
Hedonic Enjoyment And Personal Expressiveness In Positive User Experiences

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Abstract

Understanding different facets of positive user experience (UX) is of great interest to researchers. Recently, 'positive design' and fostering happiness through technology is gaining more attention. However, little empirical research has been conducted. We adopted a concept from positive psychology that describes different facets of positive experience: 'hedonic enjoyment' and 'personal expressiveness'. The aim of the present study was to explore how hedonic enjoyment and personal expressiveness relate to established UX concepts, such as affect and need satisfaction. We found that hedonic enjoyment was associated with less negative affect, more stimulation and hedonic qualities, whereas personal expressiveness was correlated with both increased positive and negative affect and psychological needs such as competence, relatedness, popularity and security. Our findings suggest that UX research might benefit from including personal expressiveness as a complementary concept when investigating experience with interactive technology.

Author Keywords

UX; Eudaimonia; Hedonia; Personal expressiveness

ACM Classification Keywords

H.5.m [Information interfaces and presentation (e.g., HCI)]:
Miscellaneous

Introduction

In the last decade, user experience (UX) research has broadened our understanding of experiences with interactive technology and has taken a holistic view. Researchers sought to understand differences between positive and negative user experiences [10], as well as their characteristics [6] and content [13]. Hassenzahl et al. [7] argued that only a profound understanding of UX will enable designers to create these positive experiences. Previous empirical research [6] showed that need fulfillment and positive affect are important characteristics in positive experiences with interactive technology. Broadening our notion of 'positive experiences', Desmet and Pohlmeier [4] suggested that design can even contribute to the happiness and well-being of individuals and support individuals flourishing. They distinguished between 'design for virtue', 'design for pleasure' and 'design for personal significance'. Similarly, Desmet and Hassenzahl [3] introduced the distinction between 'hedonism' and 'eudaimonia'. They described hedonism as happiness that stems from life's pleasures, whereas eudaimonia denotes a 'virtue-based happiness', focused on happiness that stems from the fulfillment through engaging in a meaningful activity and the actualization of one's true potential. Finally, Kamp and Desmet [8] developed a questionnaire which aimed at identifying 'eudaimonic product qualities'. As for now, there is however very little empirical evidence of hedonia and eudaimonia in UX.

Recently, Müller et al. [9] took a first attempt in providing an empirical basis to answer questions related to eudaimonia in UX. They asked users to describe a meaningful ('eudaimonic') vs. an enjoyable ('hedonic') experience with technology. They found few differences between hedonic and eudaimonic UX and concluded that these experiences often occur at the same time. A possible explanation would be that users did not consider 'meaningful' and enjoyable'

as distinct facets of positive experiences with interactive technology.

The notion of hedonia and eudaimonia has a long tradition and can be traced back to viewpoints from ancient Greek philosophers. Positive psychology, and more specifically happiness research has taken up these concepts. However, there are many different conceptualizations and definitions of eudaimonia and hedonia. Biswas-Diener et al. [1] for example argue that happiness is characterized by the absence of negative affect, the presence of positive affect as well as general life satisfaction.

Others such as Waterman et al. [14] argue that true happiness is found in the expression of virtue – that is, what is worth doing. They place self-realization and 'personal expressiveness' as the core defining element for experiencing eudaimonia. Personal expressiveness however will only be experienced when engaging in activities aimed at realizing one's personal potentials. When engaging in these activities, both personal expressiveness and 'hedonic enjoyment' will be experienced. 'Hedonic enjoyment' however may arise from any intrinsically motivated activity but is unrelated to personal potentials and is accompanied by pleasurable affect. Therefore, such activities will only allow feelings of hedonic enjoyment, but not personal expressiveness. Furthermore, Waterman et al. understand personal expressiveness and hedonic enjoyment as experiential states. Therefore, we believe that this conceptualization is well suited to user experience research. In order to measure hedonic enjoyment and personal expressiveness, Waterman et al. developed the 'Personally Expressive Activities Questionnaire' (PEAQ) and empirically distinguished between (not further specified) activities for which either both hedonic enjoyment and eudaimonia are present or activities for which hedonic enjoyment alone is present. They

found that when an activity was rated high on eudaimonia, its probability of receiving similarly high ratings on hedonic enjoyment was extremely high. However, when an activity was rated high on hedonic enjoyment, the probability of receiving comparably high ratings on eudaimonia was substantially lower.

Taken together, previous research sought to understand different facets of positive UX with interactive technologies. Positive affect for example was found to be a key correlate for positive UX [6]. In the present study, we aimed to investigate experiences of hedonic enjoyment and personal expressiveness in the context of UX. We used the PEAQ questionnaire to assess experiences of personal expressiveness and hedonic enjoyment in positive user experiences with interactive technology, as we were interested in how they relate to other established UX concepts such as affect [15] and psychological needs [5, 6] as well as pragmatic and hedonic qualities [6].

Method

We conducted an online survey via Crowdfunder. Participants were asked to report a single positive experience with technology and answered some follow-up questions previously used by Tuch et al. [12]. Collecting user narratives is a method widely used in UX research (e.g., [13]) and has provided valuable insights into how users experience interactions with technology.

After having answered the open questions, participants filled out a series of questionnaires widely used in UX research: (1) Attrakdiff (Pragmatic and Hedonic Product Attributes, 10 items, 5-point likert) [6], (2) PANAS (Positive and Negative Affect Scale, 20 items, 5-point likert) [15], (3) Psychological Need Fulfillment (18 items, 5-point likert) [11], used by Hassenzahl et al. [6], and an adapted version

Variables	Descriptives	
	Mean	Standard deviation
Hedonic enjoyment	3.57	.93
Personal expressiveness	3.28	1.00
Negative affect	1.39	.62
Positive affect	3.55	.89
Pragmatic product quality	3.50	.68
Hedonic product quality	3.97	.70
Competence	3.58	.90
Popularity	3.01	1.08
Relatedness	3.34	1.18
Security	3.27	.87
Stimulation	3.35	.93
Autonomy	3.66	.86

Table 1: Descriptive statistics

of (4) the Personally Expressive Activities Questionnaire PEAQ (Hedonic enjoyment and Personal Expressiveness, 12 items, 5-point likert) [14]. This questionnaire consists of 6 items for hedonic enjoyment and personal expressiveness each. Sample items for hedonic enjoyment are 'This experience gave me the strongest sense of enjoyment' and 'During this experience I felt more satisfied than I am during most other experiences'. Examples for items assessing personal expressiveness are 'During this experience I felt that this is what I was meant to do' and 'During this experience I felt more complete or fulfilled than in most other experiences'. For psychological need fulfillment, we did not include items for 'meaning' as previous research [6] found high crossloadings for the autonomy and meaning items. We kept the items for autonomy, as autonomy was consistently present among the most important needs in previous research [11].

At the end of the study, participants were thanked for their participation and received their compensation (\$ 1.70).

Results

Data from N=130 participants were collected for analysis. Mean age was 35,09. N=51 participants were male (39,2 %) and N=79 participants were female (60,8%). For descriptive statistics see Table 1.

In line with Waterman et al. [14], we found that hedonic enjoyment and personal expressiveness were highly intercorrelated ($r=.83$). This was also reflected in moderate to substantial bivariate correlations with all UX measures except negative affect. Moreover, all UX measures were significantly correlated to both hedonic enjoyment and personal expressiveness to similar degrees (Negative affect: range $r= -.049$ - $-.218$; Positive affect: range $r= .575$ - $.607$; Pragmatic quality: range $r= .186$ - $.277$; Hedonic quality: range $r= .356$ - $.401$; Need Fulfillment: range $r= .429$ - $.697$). As a next step, we wanted to analyze which variables were chiefly associated with hedonic enjoyment respectively personal expressiveness. Therefore, we calculated partial correlations [2] which allowed us to identify correlates of hedonic enjoyment while controlling for the influence of personal expressiveness and vice versa. By doing this, it was possible to identify variables which are more strongly related to hedonic enjoyment respectively personal expressiveness. Table 2 shows the partial correlations of different UX constructs with hedonic enjoyment and personal expressiveness.

Pragmatic and hedonic quality

Hedonic enjoyment was significantly correlated with pragmatic and hedonic product quality. In contrast, there was no significant correlation of personal expressiveness with either pragmatic or hedonic quality.

Variables	Partial correlations r	
	Hedonic Enjoyment	Personal Expressiveness
Negative affect	-.318**	.242**
Positive affect	.160	.285**
Pragmatic product quality	.224*	-.082
Hedonic product quality	.202*	.046
Competence	.003	.410**
Popularity	.028	.335**
Relatedness	.080	.225*
Security	.072	.283**
Stimulation	.382**	.163
Autonomy	.249**	.203*

Table 2: Partial correlations

*significant at $p<.05$

**significant at $p<.01$

Positive and negative affect

Hedonic enjoyment and negative affect were negatively correlated. That is, the more hedonic enjoyment participants reported, the less negative affect they had experienced. Surprisingly, there was no significant correlation between positive affect and hedonic enjoyment. In contrast, personal expressiveness was positively correlated with both positive and negative affect. In other words, when participants experienced increased personal expressiveness, they experienced more positive *and* negative affect.

Need fulfillment

In terms of need satisfaction, hedonic enjoyment was only correlated with the need for autonomy and the need for stimulation. Interestingly, stimulation was also one of the most salient needs discovered in previous studies [6], supporting the finding that it seems to play an important role in

Example quotes: Hedonic enjoyment

(1) "I used to get lost constantly. For some reason, I was absolutely and completely incapable of remembering or following directions to a destination. GPS has changed my life; I haven't been lost in 10 years. Imagine how much time I've saved since then."

(2) "The recent new VR glasses is honestly one of the most amazing things I've ever seen and enjoyed. It's incredible! The fact of looking around and seeing a new whole dimension, it's very exciting!"

Example quotes: Personal Expressiveness

(3) "I took online classes and every weekend I had to catch up on my school work on this computer. I wrote a lot of essays on this computer and ended up passing my class just by doing work online with this computer."

(4) "I created an Excel spreadsheet at work that was both functional and useful [...] These records were needed by the management team [...] I was happy to demonstrate my Excel skills and pleased that the spreadsheet had the data points the management

positive experiences with interactive technologies. In contrast, personal expressiveness was associated with many psychological needs: autonomy, competence, popularity, relatedness and security.

A preliminary analysis of qualitative data were in line with the quantitative data. Psychological needs were oftentimes mentioned in experiences which scored high in personal expressiveness (see sample quotes). All sample quotes (see box) were above the mean value on personal hedonic enjoyment ($M(HE)=3.57$, $SD=0.93$) respectively personal expressiveness ($M(EU)=3.27$, $SD=1.00$).

Discussion

First, our data supports previous research. When reporting a positive experience with technology, need fulfillment, hedonic quality as well as affect played an important role. However, investigating which variables were chiefly associated to hedonic enjoyment respectively personal expressiveness, painted a more differentiated picture.

Our data shows that only hedonic enjoyment but not personal expressiveness was significantly correlated with pragmatic and hedonic product quality. Pragmatic and hedonic quality describe the perception of products along two different dimensions[5]. Previous studies [6] have linked positive affect and hedonic qualities. Surprisingly, even though our data showed an association between hedonic qualities and hedonic enjoyment, there was no correlation of hedonic enjoyment and positive affect. However, negative affect was negatively correlated with hedonic enjoyment. When discussing the concept of 'problem-driven design' [3], Desmet and Hassenzahl argue that removing current issues is not what designers should focus on. However, our results show that hedonic enjoyment is associated with less negative, but not with more positive affect. The importance of experienc-

ing less negative emotion is also reflected in the qualitative data. In the example provided, the user (see box, No.1) reported that they used to get lost constantly before owning a GPS. Therefore, the fact of 'not getting lost anymore' and therefore removing this negative affect apparently fostered a positive UX where hedonic enjoyment was experienced.

Our results further show that positive affect was correlated with personal expressiveness. Interestingly, personal expressiveness is correlated not only with positive but also negative affect. This first seems counter-intuitive. However, keep in mind that personal expressiveness is characterized by working towards the best in yourself. It is therefore plausible that these experiences might not only accompanied by positive emotions but can also at times be difficult and challenging. This is also reflected in the narratives, such as No. 3, where a user reported a good experience while using a computer to work towards passing his class. In this experience, the user has experienced positive affect (because of a success) as well as negative affect (because of difficulties of catching up every weekend). This is in line with the findings of Hassenzahl [6] who found that negative affect was associated with 'competence experiences'. He stated that in contrast to stimulation, for example, competence derives from 'taking up challenges and their subsequent mastery' which implies a potential failure and a source for negative emotion. In our study, many needs (competence, popularity and security) were associated with personal expressiveness and experiencing eudaimonia, but not with hedonic enjoyment. However, previous research [7] suggests that the fulfillment of psychological needs renders an experience personally meaningful and significant. In fact, Waterman et al. [14] argue that experiences which are characterized by realizing own's potential and working towards personal goals are accompanied by personal expressiveness. In line with this, Desmet and Pohlmeier [4] argue that posi-

tive design is characterized by three different components, design for virtue, design for pleasure and design for personal significance. Working towards personal goals is also reflected in the user narratives, for example, a user (No. 4) reported a positive experience where he created an excel sheet. He states that he felt a 'sense of purpose', attention and respect from others and that he could help them. This narrative describes many psychological needs: popularity, relatedness and competence. Furthermore, he mentions a 'sense of purpose' which could describe an experience of personal expressiveness.

Stimulation and autonomy were the only needs significantly correlated with hedonic enjoyment. Stimulation is characterized by novelty, surprise and pleasure [11]. This is also in line with the definition of hedonia by Waterman et al. [14]: Hedonic activities are rather 'pleasurable' and usually not aimed at realizing one's potential or reaching a personal goal. This was also reflected in the qualitative data (see quote No.2). It is quite plausible in this example that this user experienced a high level of stimulation (stimulation: 3.67). Finally, autonomy seems to be an important factor for hedonic enjoyment as well as for personal expressiveness.

Limitations

Our study was conducted on the crowdsourcing platform 'Crowdfunder' with an American sample only. Therefore, the results are not readily generalizable. Furthermore, results are based on correlational data, therefore no causal interpretation is possible. Finally, a follow-up study will be needed to verify these results and further explore the relationship between affect, need satisfaction, hedonic qualities, pragmatic qualities, hedonic enjoyment and personal expressiveness.

Conclusion and future work

Overall, our findings suggest that UX research might benefit from including personal expressiveness as a complementary concept when investigating experiences with interactive technology. We adopted concepts from positive psychology and data shows that hedonic enjoyment and personal expressiveness have different characteristics when it comes to experiences with interactive technologies. This might ultimately allow to acquire a more differentiated understanding of positive experiences with technology.

As a next step, we will systematically analyze the qualitative user narratives following the procedure of Tuch et al. [12]. We will try to find additional insights about how hedonic enjoyment and personal expressiveness differentiate and how they can be understood in HCI. Only by understanding different facets of user experiences, UX designers and practitioners will be able to support personal expressiveness with their products.

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