Design and Storytelling Concepts in the Quality of Experience

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Abstract—In this paper, we examine the implicit aspects of quality activated by the design and storytelling components of the consumer’s product and the consumption environment. We describe what affects the consumers’ assessment of the product by looking beyond its surface. We review several design and marketing examples including previous research in multimedia and information processing and other fields to understand how the unconscious realm of thoughts and impressions can create an impact on quality judgement. We also propose a framework in the Quality of Experience that includes the implicit aspects of quality judgement.

Keywords—implicit aspects; design; storytelling; Quality of Experience

I. INTRODUCTION

With the diversity of access to digital media and information now available to everyone through the Internet, reaching a critical mass of consumers is much more difficult. Designers are always facing the challenge of how to continuously make the content or product more interesting to the public. With the rising usage of social media and story sharing platforms such as Facebook, Twitter, and YouTube, we now have an ability to filter information to only those that interest us individually, screening out what may not be relevant or interesting for us. Social meaning such as mass popularity of the story is also one filter, and only those topics, which the majority of our friends or social contacts accepts, receives a second look and later on qualifies to win as being worthy of consumption.

In the multimedia and information processing research, it was observed that such degree of quality is more than the surface or physically visible features of the stimulus. The contemporary consumer’s quality of experience criteria is more than the explicit factors present in the material. Our consumption criteria are deeply rooted in human experience involving implicit human needs (Mansilla et al. 2009, 2013; Mansilla 2014). Similarly, other studies has recently shown that human factors such as perceived engagement (Kortum & Sullivan 2010), context of use (Jumisko-Pyynkö & Utriainen 2010), user affective state (Wechsung 2011), have an impact on user satisfaction, quality appreciation, and in most cases compensates the acceptance rating of the audio-visual material.

Our 21st century’s way of consuming and judging digital experiences is a real-world challenge – a “wicked problem,” and as such, the solution can never be “accurately modeled”. Addressing them with reductionist approaches in pure science and engineering is insufficient. Bill Moggridge (2008) suggests that storytelling is part of the process and solution in designing and presenting (or prototyping) interactive systems. He said, “when you put all these things together, with elements from architecture, physical design, electronic technology from software, how do you actually prototype an idea for a service, and it seems that really, this about storytelling, it’s about narrative.”

In lined with is challenge the primary aim of this paper is to suggest a more comprehensive framework that includes the arts and design in Quality of Experience (QoE). It is necessary to survey on what exactly constitutes the value of digital product design or presentation on consumer quality evaluations. In order to elaborate on this requirement, the current paper starts with an overview of the different roles of digital product design within the consumption decisions. More precisely, we will describe what affects the consumers’ assessment of the product by looking beyond the surface appearance. Several design and marketing examples including scientific research in various disciplines are reviewed to understand how the unconscious realm of thoughts and impressions can create an impact on quality judgements.

II. THE IMPLICIT ASPECTS OF QUALITY JUDGEMENT

In this section we are introducing three terms to describe the concept of implicit aspects in quality judgements – sensation transference, thin slicing and mere exposure or priming effects.

A. Sensation transference

Gladwell (2005) narrates a rock musician known as Kenna to illustrate a dilemma – “the right - and wrong - way to ask people what they want”. Kenna is a typically kind of artist who is “constant at odds with your expectations”. This is reflected by the fact that his songs are hard to classify and his audience scope is divided. “People who truly know music love him”. Gladwell (2005) relates that when they hear one of Kenna’s song, their instinct tells them that he is the kind of artist whom other people are going to listen to. “But this is where Kenna runs into a problem”. Whenever the music industry and
marketing researchers are attempting to verify this instinct, consumer’s divided judgement of his music proves to them that it is impossible for the musician to make it to the radio broadcast. What could have been the cause? Gladwell (2005) describes this issue as “sensation transference”.

Sensation transference is a concept created by Louis Cheskin in marketing study (cited by Gladwell 2005). Cheskin (1957) claims that when people provide evaluations of products they might buy on the supermarket or stores, unconsciously they transfer sensations or impressions that they have about the product’s visual packaging to the product itself. Cheskin (1957) claims that on the unconscious level, most of the consumers don’t make a distinction between the package and the product. “The product is the package and the product combined”.

To further elaborate on the sensation transference concept, Gladwell (2005) narrates an example of the Coca-Cola’s dilemma when they launched “New Coke” in the 1980s to compete with Pepsi’s new marketing campaign known as “The Pepsi Challenge”. In this challenge, selected cola drinkers were asked to take a sip from two glasses, one marked Q and one marked M. The sip test showed that most prefer the sweeter taste of Pepsi. When Coca-Cola conducted its own marketing study, they were surprised to end up with the same result. The Coca-Cola Company then launched a new and improved cola taste marketed as “New Coke”. Although research revealed that the taste was much preferred over the old Coke, the new product failed. As a result, Coke drinkers protested. The company suffered a great crisis and was forced to restore their original formula. Coca-Cola learned that they placed too much emphasis on the sip tests without knowing that the entire principle of a blind taste test was totally wrong. They realised that in the real world, no one ever drinks Coca-cola blindfolded.

In the late 1940s, Cheskin (cited by Gladwell 2005) conducted a margarine and butter experiment that proved his sensation transference theory (cited by Gladwell 2005). At that time, margarine was sold as white in colour and was very unpopular as compared to butter. For the purpose of the test, Cheskin changed the colour of the margarine into yellow to appear as butter. Changing the colour results to participants not being able to differentiate between butter and margarine. Furthermore, to increase quality perception, he changed the packaging material. Due to those two simple changes, colour and packaging, margarine now outsells butter.

“Their (the consumer) point is simply that when we put something in our mouth and in that blink of an eye decide whether it tastes good or not, we are reacting not only to the evidence from our taste buds and salivary glands but also to the evidence of our eyes and memories and imaginations, and it is foolish of a company to service one dimension and ignore the other (Gladwell 2005, p.165).”

Going to the bottom of the question of how good Kenna’s music really is requires the understanding of the intricacies of the implicit aspects of our judgment processing.

B. Thin slicing

Thin slicing refers to the ability of the unconscious mind to recognise patterns in situations and human behaviour based on very thin slices of experiences. It is about the fleeting feeling one may have upon meeting an unknown person or that instinctive sense when observing something for the first time. It is through thin slicing that scientist like John Gottman, says Gladwell (2005), can accurately predict how a marriage will likely turn out only by observing a few hours of a couple’s interaction and conversation. According to research, it is easy to spot a pattern based on how the person talks or how they interact. Although these small nuances are implicit, knowing how to look for them provide hints on the outcome of a relationship or an agreement. Snap judgements happen so quickly or automatically and it is mostly characterised by unawareness of them. These latent thoughts and decisions rely on the thinnest slices of experience and take place behind “locked doors”. They happen beyond the person’s consciousness and are often times difficult to explain. Gladwell (2005) states that rather than asking individuals about their behaviours and judgement, scientist can learn about what people think by observing their body language or facial expressions or looking at their bookshelves: “Anyone who has ever scanned the bookshelves of a new girlfriend or boyfriend — or peeked inside his or her medicine cabinet — understands this implicitly: you can learn as much — or more — from one glance at a private space as you can from hours of exposure to a public face.”

C. Priming effects

Priming is an implicit memory effect in which exposure to one stimulus affect the subject’s response to another stimulus (Schacter 1987). An implicit memory just ‘pops into mind’ and is not recallable (Schacter 1987; Roediger 1990). The subjects were unable to recall when asked about the relation of the stimulus from the past stimulus because their focus is on the present that is unconsciously being guided by the previous experience (Jacoby & Kelly 1987).

The implicit aspects of quality in a product or system can be activated through manipulations of narrative contexts. For instance, it was shown in research that negative contextual features present in news and media narrative contents have long-lasting implicit effects in other constructs and domains (Devine, 1989; Power, Murphy, & Coover, 1996). As an evidence, narrative priming of racial stereotypes that shows negative associations with Black individuals results to bias and prejudice to representations of African Americans on another content (Entman 1990; Gorham 1999; Martindale, 1996).

Negative narrative context may also lead to poor cognitive performance and associations. Wheeler et al. (2001) primed racial stereotypes by asking White participants to write a story from the first person perspective about a person named either “Erik” or “Tyrone.” Participants who wrote the story from the perspective of an African-American named Tyrone performed more poorly on a subsequent test involving intellectual ability measure. The results are consistent with the study on participants primed with female gender constructs who performed poorly because they withdrew effort on Math solving (Wheeler, DeMarree, & Petty 2007). Similarly, in food
quality research, priming affective responses using an upsetting cover story prior to the test is shown to elicit discriminant food preferences and appraisals (Boutrolle et al., 2009).

Research on behavioural priming indicates that narrative primes on media impact behaviour by activating information associated with whatever context is primed (e.g., Bargh, Chen, & Burrows 1996; Wheeler et al., 2001; Wheeler, DeMarree, & Petty, 2007).

D. Implicit aspects

In the field of design and user experience, judgement of quality aspects that go beyond the explicit or instrumental are one of the active areas of research (e.g. Crilly, Moultrie & Clarkson 2004; Mahlke et al. 2007, Hassenzahl & Tractinsky 2006). Several approach to the measurement of interior or non-instrumental qualities are proposed categorised by the aesthetic, symbolic and motivational aspects to cognitive response to product quality as described by Mahlke et al. (2007) and Crilly et al. (2004). They further categorised aesthetic aspects into various dimensions of quality related to sensory experiences (i.e., visual, haptic and acoustic perceptions). Another interesting category is the symbolic meaning where they identified two dimensions - communicative and associative aspects. Communicative aspects are related to the messages a product conveys. Crilly et al. (2004) explains that products may evoke ‘thoughts, feelings [and] associations’ that communicate the consumers identity through products, allowing them to ‘project a desirable [self] image’, to convey their ‘social status’ and to present themselves (e.g. their personal identity). Lastly, associative aspect is an interesting component that links to personal memories (Norman 2004). These personal memories can be related to the attributes of a product or to a similar product that the consumer previously experienced.

Mahlke et al.’s (2007) description of symbolic aspect relates to the description Crilly et al. (2004) that attaches to the known symbolic association with the product’s ability to represent the personal identity of the consumer. It was claimed to be highly dictated by the product’s social and cultural value. Related to the associative aspect in Design and User Experience studies is the term ‘priming’ or ‘mere exposure’ effects which is well recognised in psychology research. Unlike symbolic associations, consumption decision under implicit memory effects doesn’t always involve knowledge of the potential personal and socio-cultural gain (i.e. intentional rather than unconscious or involuntary). Consumer responses can be involuntary may occur outside of conscious goals and intentions and thus, a need to accommodate such aspect in the QoE model.

The implicit aspects of quality judgement is multi faceted. Many human aspects such as behavioural mimicry (Chartrand 2013), evaluation and social judgment (Fazio 1986; Ferguson 2008), prejudice and stereotype activation (Devine 1989; Bargh, Chen, Burrows, 1996; Wheeler 2001), personality trait assessment (Bargh et al. 2003), prejudice and stereotype (Bargh, Chen, Gorham, 1999), motivation (Bargh et al., 2010), and goal pursuit (Custers & Aarts 2005; Dijksterhuis, et al. 2007), are without the participants awareness of the role played by these external stimuli in their decisions and behaviours.

E. Measuring the implicitly activated quality

To extend Crilly et al. (2004) and Mahlke et al.’s (2007) and diversity model of non-instrumental qualities for QoE, implicit aspects should be included in the framework (see Figure 1). It is easy to deduce that implicit aspects are included as part of the hedonic or symbolic aspects of product quality however, the methodology to activate or determine the presence of implicit memory effects is by far a different approach.

Mansilla et al. (2011) measured the implicit aspects in audio-visual contents using priming manipulations. In this research, they primed the participants with contemporary abstract art representations which significantly influenced the result of quality assessments of the material in the subsequent experiment. They found that when primed with contemporary art materials containing aesthetic distortions as a form of art, subjects tend to rate the quality of another stimulus with distortions as more positive compared to those who were not primed.

Another experiment conducted by Mansilla et al. (2014) confirmed that implicit memory effects could be extracted through priming manipulations based on the chosen modulating context. Their experiment demonstrates that when the participants were in the state of food craving, the presence of food cues in a video game significantly impairs task performance and responses to quality evaluation in the subsequently presented narrative material. In addition, another subsequent experiment confirmed that adding sensory information (i.e. ambient smell of sweet fruits and scents) when participants are in the state of food craving further strengthens the subject’s bias reactions to subsequently presented narrative materials.

![Quality aspects in the QoE](image-url)
Intuitively, designing an experimental methodology to determine the implicit aspects influencing perception of quality is indeed a narrative process (as Bill Moggridge 2008 states it). Unlike the traditional quality of experience research, the experimental methodology is not straightforward because it requires a series of narrative steps to activate the desired priming context or to determine which context of implicit human cognitive state can interfere with the quality evaluation of a particular interactive material. In user experience research, some priming manipulation required participants to write a short story from the perspective of a targeted character. For instance, research of Wheeler et al. (2001, 2007) allowed the participants to portray the character’s role by writing a story on their perspective to allow them to unconsciously associate themselves with the character which significantly affects latter performance.

Redi et al. (2013) identified several influencing factors of QoE such as system, user and contextual factors. While most of the variables that they surveyed cover various influencing factors recognised in the Multimedia and Information Processing community, the implicit aspects, as a major modulating factor is not specified. To complete the QoE framework, we considered Redi et al.’s (2013) system factors (non-instrumental aspect) and added the non-instrumental aspects as described by Mahlke et al. (2007) and Crilly et al. (2004) in user experience. The implicit aspects of quality discussed in the previous sections are also added as a major component, which is in part intersecting with the non-instrumental aspects of quality (see Figure 1).

### III. STORYTELLING AND DESIGN IN THE QUALITY OF EXPERIENCE

On top of the quality aspects are entities that are interacting with each other, contributing to the overall character of interactive product or system. Storytelling and design elements are added on top of the existing QoE’s interaction entities.

At a basic level, storytelling and QoE shares a common element—they are strategies leading to the consistent consumer’s fulfilment of expectations. The recently proposed definition of “Quality of Experience (QoE) is the degree of delight or annoyance of the user of an application or service. It results from the fulfillment of his or her expectations with respect to the utility and/or enjoyment of the application or service in the light of the user’s personality and current state” (Le Callet et al. 2012). This definition of QoE refers to the internal trait or “personality” of the user as well as the user’s “current state” or behavioral aspects. The aforementioned QoE definition was successfully employed as a basis for identifying the underlying entities interacting in several QoE studies (e.g. Redi et al. 2013), however, considerations for QoE in terms of design and storytelling analogies are yet to be explored.

Incorporating design variables in user experiences elaborates on experiences as something “meaningful, and human behaviour is generated from and informed by this meaningfulness. Thus, the study of human behaviour needs to include an exploration of the meaning systems that form human experience (Polkinghome 1988)”.

Considerations for a design methodology on QoE should include the identification and investigation of both the known and ambiguous aspects of the experience. It includes design, which is a user requirement-finding process in which the explicit and implicit needs of those people whom the experiences are made for are identified. Explicit needs can be seen immediately in the user’s behaviors, and thus can be readily extracted through direct investigations. Once implemented on the product or system for consumption, design becomes an entity. It forms part of identity and impression of the product interacting with other entities (as in Gladwell’s example of a packaging seen as part of the product).

Implicit requirements are harder to identify, as people are often unaware of them. Implicit needs emerge from deeper understanding of user’s behaviour and values. To discover implicit needs requires the knowledge about people—an entity that tells who, what, why and how the consumer wants to experience a particular product scenario. More often consumers cannot tell what they want especially with new product scenarios. To find out what the user is really thinking, designers, humanists and marketing specialists elicit and capture stories to explain what people are doing. Based on these stories, researchers can extract the meaning behind people’s behaviours. Once the stories or context are attached to the product they form part of the entity that activates the non-instrumental and implicit attributes of quality.

The interaction between several entities or variable that activates the quality aspects influencing QoE, the system, (i.e. the product, its environment and other instrumental entities) the consumers, the design (as in the case of Coke’s product packaging and margarine’s colour) and storytelling component is an essential element in our QoE entity framework (See Figure 2). Storytelling and design can be used to activate and determine the implicit thoughts and feelings of the viewer (interacting on the non-instrumental aspects of quality as depicted in the diagram).

![Fig. 2. Entities influencing the quality aspects in the QoE](image)
IV. REVISITING THE QUALITY OF EXPERIENCE

Considerations for activating or determining the implicit aspects of quality in an interactive activity requires more than the traditional QoE experimental methodology. While it is safest to isolate and control experiments in a laboratory setting and avoid potential implicit modulating factors that could interfere with the presentation of the material for quality assessments the veracity of the laboratory controlled experiments for predicting overall quality judgement is in question (especially when an interactive material that relies on the involvement of the participants). Researchers found that a real-life context situation results to people compensating higher audiovisual quality imperfections. Jumisko-Pykkö & Utriainen (2010) found that audiovisual quality evaluations are more favourable and less discriminate in the mobile contexts compared to the laboratory settings. This is consistent to the result in food research. Studies found that companionship and recreation of real-world scenario is an important factor in food hedonic appraisals. Eating with friends and family has more impact than eating with strangers (Clendenen et al. 1994). According to Pliner et al. (2003) positive impressions are further emphasised when these groups are created in a more natural and familiar setting.

In addition, it was found that exposure to familiar characters in an interactive narrative influence the participant’s enjoyment and alter responses to quality evaluations (Mansilla et al. 2009). Graphical representations of self (i.e. manipulation of the story element where participants are represented as characters themselves) in an interactive narrative also contribute to a increased bias on judgement of quality and enjoyment (Mansilla et al. 2013).

Gladwell’s illustration of an experimental methodology conducted by the Coca Cola company and the marketing research evaluation of Kenna’s music, is a classical example of potential dangers of the implicit aspects. On Kenna’s music, the market testers made an assumption that they when they play part of one of his songs to the subject over the phone or online, the response of listeners would serve as a reliable guide to what music buyers would feel about the song. They generalised music lovers can “thin-slice” a new song in a matter of seconds. The implicit aspects of quality, similar to Gladwell’s thin slicing and Mansilla et al’s (2011, 2014) experiments on priming effects in perceiving quality has to be done in context. According to Gladwell, judging Kenna’s music based on consumer poll without that looking at all possible scenarios is the same as “making people choose between Pepsi and Coke in a blind taste test”.

Therefore, it is important to take the role of a “designer” and examine not just the people, but also the context by which the product and environment affects consumption decisions.

In discussing his work in consumer research and designing interactions, Moggridge (2007) states that, “‘observation’ was the label we used for the best way to learn about people in the context of a particular design problem, implying that you needed to look at what people really do in a situation, rather than rely on the conventional technique of asking them about what they think and do. When you are trying to understand the latent needs and desires of potential users before a design is created, it is important to learn about their existing habits and context of use - things they are rarely able to tell you about explicitly.”

V. CONCLUSIONS

In this paper we have presented Quality of Experience as a multi-dimensional scale of user experience that take full advantage of all human senses and the physical world’s multi-dimensional contextual features. By extending QoE as something multi-faceted in its realm, designers, engineers, and researchers are directed to explore user experiences that fulfill not just consumer needs but their latent wants and desires, transcending boundaries of human experiences. Research on product consumption and quality judgement are not always under conscious control (Meiselman 2009; Gladwell 2005). Similarly, in QoE several studies has been conducted showing that a similar mechanism is taking place in audio-visual quality judgements (e.g. Mansilla et al., 2011, 2013).

We have also demonstrated that the implicit aspects of quality elicit not just positive attributions but in some cases include negative activations. The implicit aspect is an important context-modulating factor in quality judgement that therefore deserves a place in our future QoE studies.

Operating together, this multi-faceted framework, allows QoE to go beyond the surface and the utilitarian (or even the merely “beautiful”), to build products that powerfully connect with people – implicitly moving beyond – Quality of Experience as a quality of life.

REFERENCES


