

Attachment System Involvement in Esthetic Response

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Introduction: Esthetic response appears to result from the interaction of specifiable forms of information processing (prototype approximation and non-habitual pattern recognition) with particular emotional or motivational systems, such as the endogenous reward system. One likely emotional component of such response is the object attachment or bonding system. Earlier essays have articulated a framework along these lines, but provided only limited support for the role of attachment.

Arguments: The present discussion article advances further explanatory advantages for an analysis of esthetic pleasure that includes attachment activation as a central component. In connection with this activation, this study takes up further research on neural correlates of the enjoyment of music and the medical outcomes of listening to music. The advantages of such an analysis also include an account of some philosophical observations about the nature of aesthetic response, specifically the orientation of esthetic feeling toward particular objects and the recurrence of certain preferred subjects for artistic depiction.

Conclusions: These arguments suggest that the attachment system may play a significant role in esthetic response generally and even in some unexpected aspects of aesthetic response. At the same time, they raise further questions, for example questions concerning the mechanisms by which attachment system activation might operate in esthetic response.

Keywords: Beauty; Object Attachment; Esthetics; Literature; Music

1. Introduction

Some earlier essays by the present author (1-3) draw on convergent evidence from neurological research and literary study to argue several claims about beauty and sublimity. They maintain, first, that esthetic response involves an information-processing component and an emotional or motivational component. They go on to argue that, individually and through their interaction, these components provide a gradient of esthetic response, making some experiences more esthetically pleasing than others. The information-processing component takes one of two forms. Esthetic experience may be produced by non-habitual pattern recognition or by prototype approximation, which is to say approximation to a weighted average of instances or exempla. This should cover such diverse cases as; facial beauty or the beauty of common objects (both largely a matter of prototype approximation), and the sublimity of music or mathematics (both generally a matter of non-habitual patterning). As to the emotional component, these essays take up the common view that esthetic response involves the reward system (or what Panksepp and Bevin (4) call the 'seeking system'). However, simple reward system involvement seems to present an emotionally impoverished view of esthetic response. The essays suggest that,

in addition, the attachment system may be particularly important in esthetic response.

These essays (1-3) are of course far from the final word on the cognitive or emotional components of esthetic pleasure. Like other works in neuroesthetics or science generally, they are contributions to ongoing research programs. As such, they necessarily leave some arguments incomplete and raise other questions. One aspect of the analysis that particularly calls for further development is the issue of attachment involvement in esthetic response. The original essays rely on limited evidence of caudate nucleus involvement in some forms of preference (1 and 3 in particular), along with an appeal to literary instances (elaborately explored in 2) and common views on the relation between love and beauty. This hypothesis regarding the attachment system requires greater consideration.

The following discussion sets out some further reasons supporting the view that attachment system involvement is important to esthetic feeling, even in the case of esthetic targets to which it might initially seem irrelevant. It goes on to note that this involvement converges not only with literary representations of beauty, such as that of Virginia Woolf, but also with the observations of

Implication for health policy/practice/research/medical education:

There are some suggestions of health benefits relating to music that may be involved with the attachment system.

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some philosophical aestheticians. Indeed it goes some way toward explaining some perhaps surprising properties of beauty.

2. Arguments

'Literary esthetics' and 'Stylistics' (2, 3) place perhaps excessive weight on the work by Nadal et al. treating esthetic response, which 'found lower preference ratings associated with decreased activity of the caudate nucleus' (5). Both articles stressed that the caudate nucleus is 'associated with feelings of love,' significantly those encompassing 'maternal' feelings (6). This is, however, a limited finding. Moreover, it is equivocal, since other authors have interpreted the finding differently (7). On the other hand, this point fits well with the representation of esthetic response presented in some literature, prominently Virginia Woolf's esthetically masterful Mrs. Dalloway. Furthermore, making attachment important to esthetic response, though not common, is not unheard of in neuroesthetics. For example, although she did not develop the point, Zaidel noted that, 'Beauty reaction to art could be viewed as an extension of responses rooted in biological human needs, such as attachment and care giving' (8).

The involvement of attachment with esthetic response seems most intuitively obvious with human subjects, particularly with the individuating features of actual attachment objects. There is a famous story about Majnun, the prototypical lover in Arabic and Persian literature (a rough parallel to the Western Romeo). Someone who had heard Majnun's poetry exalting the beauty of his beloved Layla, finally glimpsed the young woman. The poor fellow was deeply disappointed and complained to Majnun that she verged on homely. Majnun is said to have replied that to see Layla's beauty one must see her with the eyes of Majnun (9). The point seems to be the same as Sappho's line about what is most beautiful; it is 'whatever one loves' (10). Layla's face was beautiful to Majnun due to the involvement of his attachment system.

Readers of a journal in neuroscience who also sympathize with the feelings of Majnun will not be surprised to learn that there is neurological support for Majnun's view. Specifically, increasing brain oxytocin enhances perceptions of facial attractiveness (11). This is relevant because oxytocin is a key neurochemical in the attachment system (4). Increases in oxytocin presumably mimic the feelings of Majnun, partially generalizing the preference.

The point is an interesting one, although the implications would remain unclear if it applied only to faces. In that case, it might suggest that there are other emotion systems involved in esthetic response and that attachment simply has some relevant excitatory or inhibitory relationship to those other systems. For example, it might be the case that deviation from prototypicality facilitates disgust responses for certain targets and that disgust

inhibits esthetic enjoyment, but that attachment activation inhibits disgust. In that case, attachment would not be contributory to esthetic feeling as such. It would simply operate in some (probably unusual) contexts to limit the inhibition of esthetic feeling.

In connection with this, we might turn to music. Representational arts, such as literature and painting, may provoke attachment arousal through the activation of memories linked with images or simulated events. In contrast, music seems less likely to provoke attachment feelings, since it lacks representational features. Moreover, music seems unlikely to arouse feelings of disgust, which might in turn be inhibited by attachment feelings. Thus music would appear to be a particularly promising case for examining the relevance of attachment feelings to esthetic response. Of course, it is in the nature of a multi-component model of response that one of the components may be missing and one might still have some version of the relevant experience. For example, a case of highly unexpected pattern isolation combined with vigorous reward system activation might in principle produce intense esthetic enjoyment. Perhaps this is the case with experiences of mathematical beauty. However, it seems that esthetic experiences of this partial sort are likely to be found (if at all) only in less prototypical cases of esthetic feeling, such as in scientific discovery. It would seem to cause more problems for a theory if attachment involvement were absent in such a central case as esthetic response to music.

As it happens, some surprising evidence for the importance of attachment comes from recent work on 'studies reporting activity changes within the (anterior) hippocampal formation in response to music' (12). Given the well-known memory function of the hippocampus, the obvious interpretation of these studies connects the activation with hippocampal involvement in 'novelty, and expectedness' (12), thus non-habitual pattern recognition. However, Koelsch argues that this cannot account for all the data and that the emotional function of the hippocampus must be taken into account. In connection with this, Koelsch connects 'hippocampal activation' with 'attachment-related (tender positive) emotions' (12). Moreover, the link with attachment is supported by earlier, therapeutic research. Specifically, Nilsson found that listening to at least some sorts of music can increase oxytocin levels (13).

Positing attachment system involvement in esthetic feeling has other explanatory advantages as well. It suggests one reason why our response to art is often seen as individualizing. For example, Scruton maintains that esthetic interest is specific to the esthetic target, for example, a particular symphony (14). Attachment could at least contribute to an account of this. One of the peculiarities of attachment is that it is insistently individual. To feel an attachment bond is to feel a bond with a particular individual. In contrast, many other emotion systems initially bear on broad types of objects or properties (eg. snakes,

to use a standard example of fear). Scruton comes close to recognizing the connection here when he uses the relationship between a mother and her child as an analogy for the relationship between a reader or viewer and an esthetic object, such as a painting.

It may also be significant that art frequently focuses on either people (as in portraits), or scenes (as in landscapes), a point also emphasized by Scruton. This may have a bearing on attachment as well. Clearly, our attachment bonds are directed primarily at people. However, they are also bound up with places (see Panksepp (15) on the relation between person and place attachment). Thus, the involvement of attachment might also lead one to expect persons and scenes to be unusually frequent objects of esthetic experience, likely to trigger attachment responses. Here, too, Scruton suggests the point, without actually stating it. Specifically, he writes that, 'The experience of natural beauty contains a reassurance that the world is a home,' (14) home being the paradigm of place attachment.

3. Conclusions

Earlier essays (1-3) maintained that attachment is a significant emotional contributor to esthetic feeling, along with endogenous rewards (both being involved with information-processing components of esthetic response). However, this hypothesis was based on limited brain research, stressing convergent literary attestations of the link. The present essay has argued that there is more brain-based evidence of attachment involvement in esthetic feeling, and there are significant connections with philosophical observations as well.

None of this is to say that the evidence is definitive. Clearly, this remains a debatable hypothesis. Moreover, even if accepted, the precise mechanisms involved need to be further examined and specified. It seems likely that in some instances attachment involvement results from the activation of emotional memories. But there may be other means as well, particularly in the case of music. Moreover, it may eventuate that there are different sorts of esthetic feeling that share an information-processing and reward component, but diverge in other emotional involvements. As a result, there are many areas of potential research even within attachment-related neuroesthetics. Finally, Nilsson's research suggests that esthetic experience may have clinical consequences, perhaps related to attachment feelings, a possibility that also calls for further research.

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