, such as disappointment or loss of interest. The DJ interacts rather than dictating, and there is an "intense interaction between DJ and audience, a push-and-pull of desire, control, and pacing" (Garcia 2011: 189).

A range of techniques can be used to shape musical expectation, tension and intense reactions in EDM, but for the purpose of this article I narrow my investigation to some dominant production techniques in the build-up and the drop, and how these sections are significant when it comes to affecting the clubbers' movements and emotions. The names of the sections breakdown, build-up and drop are related to their function and intention; first the breakdown section *breaks down* the groove and intensity of the track, then the build-up section *builds* it *up* to a peak which is symbolised by *dropping* down the bass and bass drum. A breakdown is characterized by the track's texture becoming considerably thinner or even being entirely changed. Several instrument layers are removed, most importantly the bass and the bass drum—the foundation and steady beat upon and after which the dancers rely and coordinate themselves. The build-up gives strong indications of a massive musical, but also emotional and bodily peak ahead. The different instrument layers are built up one after one, layer upon layer, the rhythmic structures being constantly compressed, with the clubbers both hearing and sensing many upward and uplifting movements.

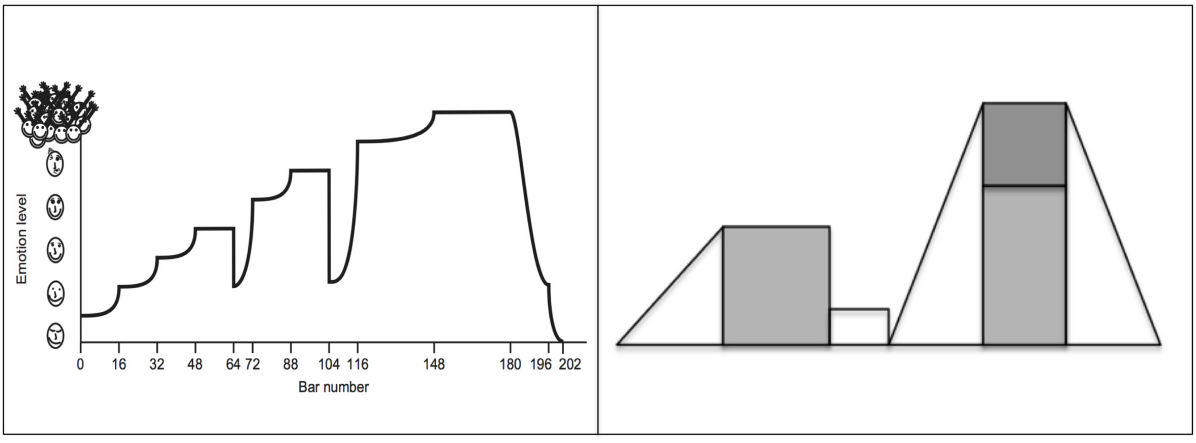

Figure 1. Left: Rick Snoman's (2009: 225) example of a typical song map including the development of the track and the intensity in the clubbers' emotional level.
Right: DJ Stanley's formal prototype of EDM tracks (Butler 2006: 222). The drop occurs where the graphs peak, meaning that the affective intensity of the clubbers peaks when they experience being dropped down into the beat again.

This continues until the dance floor is bursting with anticipation and seemingly cannot tolerate this any longer. Yet, the DJ plays with them and pushes their boundaries of patience just a little further, before giving them the timely tension-resolving part. The bass and bass drum are dropped down, and the main groove returns with its regular rhythmic and melodic structures, ideally leaving the dance floor more ecstatic than ever.

This tension and these sorts of peaks in dance tracks seem obvious, both for the dancers and the producer, but how can the emotional correlations with the music be explored and explained? Why are these production techniques so frequently and intentionally applied recently by both DJs and EDM producers, and what are the reasons for the clubbers' reactions? One way to examine this is to analyse an example of this feature in relation to theories of musical expectancy (Meyer 1956; Huron 2006; Juslin and Västfjäll 2008) and the orientation metaphor gravity (Lakoff and Johnson 1999, 2003; Larson 2012).

Case studies: "Body" by Cinnamon Chasers and "Icarus (Extended Version)" by Madeon

Method

The EDM tracks "Body" (2013) by Cinnamon Chasers and "Icarus (Extended Version)" (2012) by Madeon are two tracks with rather similar structures, which include both an intensified build-up and drop. These tracks are chosen as case studies because they both follow the formal scheme suggested by Butler (2006: 222) and Snoman (2009: 225), and also consist of typical EDM features such as sequenced groove element building, lack of complete vocal line, few harmonic shifts, and a steady and quantized rhythmic framework, in addition to an average dance tempo between 120–130 BPM (Butler 2006; Snoman 2009; Solberg 2011). The build-up and drop techniques used in these two tracks are, based on my knowledge of newer EDM, representative for how a broad number of DJs and EDM producers produce and create build-ups and drops. The production techniques are used in slightly different fashion in "Body" and "Icarus (Extended Version)", but turn out to be effective each in their own way. Remixed versions of these tracks can be found in clubs as part of a DJ set, but I have chosen to use these two fixed and available versions of "Body" and "Icarus (Extended Version)". The analyses are limited to some of the dominant production techniques present in a build-up and drop, but these features are always in interaction with other features in the track and the experience of them cannot be isolated from each other.

For the analysis, I have chosen an auditive and interpretive music analysis approach. In addition to this, a schematic model of each of the tracks is presented. This schematic model is my own development and consists of the track's amplitude graph and an overview of the track's different sections. There is also a drawn intensity curve present in these models, and this curve represents a possible perceived intensity of the music marked as a continuous line; a hypothesised phenomenology of the music which possibly may correspond with a measured "arousal" response.[4] This curve is derived from the formal prototypes suggested

by Snoman (2009) and Butler (2006) (see fig. 1), and my own interpretation of the tracks, in addition to information gathered from the amplitude graph. It also refers to the groove building where my suggestion is that sections with more layers afford more tension than sections with few layers.

A further vital element in the analysis is spectrograms of parts of the tracks. Spectrogram is a beneficial method that visualizes the frequency spectrum in a given cut of music, and the darker the area, the more activity there is. The horizontal axis indicates the time, while the vertical axis shows the frequencies. The lower frequency area indicates the bass and the bass drum, while higher pitched instruments are visible in the higher areas of the frequency spectrum. The software program Amadeus Pro has been used to present the spectrograms and amplitude graphs.

"Body" (2013) by Cinnamon Chasers

The first case study, "Body" (2013) by the British producer Cinnamon Chasers, follows the formal prototype presented by Butler (2006: 222) and Snoman (2009: 225) (fig. 1). As seen in the illustration below (fig. 2), this melodic electro house track starts with two intro-grooves (00:00–01:20) contributing with a rather flat, but slowly increasing intensity, and these grooves consist of a small number of dominant elements: a typical four-to-the-floor drum pattern including bass drum, claps, hi-hat with additional percussion instruments, a synth pad and piano chords gradually being mixed louder into the soundscape, and a short melodic synth structure, in addition to occasional sound effects. These elements constitute the simple foundation onto which tension is gradually built, and by which, I would suggest, emotional peaks are created throughout the track.

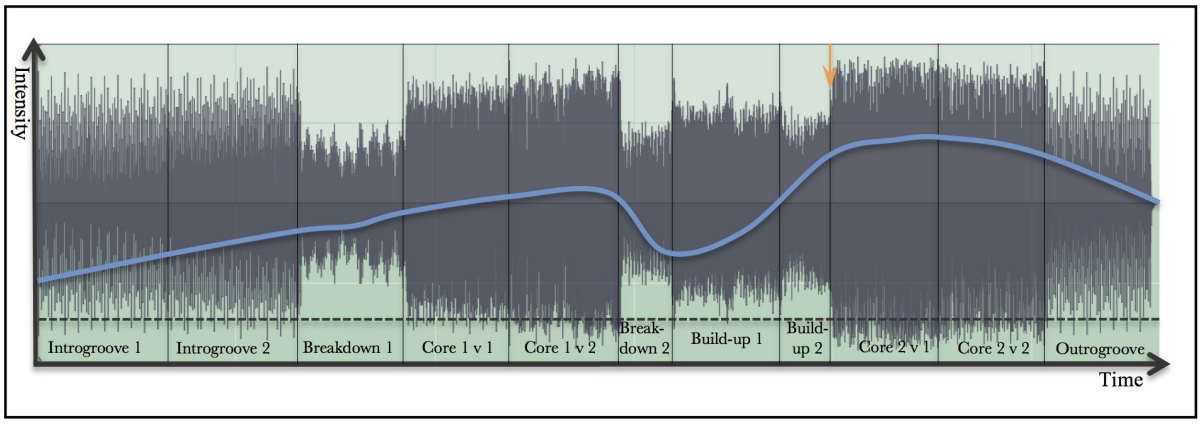

Figure 2. A schematic model of "Body" by Cinnamon Chasers (2013) with an overview of the track's sections combined with the track's amplitude graph. The blue line marks my interpretation of the intensity curve throughout the track, while the orange arrow indicates the drop.

Electronic dance music can be said to have one primary function and goal which is revealed in the name itself, namely to create pleasurable grooves to which the clubbers wish to respond by moving their bodies, or stated in a more simplistic manner—to make people dance. As mentioned previously, the names of the sections—breakdown, build-up and drop—also indicate their intentions, and these names relate strongly to movements and aspects of intensity and dynamics. Through these ways of creating a variation in the intensity, tension and interest are shaped. In other words, and leaning on the work of Meyer (1956) and Huron (2006), tension affords interest, and interest affords the music perceiver to be kept in the groove and the musical chain of events. This is also the case throughout the track "Body", and therefore the drawn intensity curve (see fig. 2) is highly pertinent in addition to its correlation with the amplitude graph. As seen in the figure above, the tension gradually builds towards the section "Breakdown 2" (02:56–03:12), where the intensity breaks before yet again being built against the highest intensity point in the track, namely the drop. The "Core" section is the track's main groove, representing the core of the track.

The build-up and drop in "Body" consist of four dominant features and techniques to peak the tension: the extensive use of uplifters, the "drum roll effect", and the removal and reintroduction of the bass and the bass drum, in addition to large frequency changes. The use of uplifters in both the sections "Build-up 1" (03:12–03:44) and "Build-up 2" (03:44–04:00) affords apparent upward movements. An uplifter is a sound being gradually pitched further and further in an upward direction, indicating that the section is headed towards "something", and the effect is, as the name points out, to lift the intensity in the section higher. The use of uplifters in "Build-up 2" in "Body" is quite extensive, and consists of several long synth sounds being pitched upwards in addition to the typical white noise uplifter.

Together with uplifters, the "drum roll effect", as I describe it, is a frequently used technique in newer EDM where the prominent rhythmical pattern, often the snare drum, becomes increasingly divided until the return of the core, starting out with quarter notes and culminating in a drum roll right before the bass drops and the bass drum returns. In "Body", this technique is clearly present in the four last bars of the build-up. There is also an increase in volume on the drum fill that in consequence makes us more aware of the element as it more clearly stands out in the soundscape. The "drum roll effect" is perhaps the element that expresses the intensity building the clearest. In EDM, tempo changes are seldom made; the dancers needs a steady and predictable framework on which they can rely and improvise within, but by constantly dividing the note value, the DJ or EDM producer gives the illusion and the effect of a tempo increase, affording a greater intensity without the dancer being uncertain about the beat.

In addition to the use of uplifters and the "drum roll effect", I have identified the removal and reintroduction of the bass and bass drum as the third dominant up-building feature in the build-up and drop of "Body" which coincides with the fourth technique—large frequency changes. After "Breakdown 2", both the bass line and the bass drum are removed, disregarding "Build-up 2" where a simplified bass line characterized by syncopated half

notes occur. In addition to this, the sound of the bass drum is quite higher pitched with lesser punch, which also is mixed quite lower in the soundscape, making it less noticeable compared to the bass drum found in the core sections. In "Build-up 2 v 2", the bass line and bass drum are completely absent and, together with the rest of the soundscape being increasingly pitched up, the frequency dominance and focus lies in the higher frequency area. The difference between the high-pitched uplifters and the reintroduction of the bass and bass drum becomes rather obvious and creates a greater peak; the return of the bass and bass drum signify the return of their foundation and grounding. Elsewhere it has been shown that sudden and great changes in dynamic, harmonic and structural features in certain musical passages of classical music—namely the chill passage—appeared to affect and correlate with the informants' heart rate and galvanic skin response (Guhn, Hamm and Zentner 2007: 473). One could therefore hypothesise that these devices, which also are found within genres of EDM, will elicit similar "chill" or peak responses, measurable through galvanic skin response.

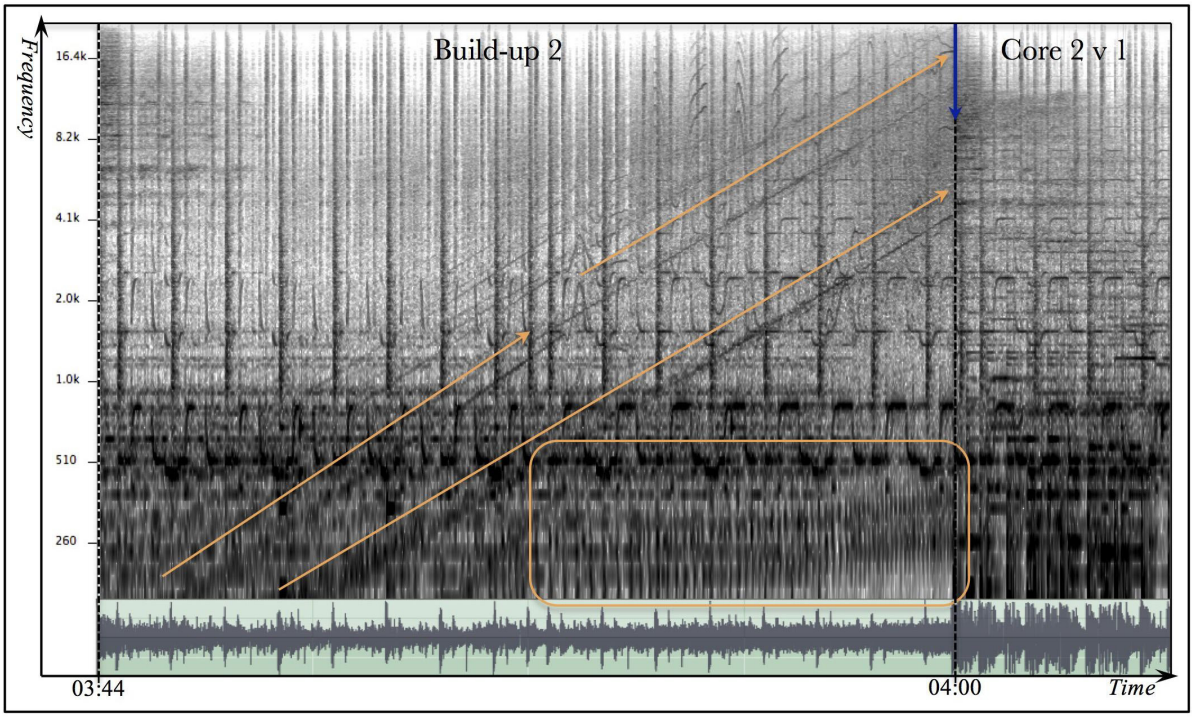

Figure 3. Spectrogram and amplitude graph of "Build-up 2" and "Core 2 v 1" in "Body" by Cinnamon Chasers. The orange arrows follow the uplifters while the rectangle shows the removal of the bass drum and bass. The blue arrow indicates the drop.

Using musical forces as a point of departure for interpreting both the musical and emotional peaks experienced in the build-up and drop of "Body", gravity stands out as a pertinent force where the feeling of being grounded is a profound emotional and bodily experience for the dancers and listeners when the core section yet again returns. Gravity is a possible approach to explore the clubbers' feeling and expectation of first being built up, then held in complete suspense, before subsequently being dropped and experiencing relief and grounding, or as Larson suggests:

> The *meanings* that listeners attribute to tumbling melodies may draw on . . . their resemblance to the behaviour of physical objects in motions – and that the widespread popularity of this pattern of upward leaps and downward steps is consistent with the idea of musical gravity (2012: 86).

Furthermore, with reference to Lakoff and Johnson (1999, 2003), this relates to a systematic correlation where certain movements are associated with certain emotions, such as up as happy. Thus, certain physical movements created by the musical structures may afford the same actual body movements and concurrent feelings of going up and going down. As mentioned before, clubbers have, after repetitive exposure, grown accustomed to the sections build-up and drop; they expect them to come and they expect being lifted, held and dropped, but the element of uncertainty is also included in this, regarding the questions *how* and *when* will it be done.

"Icarus (Extended Version)" by Madeon (2012)

The dominant production techniques in the French DJ and EDM producer Madeon's major electro house hit from 2012, "Icarus (Extended Version)", are the contrasting breakdown and the reintroduction of the bass and bass drum as represented through a micro vacuum moment occurring just before the drop. In addition to these aspects, the same techniques presented in the analysis of "Body", namely uplifters, the "drum roll effect" and large frequency changes, are also found here, even though the techniques are being slightly differently managed by Madeon. "Icarus (Extended Version)" shares to a great extent the same overall form principle and course of development as the track "Body" (2013), which also coincides with both Butler (2006) and Snoman's (2009) form suggestions (see fig. 1). The breakdown section, however, is of a somewhat different character than the breakdown in "Body" (2013), and especially when it comes to the breakdown's further influence on the build-up section and the effect of the drop.[5] To achieve a heightened emotional impact when the core is reintroduced, it is necessary to break down the already existing structure and intensity, to create "an ambient feel" (Butler 2006: 92) to subsequently heighten the impact of the drop's arrival and the return to the core section.

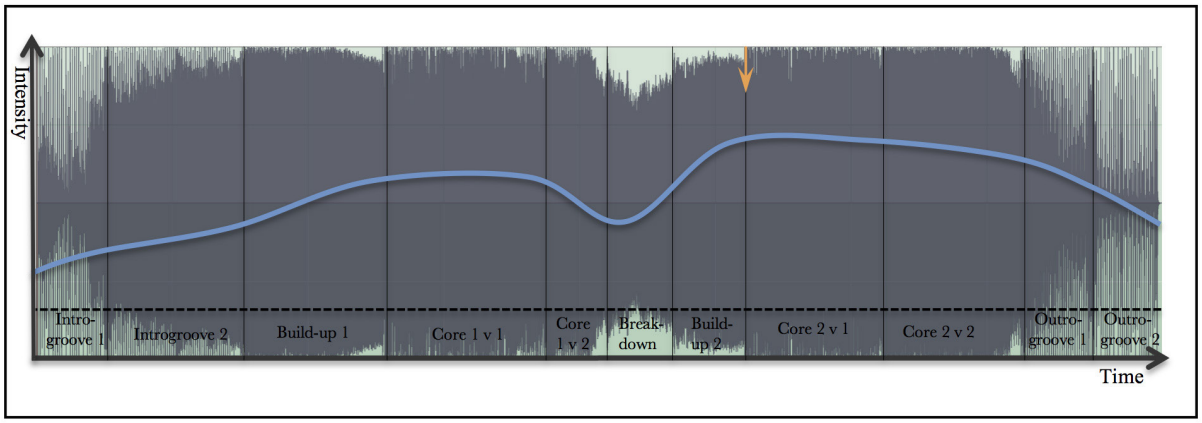

Figure 4. Schematic model of "Icarus" by Madeon (2012) with an overview of the track's sections over an amplitude graph. The blue line marks my interpretation of the intensity curve throughout the track, while the orange arrow indicates the drop.

While the "Breakdown 2" section in "Body" is mainly just reduced to its core rhythmic structures and conveys the same musical mood by the same sort of harmonic language, Madeon's "Breakdown" (02:06–02:21) in "Icarus (Extended Version)" contrasts largely to the track's overall *feel*, taking an ambient turn as in creating a floating and swaying atmosphere in this section. With its sustained harmonic stretches, a suspended string sample, a spacious synth pad and a whole note bass line, in addition to lacking rhythmic and percussive patterns, the breakdown section contrasts to the core section's punchy, rich and fully exploited soundscape with its persistent and steady drum groove. When the floating breakdown sets in, the clubbers will, with the expected and predicted drop in mind and speaking in terms of gravity and spatial orientation, have a potential longer way to go. I argue that this large contrast contributes to a greater intensified feeling when the core section eventually returns.

"Build-up 2" (02:21–02:36) sets in with a clap on every second and fourth beat, a long bass note and diverse "screaming" synths which are gradually being pitched up in addition to the usual white noise uplifter. The "drum roll effect" is also found in this build-up, but instead of constantly dividing the note value, as Cinnamon Chasers does in "Body", Madeon gradually turns the volume up on the drum roll and eventually it culminates in five syncopated snare drum hits, as shown in the orange rectangle in fig. 5, strongly accentuating the off-beats and by this indicating the arrival of drop. These syncopated snare hits also create a slight rhythmical ambiguity, and drawing on Meyer's work (1956) and Huron's (2006) tension response, this short ambiguity creates uncertainty of what will happen next with reference to the break in expectation, and it also leads to a brief challenge in matching one's arousal and attention to the level of uncertainty and the possible outcome (2006: 15). In turn, this creates musical tension and strong positive emotional responses when recognizing that the expected drop eventually does occur and the core's regular groove returns.

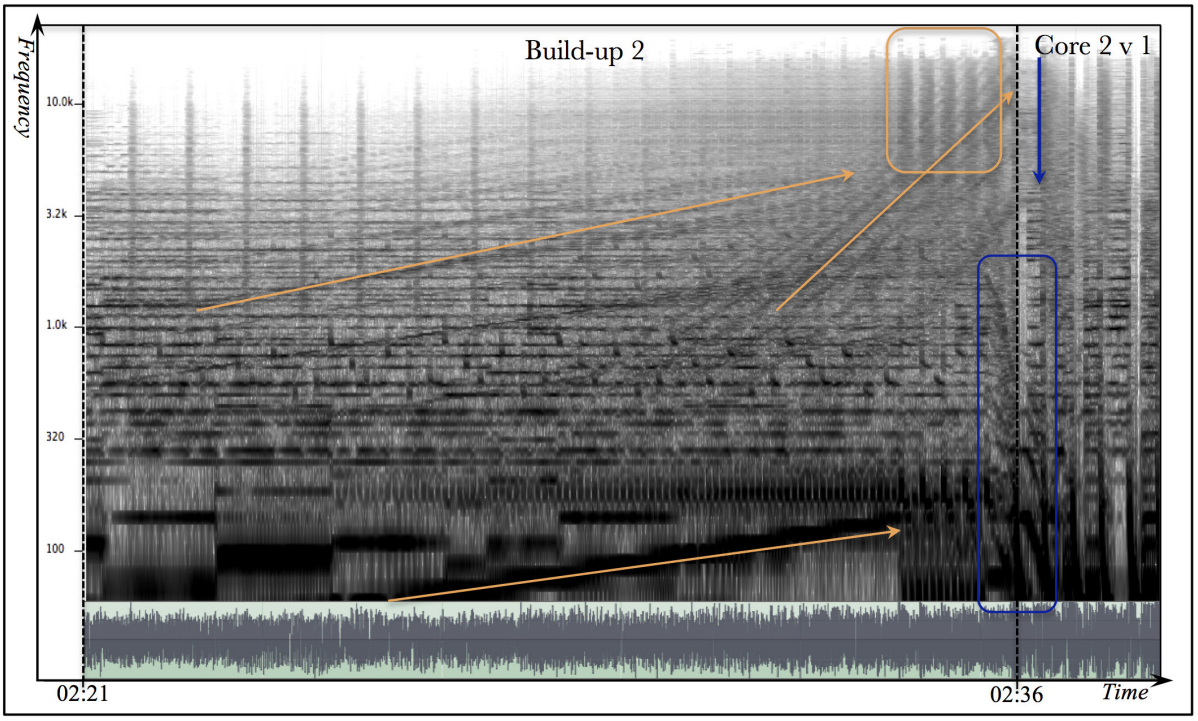

FIGURE 5. SPECTROGRAM AND AMPLITUDE GRAPH OF "BUILD-UP 2" AND "CORE 2 V 1" IN "ICARUS (EXTENDED VERSION)" BY MADEON. THE THREE ORANGE ARROWS INDICATE THE UPLIFTERS AND ASCENDING BASS, WHILE THE ORANGE RECTANGLE FRAMES THE FIVE SYNCOPATED SNARE DRUM HITS. THE BLUE RECTANGLE MARKS THE DROP AS IN THE DOWNWARD SLIDING BASS, AND THE BLUE ARROW SHOWS THE SECOND BEAT WHERE THE REST OF THE MUSICAL FEATURES SET IN AFTER THE BRIEF MICRO VACUUM MOMENT.

After the five syncopated snare drum hits, the drop is signified by a powerful declining bass slide being pitched down during the first beat of the next bar, and it is compressed quite evenly and sidechained to the bass drum to create a pumping effect and a more coherent and intense interplay between these elements.[6] The sliding bass sound together with the bass drum creates a slight micro vacuum moment where only these two elements are audible before the return to the core on the second beat, which in turn contributes with a new contrast to the rich and large soundscape at the end of the build-up. The bass slides down to the first beat, but Madeon yet again creates tension and uncertainty by withholding the rest of the groove elements just for a brief moment, thus finally arriving on and accentuating the second beat.

DISCUSSION

The analyses highlight some of the dominant production techniques DJs and EDM producers use in the sections build-up and drop with a heightened and intensified emotional experience as one of their goals, which I suggest are i) extensive use of uplifters, ii) the "drum roll effect", iii) large frequency changes, iv) the removal and reintroduction of the bass and the bass drum, and v) a contrasting breakdown.

When it comes to extensive use of uplifters, they afford, with reference to Lakoff and Johnson (1999; 2003), apparent upward movements, and the term itself refers to a metaphor used to describe an emotional state: to feel uplifted. This can, for instance, be seen in the comments made by users of the online social audio platform SoundCloud on the track "Icarus (Extended Version)". Many of the comments relate in different ways to the direction up—the feeling of being lifted, uplifted or flying, as the six following comments exemplify. The user AdanoCM writes: "totally awesome and uplifting beats!" (2013), while Edmond The Grovyle says: "I feel like im flying" (2013), and Mireille.D comments: "Love your music, it's so uplifting and invigorating" (2013). Another user Andrikkos writes: "Beauty I'm flying" (2012), while User613937110 comments: "hands up! praise God!" (2013), and Fitrahmunir claims that: "this song make me feel flying high!" (2012).

Another clear reference to the notion of flying is presented in Madeon's track title itself, namely the story from Greek mythology about Icarus who tried to escape from Crete with wings constructed of feather and wax. Icarus soon became ecstatic and overwhelmed by the thrill of flying and went higher and higher, and subsequently his attempt to conquer the skies turned into his death by falling into the ocean (Graves 2012: 301–309). While this story from Greek mythology has an underlying moral, I read it as a metaphor of the structure in Madeon's track and also his wish regarding the track's ability to lift or drop down its listeners throughout the track.

Based on repeated exposure to the use of uplifters in EDM, and with reference to Huron's (2006) Imagination Response and Prediction Response, I suggest that the clubbers predict the uplifters to reach their maximum energy potential, and the uplifters to subsequently end in a drop. To make this even more powerful, the DJ/EDM producer makes use of the whole frequency spectrum, and replaces the high-pitched uplifter with a deep-sounding bass to set in the core.

The drops in "Body" and "Icarus (Extended Version)" both relate to gravity and the feeling of being pushed in an upward direction, being further held in suspense before subsequently being dropped down again and grounded in the steady rhythmical framework. Both Madeon and Cinnamon Chasers evaluate the return of the bass and the bass drum as a vital production technique, but while Cinnamon Chasers illuminates the feeling of grounding by first minimizing the frequency spectrum in the lower area before massively expanding it again, Madeon does this in a slightly different and perhaps more intense manner. One might argue that he holds the clubbers longer in suspense through the creation of rhythmic ambiguity and the micro vacuum moment before dropping them down in company with the powerful descending bass slide. In addition to this, the withholding of the rest of the groove features until the second beat might in turn affect the listeners more intensely because this symbolizes a starker return to the track's regular rhythmical and melodic character. After the drop, one might claim that the Reaction Response and Appraisal Response sets in (Huron 2006), the removing or changing of the bass and the bass drum, and reintroduction of them through the drop, can be interpreted as the return of the foundation for the clubbers, leading to a feeling of being grounded.

As the spectrograms below show, the return to the main groove—the core of the track—is done in two different ways. In "Body", the textural density becomes considerately thinner, as marked by an almost empty space in the lower frequency, before the bass and bass drum set in again and provide the clubbers with their secure rhythmical framework. In "Icarus", the drop is a more obvious and long-lasting downward movement, and at the same time the sliding bass postpones the return to the core to the second beat of the bar.

The build-up leads towards the drop and the return of the main groove, and there is no doubt for the clubbers that this will happen; the build-up will at some point reach its maximum energy potential, thus the drop is inevitable. To be held in suspense at this maximum point and wait for the groove to return may afford great emotional tension, and is an effective way for the producer and DJ to excite the crowd. However, I propose that for the clubbers to get their reward as represented by the drop and return to the core of the track affords an even greater emotional experience. As gravity teaches us: what goes up must go down, and we know we cannot stay up there. The drop takes us back home, and as much as we enjoy flying and floating, it is my argument that after experiencing this, we enjoy the steady framework even more.

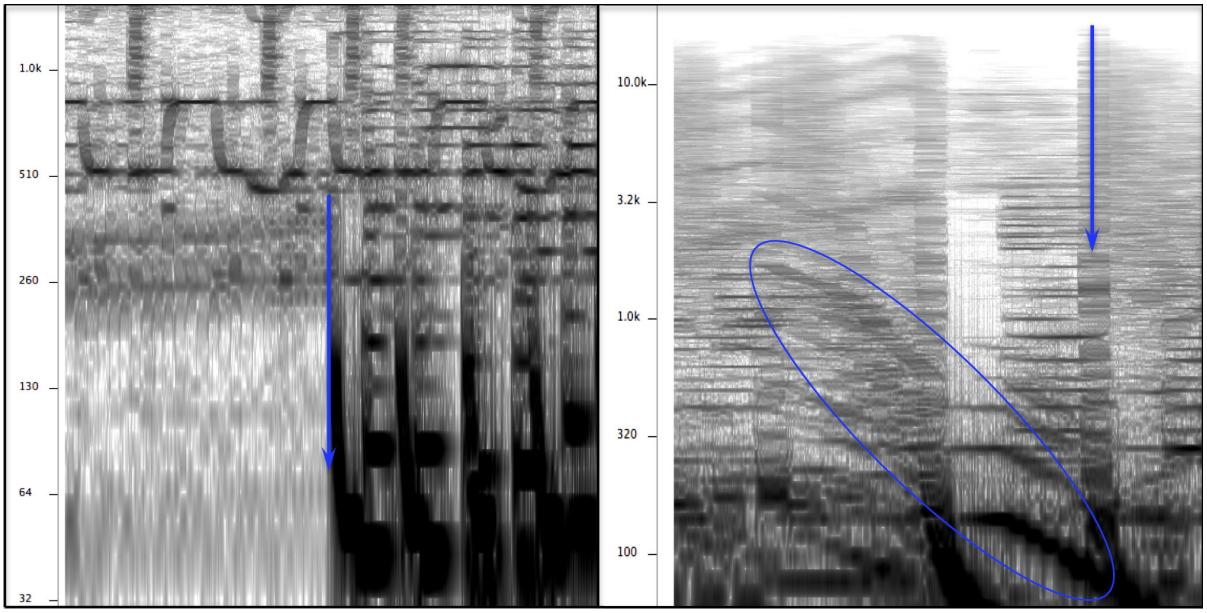

FIGURE 6. LEFT: CLOSE-UP SPECTROGRAM OF THE DROP IN "BODY" BY CINNAMON CHASERS, SHOWING THE DIFFERENCE IN THE LOWER FREQUENCIES BEFORE AND AFTER THE DROP WHERE THE BLUE ARROW INDICATES THE REINTRODUCTION OF THE BASS AND THE BASS DRUM.
RIGHT: CLOSE-UP SPECTROGRAM OF THE DROP IN "ICARUS (EXTENDED VERSION)" BY MADEON, WHERE THE CIRCLE MARKS THE SLIDING BASS AND THE ARROW INDICATES THE SECOND STRONG BEAT WHERE THE REST OF THE MUSICAL FEATURES SET IN AFTER THE BRIEF MICRO VACUUM MOMENT.

The awareness, expectation and moreover *experience* of gravity is also highly dependent on its context; walking on the edge of a cliff affords a greater awareness of gravity and experience of being pulled down versus lying still on the ground, or as in this particular case, listening to an intensifying build-up and being held in complete suspense before the bass drops makes us more aware of the force of gravity than when listening to, as an example, a meditative and static minimalistic piece. The feeling of being lifted, held in suspense and grounded can, with reference to Gabrielsson (2011a, 2011b), be defined as a quasi-physical feeling.

Regarding the contrasting breakdown, the clubbers will, with the expected and predicted drop in mind and speaking in terms of gravity and spatial orientation, have a potential longer time to build, and I suggest that this large contrast contributes to a greater intensified feeling when the core section eventually returns. Referring to Huron's Tension Response (2006: 9), the clubbers' preparation to the expected drop includes arousal in the motoric and perceptual preparation, where the aim is to match and synchronise these levels to the expected drop, so that they reach their maximum energy potential just in time for the return to the core section.

To conclude, I have focused on how certain musical structures and production techniques in these sections relate to a theorization of emotional experiences. My analysis in this article has provided a detailed account of musical structures and a hypothesised phenomenology of those moments. Taking on a meta-perspective, these sections are central tension building parts of the club experience as a whole. These particular emotional peak experiences in the build-up and drop cannot be seen in isolation from the movements and dance of the clubbers and the other complex factors at play in the club setting. The club experience can be comprehended as a highly multisensory experience, and the contextual, bodily and emotional elements of this holistic experience are, of course, of great importance. As Gabrielsson points out, Strong Experiences with Music are not only elicited by the music itself, thus suggesting the following division of influential factors: musical, emotional and situational (2011a, 2011b).

Both the build-up and drop in "Body" and "Icarus (Extended Version)" include many vital production techniques for the clubbing crowd's emotions and movements to be synchronized. These sections can also be understood as unifying, where a synchronization of a collective state occurs. Garcia (2011) touches upon this, and underlines the collective state and excitement in addition to the individual and intimate aspect of this experience. His interviewees report an intense musical and emotional experience when out clubbing, where "[t]his intensification is both driven and expressed by dancing, rhythmic entrainment, crossed glances, altered bodily states and the EDM that serves as a vortex for affect and the event itself" (Garcia 2011: 174).

Often the clubbers become fully engaged in the factors presented to them in the club context, and become one with the experience, the music and the crowd, in addition to losing the sense of time and self-awareness, as in a removal from individuality to a collective state (Malbon 1999; Garcia 2011). Thus, the club experience represents a timeless state where you

focus on being here and now, and with reference to Herbert's notion (2011), the clubbers become entirely *absorbed* in the clubbing activity. The notion of Peak Experience also accentuates some of the same attributes found in the club experience, for instance, changes in our attentional focus and how we perceive time, and often a loss of self-consciousness can be experienced in addition to feelings of fulfilment, ecstasy and euphoria (Maslow 1968).

Moreover, the club is constructed to make dancing the main activity and music the main focus. Moving one's body to the music may affect and strengthen the emotional aspects of the experience. As studies by Blood and Zatorre (2001), Salimpoor et al. (2011) and Gebauer, Kringelback and Vuust (2012) suggest, moving one's body to music releases dopamine, explaining why we may experience pleasure and well-being when perceiving aesthetic expressions. The club dance is characterized by being one amongst a crowd, as opposed to dancing one on one. It is both an individual and a social act at the same time, where the clubbers wish to dance and, as Ben Malbon describes it, "to interact with the clubbing crowd *as a crowd*" (1999: 45). Read with Maslow's eyes, this can be described as a Peak Experience because of its inclusion of the transpersonal and interconnectedness; the dance floor becomes one organism where every individual musical experience eventually becomes one collective experience. The clubbers are both "out-of-body" and "in-the-body" at the same time, and they are a part of something bigger, bearing a resemblance of spiritual and religious experiences (St John 2004).

Summary and Further Research

There are several factors at play in the club context, and many reasons why EDM in this setting can lead to ecstatic and fully engaging pleasurable states. This article has taken a theoretical approach and focused on the musical features occurring in EDM tracks, with special emphasis on how production techniques seem to affect us and correlate with emotional peaks. It is possible to examine these features and experiences of EDM in terms of different sources of emotional, physiological or bodily responses, but I have in the analysis of "Body" and "Icarus (Extended Version)" focused on two potential theoretical approaches, namely musical expectancy and orientation metaphors. My claim is that emotional experiences coincide with the production techniques, and one of the reasons for this might be how the listeners can experience being physically pushed in a clear upward direction, being held in suspense, before being dropped, and musical expectancy and gravity serve as theoretical gateways into how these experiences can be comprehended and explained. My hypothesis is that the musical features in these parts affect us to such a great extent that they can contribute to intense musical experience, and placed in a broader club context, provide the clubbers with peak experiences.

The study described in this article constitutes the preliminary stage of a PhD project that includes both qualitative and quantitative research to examine the correlations between musical structures in EDM and emotional and bodily responses. To further investigate and support these presented claims and hypotheses, experiments with measurement of clubbers'

physiological responses and movements to different build-up and drop sections are to be carried out.

Acknowledgements

I want to express my gratitude to my supervisor Professor Nicola Dibben at the University of Sheffield for contributing with motivating feedback and constructive suggestions on this article. Also great thanks to Torgeir Kristiansen for sharing his production insights and discussing the tracks with me, and to the guest editors Ed Montano and Simon Zargoski-Thomas and the anonymous reviewer for thorough comments.

Notes

1 Galvanic skin response, skin conductance or psychogalvanic reflex is "a change in the electrical properties of the body . . . following noxious stimulation, stimulation that produces emotional reaction, and, to some extent, stimulation that attracts the subject's attention and leads to an aroused alertness" (Encyclopaedia Britannica Online 2013).

2 Cinnamon Chasers is *one* EDM producer. He is therefore referred to in singular and not plural form.

3 My distinction between a DJ and an EDM producer is that the DJ remixes live in the club setting, often from a DJ set or mix consisting of pre-produced EDM tracks, while the EDM producer produces tracks that can be used in the club setting.

4 As in arousal in physiological responses such as galvanic skin response or heart rate.

5 "Icarus (Extended Version)" includes two build-ups, but the analysis only investigates the second build-up because it lasts longer, and includes a contrasting breakdown and uplifters.

6 Sidechaining is a compression technique where one sound source decides the compression pattern to another sound or sound group. Often this is used to create a pumping effect or to create a more coherent interaction between, for instance, the bass and the bass drum.

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