When Cheesecake Craving Unplugs the Pleasure Button: Understanding Aesthetics and Quality of Experience in a Computer Generated Graphics

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1. Introduction

Some studies claim that the creation and experience of art is an innate capacity that evolved to meet various needs of human survival and reproduction. Steven Pinker for instance argues that an aesthetic stimuli is comparable to strawberry cheesecake which are "mega doses of agreeable stimuli" and are made for the instant purpose of "pressing our pleasure buttons". However, an experience of art is more than just the by-products of innate pleasure circuits; there are factors that draw an individual to them. In our previous study we observed that implicit experiences (IE) lead to a positive evaluation of Quality of Experience (QoE) [Mansilla et al., 2011]. On the other hand, it is important to recognize that aesthetic experience is in part modulated by human nature. For instance, during craving, strong mental thoughts involving vivid associations of imagery (of the craved item) associated with pleasurable sensations and eventually leading to distress due to prolonged deficit, are most evident.

Ensuring quality in a technology-driven medium no longer relies solely on Quality of Service (QoS) conventions and as a result, research on multimedia quality has shifted its focus to QoE. QoE is an effective measure of a surface-level multimedia quality but most studies on QoE fail to consider the implicit factors that affect aesthetic experiences [Authors et al., 2011]. In the contemporary visual arts, quality expectations are governed by experiences and are no longer based on the traditional realistic rendering or surface level features (where highest resolution usually wins). Thus, we define Quality of Aesthetic Experience (QAE) as pleasurable or positive experiences producing a vivid (heightened) yet biased experience (considers how Alexander Baumgarten rationalizes aesthetics in his Reflections on Poetry) modulated by conscious and implicit mental concepts. Although several literatures in the human-computer field (see [Kortum, 2008]) have recognized the importance of multi-sensory stimulus, there's still a lack of recognition on how the understanding of QAE can contribute in optimizing user's experience in a computer-generated graphics. It is important to recognize that many users appreciate computer graphics (e.g. in games) based on its ability to maintain a pleasurable experience. Identifying the above surface factors that affects QAE may shed light on how we can further enhance the design and assess QAE expected for a certain computer graphics application. One implicit factor that may affect QAE is the intrusive human nature (e.g. food craving). In the next sections, we describe our initial empirical research on the relationship between food craving and QAE. Finally we discuss our future approach considering intrusive mental concepts and IE in our investigations of the QAE.

2. Exposition

Food cravings (FC) are normative to both men and women. Craving is a strong motivational state, an intense desire or urge, in which an individual is compelled to seek and ingest a particular substance (see [Kemps et al., 2008]). Contrary to hunger, FC tend to be specific. In the absence of hunger, we crave a very specific chocolate form or flavor. Over the past decades, several studies have demonstrated attentional biases for craving-related stimuli during craving episodes. This tendency to selectively attend and derive pleasure to personally relevant cues (over neutral ones) in the form of mental imagery consumes cognitive resources leading to an inferred behavior [ibid, 2008]. Fortunately, these intrusive mental thoughts can be modulated by IE. In one experiment, cravers who watched flickering patterns on a monitor reported a decrease in the visual vividness of their craved item [ibid, 2008]. The ability of the intrusive mental concepts and IE to modulate human judgment and vivid experiences need to be examined by a multi-disciplinary approach in terms of context and QoE.

3. Preliminary Results and Future Work

Our initial experiment examines the occurrence and modulating effect of FC on QAE when engaged with a video game simultaneously running an audio-visual narration. Participants who reported FC episodes (measured using the standard FC Inventory scale) when engaged with digital media were recruited. Participants (equal distribution of gender with the mean age of 32 years old, healthy and did not ingest any food or heavy drinks at least 4.5 hours before the test) were asked to pick the red apples randomly appearing in a video game. 14 Participants who played a game narrating no food cues performed significantly better (picked a mean of 26 out of 35 apples) than those 14 others who played a game showing varieties of foodstuff (mean = 23). 18 previous participants played the video game (given in random type) approximately an hour after taking a meal performed higher compared to the previous conditions (mean = 30; see [Author, 2012]). The results suggest that intrusive mental concepts (i.e. FC) can significantly interfere with the assessment on QAE in a computer-generated medium.

The findings in the current study served as a basis of a research protocol for an art installation called Candy, (see, http://q2s.ntnu.no/~wendyann/candy) which will be used in our further studies. Inspired by the positive results of the current study, for our future work, we have also performed series of experiments using the standard quality impairment measure. The results are promising suggesting the high range impact of the intrusive mental concepts on aesthetic experiences. The result of the current study and our future studies will serve as a basis towards the formulation of a QAE paradigm.

References

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