Bachelorthesis

Music Preferences Predictability Towards Risky Behavior

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Date: 19.1.2016

Abstract

To find the relationship between music preferences and risky behavior two questionnaires were used. Risky behavior was investigated via the Sensation Seeking questionnaire and the music preferences via a scaled list of 16 different music genres. The Sensation Seeking Scale consists of four subscales, which are Thrill & Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS) and Boredom Susceptibility (BS). The 16 different music genres were grouped via a factor analysis into four music categories - electronic music, agitated music, urban music and jazz music. The assumption was that people scoring high on the Sensation Seeking Scale have a higher preference for electronic music than for other music genres. 126 (65 male and 61 female) respondents participated in this online study. To investigate the relationship between Sensation Seeking and music preferences a bivariate correlation analysis between the music categories and each Sensation Seeking Subscale was conducted. The findings of the analysis show a clear result. Mean scores of the electronic music category correlate strongly (statistically significant at $\alpha = .01$) with each Sensation Seeking Subscale. This study is empirical evidence for the fact that people engaging in electronic music are more likely to show risky behavior than people engaging in other music genres.

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Introduction

People all over the world engage in producing and listening to music. Music plays an important role in all cultures. Psychological questions in relation to music deal mainly with the kinds of effects that music has on a person's behavior. Music is also used as a therapeutic measure in music therapy. In the young generation of today music plays a very important role especially since music is available anywhere anytime through electronic media. With this easy access to music questions arise as to what kind of effect music may have on people´s behavior. This study concerns itself with the kinds of effects that different music genres may have on risky behavior. Going to large crowd music events is something that especially young people enjoy. Large crowds of people always have the potential for unplanned things to happen. An example of this are the most tragic happenings at the Loveparade in Duisburg in 2010 (Krausz & Bauckhage, 2012). Depending on the type of music played in large open air concerts the question arises, if, depending on the type of music, there is more or less potential for danger. This danger can increase or decrease, depending on the behavior of the people in the crowd. Zuckerman has developed a good method to classify Sensation Seeking behavior (Zuckerman, Kolin, Price & Zoob, 1964). That's why the general concept of risky behavior this study started out with was narrowed down to Sensation Seeking.

Sensation Seeking is a well-studied subject. People scoring high on scales measuring Sensation Seeking for instance, try more novel foods than non-sensation seekers under conditions of low arousal (Pliner & Melo, 1997) and are more likely to try spicy foods (Terasaki & Menada, 1988). Regarding their behavior when driving in traffic, sensation seekers are more likely than non-sensation seekers to engage in speeding and they tend to ignore traffic rules more often, which leads to accidents resulting in driver injuries (Roberti, 2004).

Furthermore Sensation Seeking is closely related to substance abuse, like tobacco, alcohol, marijuana and even hard drugs like MDMA (Methylendioxy-*N*-methylamphetamin, also known as "ecstasy") (Martins, Storr, Alexandre & Chilcoat, 2008). Also sensation seekers are more willing to engage in high physical risk sports like mountain climbing (Cronin, 1991), high risk sexual behavior such as having multiple sexual partners (McCoul & Haslam, 2001) and minor criminal activities (Arnett, 1992).

Definition of Sensation Seeking

In general Sensation Seeking is a trait describing the tendency "to seek novel, varied, complex and intense sensations and experiences and the willingness to take risks for the sake of such experiences" (Zuckerman, 1994). A trait refers to the personality of an individual and can be defined as habitual patterns of behavior and thought. A trait is a characteristic of an individual which is relatively stable over time and differs across individuals. Some individuals may be more outgoing and extravert, whereas other individuals may be shyer and introverted than others, for instance (Costa & McCrae, 1980). People scoring high on the sensation seeking trait tend to ignore or tolerate the risky consequences a certain activity may have. They even perceive the risk as giving the activity an additional excitement bonus (Leary & Hoyle, 2009; Zuckerman, 2007).

Personality and level of arousal

It seems that sensation seekers need a higher level of arousal than non-sensation seekers. This raises the question as to the origin of that need for a high level of arousal. According to a study published by Fulker and Eysenck (1980) about 70% of the inter-individual differences regarding the optimum level of arousal can be explained through genetic variances. For the remaining 30%

environmental conditions are accounted for. People who can be called sensation seekers have a typical personality. According to a study by Costa and McCrae (1992) there exist five personality traits which are stable across the lifespan, namely Extraversion, Consciousness, Openness to Experience, Neuroticism and Agreeableness, all together called the "Big Five." Studies have shown that Sensation Seeking correlates positively with Openness to Experience and Extraversion and that there is a negative correlation between Sensation Seeking and Agreeableness and Consciousness (Roberti, 2004).

Measurement of Sensation Seeking

To measure the sensation seeking trait, Marvin Zuckerman who studied at the University of Delaware developed the Sensation Seeking Scale (SSS) in the year 1964 (Zuckerman et al., 1964). The scale has gone through several iterations and is currently in its fifth version: The (SSS-V) (Zuckerman, 1996). The scale is divided into 4 subscales, namely Thrill & Adventure Seeking, Experience Seeking, Disinhibition and Boredom Susceptibility (Zuckerman, Eysenck & Eysenck, 1978). Thrill & Adventure Seeking measures the desire to engage in sports or activities involving unusual sensations and risks, such as mountain climbing, sky diving or bungee jumping. Experience Seeking measures the desire for experiences through the mind and senses, social non-conformity and the desire to associate with unconventional people. Disinhibition detects the preference for being out of control, such as having wild parties, drinking and sexual varieties. Last, Boredom Susceptibility measures the aversion to repetition, routine and socializing with people considered to be boring. Each subscale consists of 10 items, so the complete (SSS-V) contains 40 items in total.

There is a substantial gender difference in Sensation Seeking. Sensation Seeking is more common among men than among women. In general females score lower on the total Sensation Seeking Scale. The difference is especially significant in the Thrill & Adventure and Disinhibition Subscales. Furthermore men show a higher Boredom Susceptibility than women. In Experience seeking, however, there was no significant difference between men and women (Zuckerman & Neeb, 1980)

The phenomenon Sensation Seeking

The concept Sensation Seeking undergoes a change across the lifespan. It increases in both, men and women, from childhood to adolescence. It peaks at the age of 20 and decreases from then on. In females it decreases steadily with two large drops between the 30's and 40's, and again between the 40s and 50s. Regarding men, the preference for Sensation Seeking decreases later and more irregularly with a distinct drop between the 40's and 50's. On the Disinhibition Subscale, males do not show an age decline until the 60s (Zuckerman & Neeb, 1980).

There is also a variation in Sensation Seeking across cultures. According to a study by Magaro, Smith, Cionini and Velicogna published in the year 1979 it seems that American and Italian female college students are higher sensation seekers than their Japanese and Thai counterparts. Eastern cultures seem to produce lower levels of sensation seeking than western cultures.

Relationship between music and Sensation Seeking

Another area where research has been done is on people scoring high on the Sensation Seeking Scale and their preference for a certain music genre. According to a study by Zuckerman and Litle

(1986), Sensation Seeking correlates positively with all kinds of rock music and negatively with soundtrack music. Moreover, liking punk, heavy metal or reggae music is related to higher levels of Sensation Seeking (Weisskirch & Murphey, 2004).

It seems that high sensation seekers prefer rock or heavy metal music because of the arousing quality of the music. Nevertheless, there are other music genres with a comparable arousing quality to that of rock or heavy metal music, such as electronic music. Until now no research has been done to investigate the correlation of Sensation Seeking and electronic music. Reason for that could be that electronic music is quite a new music genre having become more popular in the last few years. A special subgenre of electronic music is techno music which is characterized by a high level of BPM (Beats per minute).

Research Question

As sensation seekers need a high sensory stimulation from the environment we can assume that sensation seekers prefer a music with a high intensity, like techno. This study will try to clarify some of that and find an answer to the following question:

"Do people scoring high on the Sensation Seeking Scale have a preference for electronic music with a high level of beats per minute (BPM)?"

Given the fact that sensation seekers perceive risk to an activity as an extra excitement level, it would be relevant to know if sensation seekers prefer a certain music genre. If this is the case, it would be advisable to pay attention to festivals or parties where that kind of music is played.

In the following section the method of the conducted research will be described in detail. After that, the results of the statistical analyses of the data will be presented. In the last section, the results will be concluded, the potential drawbacks and limitations of this study will be discussed and new scientific insights will be pointed out.

Method

2.1 Participants

In total, there were 150 subjects who participated in this study. 126 of them completed the questionnaire. Due to the fact that the “forced response” option was used, it can be assumed that 24 people didn´t finish the questionnaire. The completion of the survey took approximately 10 minutes. Of the 126 completed questionnaires 61 subjects were males and 65 females, a well-balanced gender distribution. The only requirement for participating in the study was a good command of English.

2.2 Data analysis

The (SSS-V) exists in a form with a series of 40 pairs of dichotomous statements from which one has to be chosen. For this study the following alteration was used: Instead of having a pair of statements from which to choose a 5 – point Likert Scale was attached to one statement. Attention was paid to have a balance between positive and negative statements and an equal distribution for each subscale.

First, the number of people who didn´t fill out the entire questionnaire were counted and deleted for the actual data analysis. After that, the 20 negatively stated items were inverted with the help of the program SPSS. Inverted means that a high score in the negatively stated items represents a low score with the Sensation Seeking concept. Then a reliability analysis of the four different subscales was executed. This was done to calculate the reliability of the newly developed scales. Next a factor analysis of the altered Sensation Seeking Scales was conducted.

A factor analysis of the Music Preferences Questionnaire was also conducted. After the factor analyses, correlations between the altered Sensation Seeking Scale and the Music Preferences Questionnaire was conducted.

2.3 Procedure

The respondents were found via convenience sampling from the environment of the researcher. They were mainly asked to participate in this study through social media like Facebook or WhatsApp. The online survey was developed and conducted with the help of the program Qualtrics. The data collection took place between 23th of November and the 30th of November 2015. This short time period proved to be sufficient because no other requirements besides a good command of English were needed. The participants were informed beforehand that they were taking part in an online study which measures music preferences´ predictability towards behavior. They were not informed that the study dealt especially with risky behavior because the word "risky" might have led the participants to hold something back. Participating in the study was voluntary and unpaid. The participants were told that they were allowed to stop the questionnaire any time they felt uncomfortable. Furthermore they were informed that the data would be processed in an anonymous way. The Statistical Package for Social Science (SPSS), Version 23, was used for the statistical analysis of the data.

2.4 Instruments

In order to answer the research question, a survey was developed to investigate the relationship between Sensation Seeking and music preferences. The demographic variables asked for were age and gender. The survey consisted of two different instruments. The first one was a 6 – point Likert

Scale measuring the music preferences of the participants. In total the questionnaire contained 16 music genres, like Rock music, Jazz or Techno. The participants were asked to indicate how often they listened to each particular music genre. The 6 possible answers were 1 = I don´t know that music genre; 2 = never; 3 = rarely; 4 = sometimes; 5 = often; 6 = very often. The second instrument was an altered version of the Sensation Seeking Scale, developed by Marvin Zuckerman (1964). The original scale contains 40 items. Each item consists of two opposite statements, one statement which supports the Sensation Seeking concept and one which disapproves it. An example of one item is:

- *I like wild "uninhibited" parties* - *I prefer parties with good conversations*

One of the two statements has to be chosen. In this study the original Sensation Seeking Scale was used as a template. All items of the original scale were used in the form that 20 positive and 20 negative statements were used with an attached 5 – point – Likert Scale. The distribution of positive and negative statements of the four subscales (Thrill & Adventure Seeking, Experience Seeking, Disinhibition and Boredom Susceptibility) was even, five positive and five negative statements for each subscale were randomly chosen. The participants were asked to indicate to which extent they agree with a certain statement. The five possible answers were 1= totally disagree; 2 = disagree; 3 = neutral; 4 = agree; and 5= totally agree. An example of one item is:

	totally disagree	disagree	neutral	agree	totally agree
I like "wild" uninhibited parties	○	○	○	○	○

Results

3.1 Reliability analysis Sensation Seeking Scale

The Sensation Seeking concept was measured with a newly designed questionnaire and it was deemed reasonable to determine the reliability of each subscale. The reliability analysis was conducted separately for each subscale. The 10 items of each subscale were selected and Cronbach's alpha was chosen for the reliability analysis. The Cronbach's alpha of the Thrill & Adventure Seeking Subscale had a value of .77. With such a clear value all the 10 items were used for further analysis.

Cronbach's alpha value of the Experience Seeking Subscale had a value of .53. After item 19 was removed the value was raised to .56. There was no other item which could be deleted to further raise the reliability. An overview can be seen in Table 1.

Table 1

Cronbach´s alpha if item deleted for Experience Seeking Subscale

Item		
4)-I dislike all body odors	.49	.54
6)-I prefer a guide when I am in a place I don't know well	.51	.56
9)-I have tried marijuana or would like to	.44	.48
10)-I would like to try drugs that produce hallucinations	.43	.49
14)-I order foods with which I am familiar to avoid disappointment and unpleasantness	.52	.56
18)-I would like to take off on a trip with no preplanned or definite routes, or timetables	.50	.52
19)-I prefer the "down to earth" kinds of people as friends*	.56	
22)-I like to meet people who are very different from me	.51	.54
26)-The essence of good art is in its clarity, symmetry of form and harmony of colors	.51	.55
37)-People should dress in individual ways even if the effects are sometimes strange	.50	.54

* deleted item

Cronbach's alpha value of the Disinhibition Subscale was .61. After item 33 and item 29 were removed Cronbach´s alpha value came to .71. With such a high value it was not deemed feasible to reduce further items. An overview of the values of Cronbach´s alpha if item deleted for the Disinhibition Subscale can be seen in Table 2.

Table 2
Cronbach´s alpha if item deleted for Disinhibition Scale

Item			
1)-I like "wild" uninhibited parties	.47	.54	.60
12)-I dislike people who are uninhibited about sex	.60	.67	.73
13)-I often like to get high (drinking alcohol or smoking marijuana)	.49	.56	.62
25)-I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal	.53	.60	.65
29)-I like to date people who share my values**	.64	.71	
30)-Keeping the drinks full is the key to a good party	.55	.61	.67
32)-A person should have considerable sexual experience before marriage	.58	.63	.68
33)-Even if I had the money I would not care to associate with rich people like those in the "jet set"*	.66		
35)-There is altogether too much portayal of sex in movies	.62	.54	.73
36)-Something is wrong with people who need alcohol to feel good	.57	.67	.70

* deleted in 1st step ** deleted in 2nd step

Cronbach's alpha of the Boredom Susceptibility Subscale was .51. After item 39 and item 2 were removed Cronbach´s alpha was raised to .56. There was no other item which could be deleted to further raise the reliability. An overview of the values of Cronbach´s alpha can be seen in Table 3.

Table 3

Cronbach´s alpha if item deleted for Boredom Susceptibility Subscale

2)-There are some movies I enjoy seeing a second or even a third time**	.52	.56	
5)-I get bored seeing the same old faces	.45	.47	.49
7)-I dislike people who do or say things just to shock or upset others	.46	.50	.55
8)-I usually don´t enjoy a movie or play where I can predict what will happen in advance	.47	.51	.53
15)-I enjoy looking at personal videos or travel photos	.47	.51	.56
24)-I prefer friends who are excitingly unpredicitable	.49	.51	.52
27)-I get very restless if I have to stay around home for any length of time	.46	.49	.51
31)-The worst social sin is to be a rude	.45	.50	.52
34)-I like people who are sharp and witty even if they do sometimes insult others	.47	.50	.50
39)-I find something interesting in almost every person I talk to*	.53		

* deleted in 1st step ** deleted in 2nd step

3.2 Factor analysis Sensation Seeking Scale

A factor analysis of the altered Sensation Seeking Scale was conducted. All 40 items of the four subscales were selected and the varimax method was chosen. The results show that the 40 items load on 12 factors. This result is adverse because the items should actually load on only 4 factors in view of the 4 different subscales.

So the number of factors was reduced to four. Despite the fixed number of factors, all items of one subscale did not load on one factor and this was the case for each subscale. A factor matrix with the fixed factors can be seen in appendix 1.1.

3.3 Factor analysis music preferences

A factor analysis of the 6 – point - Likert Scale of the music preferences was also conducted. For this factor analysis, all 16 music genres were selected and the varimax method was used. The results show that the 16 different music genres load on four factors.

The rotated component matrix of all 16 music genres can be found in the appendix 1.2. Three items (Alternative, House and Minimal Techno) load on two factors. These items were deleted and a new factor analysis was repeated without them. The first factor is named electronic and consists of all electronic music genres (Techno, Drum´n´Bass, Trance, Goa, Dubstep and Speedcore). Not all of these music genres meet the criterion for electronic music with high BPM but their BPM lies between moderate and high. The second factor is named agitated and consists of Rock music and (Heavy) Metal. The third factor is named urban and contains Pop music, HipHop, Black music and Reggae. Jazz music is a fourth factor of its own. An overview of the rotated component matrix can be seen in table 4.

Table 4

Rotated component matrix music preferences

	Electronic	Agitated	Urban	Jazz
Pop music	-.31	.16	**-.44**	-.32
Rock music	-.12	**.86**	-.22	.15
R´n´B, Black music	-.29	-.10	**.78**	-.19
Jazz	.07	.03	.16	**.81**
Hip Hop, Rap	.10	-.17	**.70**	.33
(Heavy) Metal	.01	**.90**	.09	-.13
Reggae	.21	.23	**.51**	.31
Techno	**.65**	-.26	-.13	.38
Drum´n´Bass	**.77**	-.02	.12	.19
Trance	**.75**	-.08	-.16	.06
Goa	**.86**	-.18	.01	.10
Dubstep	**.65**	.11	.02	.00
Speedcore, Hardcore	**.67**	.15	.15	-.30

3.4 Bivariate correlation

Correlations between the music preferences and the Sensation Seeking Scale were calculated. To calculate them appropriately, first the mean scores of the Sensation Seeking Scale and the mean scores of the 4 music categories were determined. After that, a bivariate correlation analysis of the mean scores was conducted.

The correlation analysis shows a clear result. There is a strong correlation (statistically significant at $\alpha = .01$) between electronic music and each of the Sensation Seeking Subscales. There is no correlation at all between agitated music and any of the subscales. A strong correlation exists between urban music and the Experience Seeking Subscale. Calm music correlates strongly with the Thrill & Adventure Seeking Subscale and Experience Seeking Subscale. In addition, calm music correlates slightly (statistically significant at $\alpha = .05$) with the Disinhibition Subscale and the Boredom Susceptibility Subscale. An overview of the results can be seen in table 5.

Table 5

Bivariate correlations between mean scores music preferences and mean scores Sensation Seeking Subscales

	electronic mean	agitated mean	urban mean	jazz mean
Thrill & Adventure Seeking mean	.40**	-.01	.17	.28**
Experience Seeking mean	.48**	.10	.23**	.38**
Disinhibition mean	.45**	-.01	.13	.18*
Boredom Susceptibility mean	.38**	-.03	.11	.19*

* statistically significant at $\alpha = .05$ ** statistically significant at $\alpha = .01$.

Discussion

The aim of the present study was to determine if a favored music genre of an individual can predict a tendency towards risky behavior, risky behavior in this study measured through Sensation Seeking. The assumption was that people who favor electronic music with a high BPM (Beats per Minute) are more likely to engage in risky behavior. Reason for that is the fact that music with a high BPM is more stimulating than music with a calm quality and that people who engage in risky behavior prefer more external stimulation from their environment (Hovrath & Zuckerman, 1993). Because of the arousing quality of electronic music it can be assumed that people scoring high on the Sensation Seeking Scale favor especially this kind of music.

Measuring music preferences with a Likert – Scale seems to be an appropriate method to investigate the favored music of the participants. The factor analysis demonstrates that all music genres with an electronic character load on one factor and that the music genres which have an arousing quality but no electronic character load on another factor. The music genres Pop music, Black music, Hip Hop and Reggae have similar characteristics and they load on a third factor which can be called urban. The last music genres, Jazz, is a fourth factor of its own.

The bivariate correlation analysis demonstrates that electronic music correlates significantly ($\alpha = .01$) with each of the subscales. This confirms the research question. Agitated music however, does not correlate with any of the subscales. This result does not match with the afore mentioned findings of Murphey and Weisskirch (2004) and Zuckerman and Litle (1986). This might be due to the fact that rock and metal music were very predominant about 20 years ago and are not so popular any more at the time of the study. Possibly the participants of this study did not have as an intense contact with agitated music as the participants of Murphey and Weisskirch (2004) and Zuckerman and Litle (1986) had. The construct urban music consists of four different

music genres. It could be that these four music genres represent a diversity leading to only one significant correlation on one subscale. Relationships between urban music and Experience Seeking might be topics connected to travelling, foreign countries and ethnicity. Social non-conformity and unconventional people would be welcomed in the spheres of reggae and rhythm & blues music. There is also a significant correlation between jazz music and each Sensation Seeking Subscale. Reason for that could be that jazz music has a high variance in itself. Zuckerman´s argument for sensation seekers needing a wide variance of stimulation may be true for Jazz music (Zuckerman, 1979).

According to the bivariate correlation analysis the correlation between Sensation Seeking and electronic music is the strongest. This is exactly as expected in the research question, because sensation seekers favor the arousing quality of electronic music. What remains remarkable is the fact that there is also a significant correlation between Sensation Seeking and jazz music. It seems to be of the same quality as the correlation for techno but to a lesser degree. A difference besides the degree of coherence is the fact that the two music directions have a different age. Jazz music evolved around 1900 in the United States whereas techno music is roughly 100 years younger. Whatever is expressed in these two music directions maybe of a similar sort. Questions to be followed might be: Is techno the jazz of modern times? Does techno express the kind of feeling that the Afro-American community expressed in the United States around 1900? For music specialists this might be a field for further studies.

All empirical studies have their limitations, so does this one. Asking for different music genres in a questionnaire might not be the best way to gain information on people’s preferences and might not be discriminative enough. In an experiment where participants of different Sensation

Seeking levels first listen to different kinds of music and then express their music preferences would possibly show a clearer picture.

Another point is the fact that in this study electronic music is a general category consisting of six different electronic music genres with different characteristics and a different BPM level. A deeper insight into the research questions might come if a study concerning itself solely with the different genres of electronic music would be made.

A potential drawback with the Likert Scale used for the music genres is the limited number of music genres offered in this study. The participants had to rate 16 given music genres although there exist far more than 100 music genres in the world. The researcher tried to cover as many music genres as possible in a wide variety, with a special focus on electronic music, keeping in mind that for practical reasons the list with music genres should not be too long and would also possibly lead to a drop in reliability. The researcher decided against an open question for music genres preferences for technical reasons. A further difficulty with music genres is the fact that music genres and music in general are ever changing subjects where the borders between music categories change constantly or can easily vanish. It is difficult to divide music into strict and separate categories because with time the characteristics of a certain music genre can easily change.

A drawback of a Likert scale is the extreme response style (ERS). This bias is a tendency of participants to agree with an extremity preference (Greenleaf, 1992). It could be that the people participating in this study often indicated that they totally disagree (1) and/or totally agree (5).
On the other hand, there is the moderacy bias. The moderacy bias is the tendency of participants to avoid extremes and respond neutrally (Spencer-Rodgers & Peng, 2004). In this study, this bias

shows when participants choose neutral (3) when they indicate to which extent they agree with a certain statement. Both biases, ERS and moderacy bias, are potential drawbacks of a Likert – scale.

Also to be considered is the factor of social desirability. Social desirability is the tendency of participants to answer questions of a questionnaire in a way that will be viewed favorably by others (Crowne & Marlowe, 1960). For example, when the participants had to agree or disagree to the statement "*I would like to try drugs that produce hallucinations*" they could have been influenced by the fact that drugs are in general illegal and because of that participants may have felt pressured to deny any drug use. The Sensation Seeking questionnaire contains many statements where participants have to disclose information about their personality, their sexual behavior or drug use, thus a bias towards social desirability could be present in this study.

Furthermore reactivity of the participants should be taken into account. A special form of reactivity is the Hawthorne Effect (also called observer effect). The effect takes place when individuals modify their behavior in view of their awareness that they are being observed or studied (McCarney, Warner, Iliffe, van Haselen, Griffin & Fisher, 2007). Because of the fact that the Sensation Seeking Scale deals with sensitive issues the Hawthorne effect may be present and affect the reliability of this study.

Also to be considered is the fact that the instruction and items were written in English. The people who participated in this study were German or Dutch and didn´t have English as their mother tongue. Although they were informed beforehand that a good command of English would be required in this study, it could be that they overestimated their ability in their English comprehension or that they just ignored the instruction. Participation in the study was voluntary and unpaid. This raises the questions as to how motivated the participants were in answering the questions.

A possible explanation for the significant correlation between electronic music and Sensation Seeking is drug use or drug experience. Forsyth, Barnard and McKeganey (1997) found that people who listen to techno music are more likely to have used drugs such as MDMA than those who prefer other music genres. Tossmann, Boldt and Tensil (2001) confirm these findings. Their results show that the use of illegal drugs like cannabis, amphetamine, ecstasy and cocaine are relatively widespread in the techno party scene. Given the fact that drug use and experience is an aspect of the whole Sensation Seeking concept, it could be that the correlation between Sensation Seeking and electronic music is significant because of the drugs associated with this kind of music. People scoring high on Sensation Seeking don´t favor this kind of music per se, but the drugs which are associated with this music genre.

Furthermore, the participants were recruited via a convenience sample, which means from the close environment of the researcher. The information of the study was passed from one person to another, resulting in a kind of snowball effect. A side effect of this procedure probably is that a fairly homogenous group of young people with a similar lifestyle and similar interests participated. Thus this sample of this study is not representative for the overall general population.

In conclusion it can be stated that the research question can be answered with "yes":

"*People scoring high on the Sensation Seeking Scale have a preference for electronic music with a high level of BPM."*

All four subscales of the Sensation Seeking questionnaire show a strong significant correlation with electronic music. It can be taken as a fact that people engaging in electronic music demonstrate a significantly higher tendency towards risky behavior than people engaging

in other kinds of music. This is a message that should be conveyed into the music scene and to those who stage electronic music events.

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Appendix

Appendix 1.1

Rotated component matrix Sensation Seeking Scale

Item	1	2	3	4
I like "wild" uninhibited parties DIS	.75			
There are some movies I enjoy seeing a second or even a third time BS			.60	
I often wish I could be a mountain climber TAS	.35	-.34		
I dislike all body odors ES				.47
I get bored seeing the same old faces BS	.37			.48
I prefer a guide when I am in a place I don't know well ES		.61		
I dislike people who do or say things just to shock or upset others BS			.47	
I usually don´t enjoy a movie or play where I can predict what will happen in advance BS	.51			
I have tried marijuana or would like to ES	.73			
I would like to try drugs that produce hallucinations ES	.76			
I sometimes like to do things that are a little frightening TAS	.60			
I dislike people who are uninhibited about sex DIS				.70
I often like to get high (drinking alcohol or smoking marijuana) DIS	.81			
I order foods with which I´m familiar, so as to avoid disappointment and unpleasantness ES				
I enjoy looking at personal videos or travel photos BS			.66	
I would not like to take up water skiing TAS		.64		
I would like to try surfboarding TAS		-.60		
I would like to take off on a trip with no preplanned or definite routes, or timetables ES			.44	
I prefer the "down to earth" kinds of people as friends ES			.44	
I would like to learn to fly an airplane TAS	.58			
I prefer the surface of the water rather than being under water TAS		.55		
I like to meet people who are very different from me ES			.33	.34
I would never want to try jumping out of a plane with or without a parachute TAS		.57		
I prefer friends who are excitingly unpredicitable BS	.50			
I like to have new and exciting experience even if they are a little frightening or illegal DIS	.66			
The essence of good art is in its clarity, symmetry of form and harmony of colors ES				.43
I get very restless if I have to stay around home for any length of time BS	.38	-.34		.34
I don't like the feeling I get standing on the high diving board (or I don't go near it at all) TAS		.67		
I like to date people who share my values DIS			.38	
Keeping the drinks full is the key to a good party DIS	.54			
The worst social sin is to be a rude BS			.45	
A person should have considerable sexual experience before marriage DIS	.49			
Even if I had the money I wouldn´t care to associate with people like those in the jet set DIS	.31			
I like people who are sharp and witty even if they do sometimes insult others BS	.47			
There is altogether too much portayal of sex in movies DIS				.37
Something is wrong with people who need alcohol to feel good DIS			.39	
People should dress in individual ways even if the effects are sometimes strange ES			.60	
Sailing long distances in small sailing crafts is foolhardy TAS		.44		
I find something interesting in almost every person I talk to BS				.38
I think I would enjoy the sensations of skiing very fast down a high mountain slope TAS	.52			

TAS = item belonging to Thrill & Adventure Seeking subscale ES = item belonging to Experience Seeking subscale DIS = item belonging to Disinhibition subscale BS = item belonging to Boredom Susceptibility subscale values below .3 are deleted from the table

Appendix 1.2

Table 5

Rotated component matrix music preferences

	Electronic	agitated	urban	Calm
Pop music	-.31	.16	**-.44**	-.32
Rock music	-.12	**.84**	-.17	.17
R´n´B, Black music	-.28	-.12	**.62**	-.20
Jazz	.09	.03	.36	**.67**
Hip Hop, Rap	.07	-.16	**.77**	.12
Alternative (Indie)	.02	.55	-.24	**.62**
(Heavy) Metal	-.02	**.85**	.12	-.17
Reggae	.17	.25	**.57**	.09
Techno	**.69**	-.23	-.02	.37
Drum´n´Bass	**.76**	.02	.17	.17
House	**.62**	-.40	.15	.07
Goa	**.84**	-.12	.09	-.04
Dubstep	**.64**	.14	-.02	.06
Minimal Techno	**.69**	-.18	-.03	.48
Speedcore, Hardcore	**.64**	.18	.10	-.37

Appendix 1.3

Online survey

Dear participant,

thank you in advance for participating in this online survey. This study deals with a preference for music genres and their predictability towards behavior. This online survey was developed as part of my bachelorthesis in Psychology at the University of Twente.

After dealing with two general questions about yourself, the main questionnaire will start. It is important that you answer the questions as honest as possible. All information provided by you will be dealt with confidentiality. You are allowed to stop the questionnaire at any time, if you feel uncomfortable. Filling in the questionnaire will take approxiamtely 10 minutes.

Kind regards,

Paul Dunkel

Age

Gender

- ❍ Male (1)
- ❍ Female (2)

Presently some music genres can be found.

Please indicate which music genre you hear mostly in your free time

	I don´t know that music genre (1)	Never (2)	Rarely (3)	Sometimes (4)	Often (5)	Very often (6)
Pop music (1)	❍	❍	❍	❍	❍	❍
Rock music (2)	❍	❍	❍	❍	❍	❍
R´n´B, Black music (3)	❍	❍	❍	❍	❍	❍
Jazz (4)	❍	❍	❍	❍	❍	❍
Hip Hop, Rap (5)	❍	❍	❍	❍	❍	❍
Alternative (Indie) (6)	❍	❍	❍	❍	❍	❍
(Heavy) Metal (7)	❍	❍	❍	❍	❍	❍
Reggae (8)	❍	❍	❍	❍	❍	❍
Techno (9)	❍	❍	❍	❍	❍	❍
Drum´n´Bass (10)	❍	❍	❍	❍	❍	❍
House (11)	❍	❍	❍	❍	❍	❍
Trance (12)	❍	❍	❍	❍	❍	❍
Goa (13)	❍	❍	❍	❍	❍	❍
Dubstep (14)	❍	❍	❍	❍	❍	❍
Minimal Techno (15)	❍	❍	❍	❍	❍	❍
Speedcore, Hardcore (16)	❍	❍	❍	❍	❍	❍

Each of the items below contains a statement. Please indicate to which extent you agree or disagree with the statement. There are no right or wrong answers.

1)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I like "wild" uninhibited parties (1)	❍	❍	❍	❍	❍

2)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
There are some movies I enjoy seeing a second or even a third time (1)	❍	❍	❍	❍	❍

3)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I often wish I could be a mountain climber (1)	❍	❍	❍	❍	❍

4)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I dislike all body odors (1)	❍	❍	❍	❍	❍

5)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I get bored seeing the same old faces (1)	❍	❍	❍	❍	❍

6)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I prefer a guide when I am in a place I don’t know well (1)	❍	❍	❍	❍	❍

7)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I dislike people who do or say things just to shock or upset others (1)	❍	❍	❍	❍	❍

8)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I usually don´t enjoy a movie or play where I can predict what will happen in advance (1)	❍	❍	❍	❍	❍

9)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I have tried marijuana or would like to (1)	❍	❍	❍	❍	❍

10)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would like to try drugs that produce hallucinations (1)	❍	❍	❍	❍	❍

11)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I sometimes like to do things that are a little frightening (1)	❍	❍	❍	❍	❍

12)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I dislike people who are uninhibited about sex (1)	❍	❍	❍	❍	❍

13)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I often like to get high (drinking alcohol or smoking marijuana) (1)	❍	❍	❍	❍	❍

14)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I order foods with which I am familiar, so as to avoid disappointment and unpleasantness (1)	❍	❍	❍	❍	❍

15)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I enjoy looking at personal videos or travel photos (1)	❍	❍	❍	❍	❍

16)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would not like to take up water skiing (1)	❍	❍	❍	❍	❍

17)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would like to try surfboarding (1)	❍	❍	❍	❍	❍

18)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would like to take off on a trip with no preplanned or definite routes, or timetables (1)	❍	❍	❍	❍	❍

19)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I prefer the “down to earth” kinds of people as friends (1)	❍	❍	❍	❍	❍

20)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would like to learn to fly an airplane (1)	❍	❍	❍	❍	❍

21)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I prefer the surface of the water rather than being under water (1)	❍	❍	❍	❍	❍

22)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I like to meet people who are very different from me (1)	❍	❍	❍	❍	❍

23)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I would never want to try jumping out of a plane with or without a parachute (1)	❍	❍	❍	❍	❍

24)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I prefer friends who are excitingly unpredicitable (1)	❍	❍	❍	❍	❍

25)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal (1)	❍	❍	❍	❍	❍

26)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
The essence of good art is in its clarity, symmetry of form and harmony of colors (1)	❍	❍	❍	❍	❍

27)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I get very restless if I have to stay around home for any length of time (1)	❍	❍	❍	❍	❍

28)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I don’t like the feeling I get standing on the high diving board (or I don’t go near it at all) (1)	❍	❍	❍	❍	❍

29)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I like to date people who share my values (1)	❍	❍	❍	❍	❍

30)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
Keeping the drinks full is the key to a good party (1)	❍	❍	❍	❍	❍

31)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
The worst social sin is to be a rude (1)	❍	❍	❍	❍	❍

32)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
A person should have considerable sexual experience before marriage (1)	❍	❍	❍	❍	❍

33)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
Even if I had the money I would not care to associate with rich people like those in the “jet set” (1)	❍	❍	❍	❍	❍

34)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I like people who are sharp and witty even if they do sometimes insult others (1)	❍	❍	❍	❍	❍

35)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
There is altogether too much portayal of sex in movies (1)	❍	❍	❍	❍	❍

36)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
Something is wrong with people who need alcohol to feel good (1)	❍	❍	❍	❍	❍

37)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
People should dress in individual ways even if the effects are sometimes strange (1)	❍	❍	❍	❍	❍

38)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
Sailing long distances in small sailing crafts is foolhardy (1)	❍	❍	❍	❍	❍

39)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I find something interesting in almost every person I talk to (1)	❍	❍	❍	❍	❍

40)

	Totally disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Totally agree (5)
I think I would enjoy the sensations of skiing very fast down a high mountain slope (1)	❍	❍	❍	❍	❍