

A Framework for Aesthetic Experience

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ABSTRACT

In this paper we integrate an information-processing model of the nature of an aesthetic experience with visual art with a framework proposed by Wensveen et al. [11] that describes the coupling of a user's actions (i.e., handling an artifact) and a product's function to form a general theoretical framework for understanding the nature of a user's aesthetic interaction with design products.

Author Keywords

Aesthetic interaction, analytical aesthetics, human-artifact interaction, pragmatic aesthetics.

ACM Classification Keywords

Interaction styles, theory and models.

THE FRAMEWORK

Figure 1 presents a framework for aesthetic experience. It explains the interaction of artifact-driven and cognitively-driven processes (referred to as bottom-up and top-down processes, respectively, in Information Processing Theory) underlying user-product interaction and the resulting aesthetic experience described in this paper. The directions of the arrows in the figure indicate that when experiencing a product there is a continuous dynamic bottom-up/top-down interaction between the properties (form) and functionality of the artifact, the sensory-motor-perceptual processes involved (visual, handling or active touch, auditory), and the user's cognitive structure. Thus, as an aesthetic experience progresses, the artifact presents continually changing, user "action driven" affordances [5]. These in turn influence the timing, rhythm, flow, and feel of the interaction – factors seen as playing important roles in

aesthetics of interaction by Djadadiningrat, Wensveen, Frens, and Overbeeke [4]. This interaction is monitored and directed by a "Central Executive," which in the present account is conceptualized as consisting of limited capacity, effortful, control processes that direct voluntary attention to the artifact in a cognitively-driven top-down fashion [1]. Together the top-down and bottom-up processes create both meaning and aesthetic quality of the artifact from which the aesthetic experience with the artifact and the resulting affect emerge.

The two driving forces of the system are the Artifact itself, and a Person Context, which reflects the user's cognitive structures. The aesthetic experience is a product of the dynamic ongoing interaction between these two components of the system. With respect to the Artifact Context, it has been shown that features of an artifact provide a user with different types of information. Specifically, research has identified at least six ways in which the appearance of a product influences consumer product evaluation and choice, typically in an artifact-driven or a bottom-up fashion [2]. An artifact's appearance can convey its aesthetic and symbolic value and provide a quality impression; it can communicate functional characteristics and ease of use; it can draw attention by visual novelty, and communicate ease of product categorization. In addition to presenting product properties, interactive artifacts can be designed so that their use contributes to a dynamic aesthetic interaction between their form and functionality and the user. As mentioned, it is the aesthetics of interaction, which is the primary focus of this paper, although as explained below, the aesthetics of appearance of an artifact must always be taken into consideration as contributing factors to a user's interaction with it.

The second major contributing component to an aesthetic interaction is the user's cognitive structure, which contains several types of information (semantic, episodic, and strategic) acquired throughout his or her life. It is also the repository of one's personality, motivations and emotional state. All of these components are brought to bear in a top-down fashion on a user's interaction with a product and

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they determine how he/she invites, perceives, and evaluates it (see, e.g., [10]). These components simultaneously contribute to and create what we call the “Person Context” in which the aesthetic experience takes place.

As mentioned, the components of the framework and the processes indicated by the arrows are adapted from the model describing the nature of an aesthetic experience with visual art proposed by Locher and his colleagues [6,7, 8]. According to this two-stage model, exploration of a painting by a viewer starts with rapid encoding of the content of its pictorial field to acquire an initial impression (or gist) of the structural arrangement and semantic meaning of the composition. The gist information detected with the initial glance at a composition drives the second stage of an aesthetic experience, which consists of visual scrutiny or focal analysis of presumably interesting pictorial features detected initially to satisfy cognitive curiosity and to develop aesthetic appreciation of the painting. We propose that a user’s experience with a product follows these same two stages.

The resulting rapid automatic reaction to the stimulus, represented in the framework by the arrow drawn from Activated Memory directly to the Aesthetic Experience in Figure 1, also contributes to one’s first impression of it.

Once an initial impression of an artifact is formed based upon information obtained from seeing and handling it, the second stage of processing - focused attention to its form and functionality – follows directed by the Central Executive. For the visual modality, users gather information about an artifact by moving their eyes over it in a sequence of rapid jumps or saccades followed by pauses or fixations. The number, location and duration of fixations used to visually scrutinize the artifact constitute the Spatial-Temporal Aspects of Encoding in the figure. For touch, information about an artifact is similarly obtained by users actively moving one or both hands about the product to select and manipulate its features, usually in concert with vision in sighted individuals. The encoding activity of both modalities is indicated by the Action arrow in Figure 1 drawn between the Sensory-Motor System and the Artifact. Once again, it is important to note that the perception and aesthetic evaluation of an artifact emerges out of the dynamic interaction of input obtained by both looking at and handling an artifact. Product information in Activated Memory acquired by visual and haptic experience with the artifact during the second stage of processing spontaneously activates subsets of featural and semantic information in the user’s knowledge base. Which information is drawn into Active Memory across the time course of the interaction is determined by effortful processing on the part of the Central Executive as the user-product interaction unfolds within what is shown as the On-going interaction space in Figure 1. This ongoing process is influenced by the factors of the Person Context shown in the figure including the user’s level of aesthetic sophistication (i.e., experience in the arts and design), personal tastes, level of education,

cultural background, personality, and his or her emotional and cognitive state during the aesthetic experience, to name but a few of the factors most relevant to an interaction with a product. In this respect, the Central Executive corresponds in function to Norman’s [9] reflective level of processing of artifacts which, along with the behavioral level of processing in his model, are very sensitive to experience, training, culture, and education.

There is yet another set of factors, which contribute to a user’s interaction with an artifact, and these constitute the Artifact Context in Figure 1. They include Product Characteristics and Situational Characteristics (e.g., [10]). As mentioned previously, the appearance of an artifact communicates at least six different roles of a product, of which the symbolic role was one of the most frequently mentioned by participants in a study by Creusen and Schoormans [2]. Social-cultural and socio-economic factors related to an artifact, its historical significance, the quality of the materials out of which the artifact is constructed (e.g., wood vs. plastic), and the marketing programs used to sell products (e.g., brand names) all influence the perceived symbolic associations and social value of products (see [3] for an overview of the social value of products).

CONCLUSION

We believe the framework presented in this paper provides a comprehensive foundation upon which the nature of an aesthetic experience while interacting with a design product may be better understood. The important point conveyed by the framework presented herein is that there are many moderating factors, which contribute in complex dynamic ways to influence a user’s aesthetic experience with a design product. We hope that it will suggest promising future research directions and aid the design community’s research in a way that concrete guidelines for designing interactive products will emerge.

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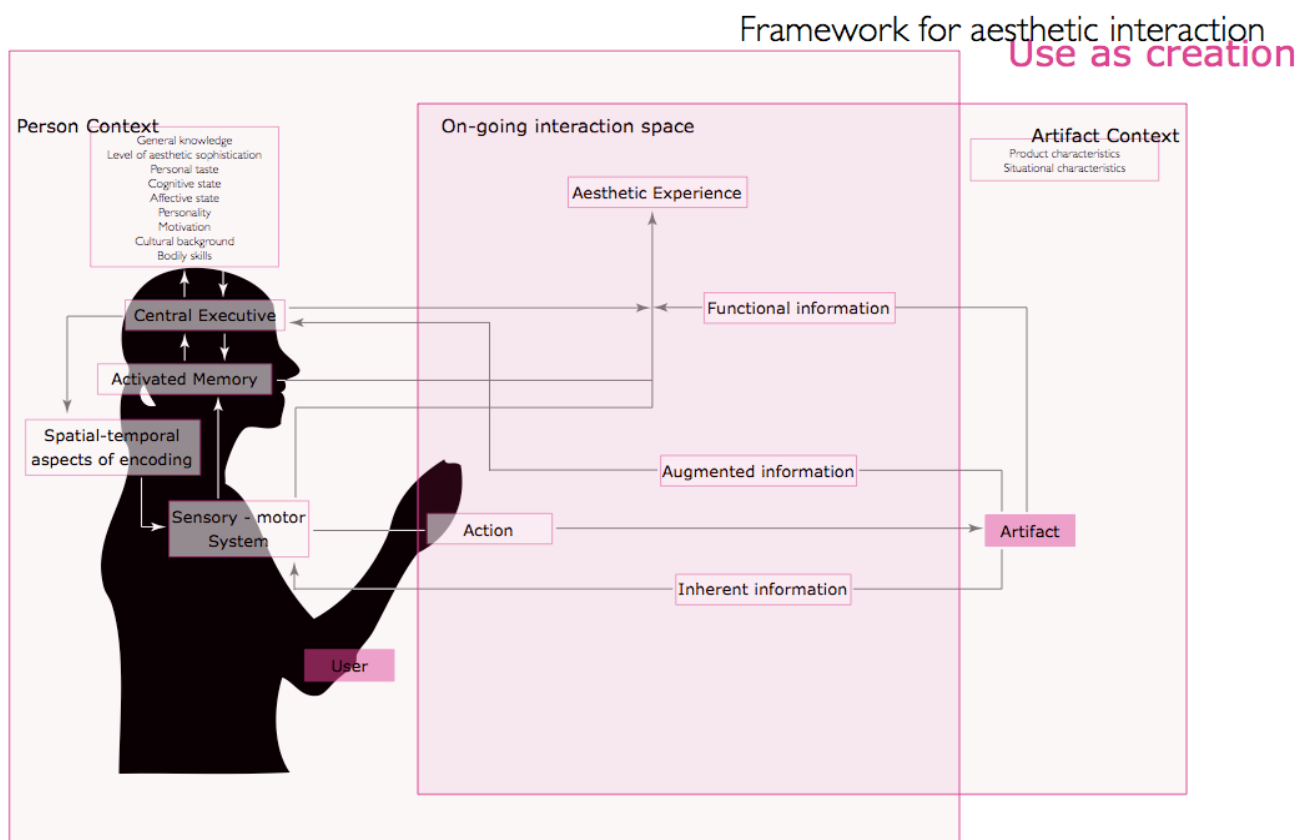


Figure 1. Framework of the interaction of artifact- and conceptually-driven processes underlying user-product interaction resulting in an aesthetic experience