Component and relational processing in aesthetics

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Schema-based and constructive theories of literary reception are described as complementary rather than incompatible. Both share an emphasis on mental representation and this is constrained with contextualized experience. While mental representations involve logically connected components, the meaning of experience is shaped by external (worldly) and internal (self-relevant) contexts. Spontaneous experience is given priority over component analysis. This difference is related historically to the Content and Act approaches to psychology. In addition, different modes of information processing (external versus internal constraint), of artistic production (rule-guided versus image-guided), of neural self-regulation (activation versus arousal), and of emotional activity (reactive versus reflective), are examined in relation to the distinction between mental representation and contextualized experience.

1. Schema-based and constructive processes

Scholars have debated the relative merits of "schema-based" and "constructive" models of literary reception. Schema-based models assume the automatic activation of conventional syntactic and semantic analyses (Kintsch, 1977). Accordingly, narrative statements are decomposed into elementary categories whose structure can predict comprehension for simple literary narratives (Graesser, 1981). Knowledge about causes and goals is fundamental to such analyses (Larson and Laszlo, 1990).

Scholars who are critical of the schema-based approach have argued that such models cannot account for shifting meanings in a text. While schemas enable literary processing to begin, the intentionally indeterminate structure of literary works (effected through literary devices) limits their predictive value (Miall, 1989). Thus, the application of elementary schemas may not resolve questions regarding the complex motives and actions of characters in narrative works. Meutsch (1986) has similarly been critical of the schema-based perspective, arguing that linguistic methods "are useful and important..."
heuristics, but they can never be an explanation or precise description of language understanding” (Meutsch, 1986: 317).

The differences between schema-based and constructive approaches in literary reception theory may be more apparent than real. A supposedly schema-oriented theorist (Graesser, 1981) sees his kind of approach as generating “constructivist models that attempt to handle many levels of representation: the textbase, world knowledge, the situation model, emotions, reader goals, and pragmatics”. 1 On the other hand, a self-described “pragmatic constructivist” (Meutsch, 1986), treats literary understanding as a “goal directed regulation of systemic processes,” bound by conventions (see Schmidt, 1982), and involving an interaction between “propositional processes and mental models” (Meutsch, 1986: 325).

In view of the interrelations between these viewpoints, the two modes of literary comprehension are better viewed as complementary. Information derived from schema- or rule-based component analyses can be used to construct complex hypotheses regarding the unfolding events in a narrative. This information need not be restricted to linguistic features, or real world knowledge, but may also include stylistic conventions. At the same time, global ideas about the overall meaning of a text feedback into moment to moment reading processes, helping a reader interpret nuances of meaning in the context of the whole. Thus, schema-based knowledge and interpretive construction facilitate literary “equilibration” (Flavell, 1963); assimilation to what is known, and accommodation to uniqueness in the text.

2. Mental models and personal experiences

The examples of schema-based and constructive viewpoints cited above emphasize the development of “representations” or “mental models”. What implicit assumptions are there underlying the concept of mental representation? Under what circumstances do readers construct mental representations of narrative material, or of anything else for that matter? Do readers produce something other than mental models which may be relevant to the aesthetic process?

Perhaps the best place to begin this critical analysis is with Palmer’s (1979: 262) formal account of mental representations.

“A representation is, first and foremost, something that stands for something else. In other words, it is some sort of model of the thing (or things) it represents. This description implies the existence of two related but functionally separate worlds: the represented world and the representing world.”

1 Personal communication from Art Graesser
There are two important aspects to the process of producing mental representations, one intellectual and the other social. Intellectually, a person must step outside the flow of experience, reducing a stimulus to a set of necessary features through careful attention and selection. Logical inferences are then used to hypothesize cause and effect relations. Socially, a person must adopt an attitude of objective detachment in order to stand back and take stock of the situation.

The construction of mental representations through information selection and objective detachment contrasts with holistic experience and subjective involvement. Subjective experience occurs on-line, so to speak, and researchers in literary reception have endeavoured to “capture” it using the “talk aloud” method. A distinguishing quality of experience is its spontaneity (i.e., lack of intentionality) which integrates unfolding text meanings with self-relevant cognitions and emotions. In addition, the fabric of experience interweaves many levels of organization in a non-reflective manner. The reader experiences the narrative in a direct way: one that integrates thoughts and feelings.

This analysis raises the importance of “relational” meaning in literary reception. There are many layers which contribute to the reader’s experience of meaning. Each layer serves as a context which shapes the meaning of an event for the perceiver. The meaning of any event must therefore be considered within its various contexts. One context is the structure of the narrative itself, for example, the meaning of a character’s actions might be considered in the light of what the character had done earlier in the story. The broader meaning of a narrative might be understood in relation to the political/social era within which the work was created. A third context is the reader’s personal history, both intellectual and emotional, which casts a shadow on the interpretive process. The structure of experience is something that Arnheim (1971) has discussed with reference to art appreciation. Viewers are said to “feel” directly the tensions in artworks, and this is central to the process of artistic expression. Strauss (1958) has explored the ways that visual and hallucinatory structures coherently reflect meaning in the viewer’s (as creator) world.

3. Component and relational processes

This comparison between component and relational processes has been given careful attention by perception theorists who are interested in the perception of simple patterns (see Kimchi, 1992). While the appreciation of literary narratives and artworks requires more sophisticated processes, there is much to be learned by examining this debate in the perception area. A distinction is drawn between different levels of organization in a hierarchy, each with its
own distinctive components. Kimchi describes "wholistic" properties as dependent on the interrelations among component parts. These "wholistic" properties have also been described as "relational" or "emergent". She concludes: "empirical findings seem to suggest that wholistic, relational properties, rather than the component properties, dominate perceptual processing" (p. 36).

By extrapolating from the perception area of psychology to literary reception, one can conclude that the spontaneous experience of a text has priority over the analysis of its components. The many levels of organization which are relevant to literary reception, including the narrative stimulus as well as the reader's intellectual and emotional background, spontaneously unify into a coherent pattern of meaning termed the "reading experience". The immediacy and coherence in the structure of experience gives it primacy over the component elements. A critical analysis of reading activity must separate out each level of organization which can affect understanding and emotional response. The skilled reader should be able to parse the contributions of his or her personal knowledge and experiences, both emotional and intellectual, to the reading experience. But this kind of reflective analysis should be considered secondary to the spontaneous experience of a text during first reading.

4. External and internal structure

There is yet another way to consider the relative contributions of conventionalized representations or mental models and spontaneous experience to the reading process (Cupchik, 1988). Garner (1962) distinguished two kinds of structural meaning: external meaning and internal meaning. External meaning refers to the structure of relations between elements of a system and another external referent system such as an object, event, or symbol system. Visually, the dots on a radar scope are constrained by the location of aircraft flying in real space. The dots (or "tache") of color in paintings might be constrained by objects they are meant to represent or by stylistic rules in the case of abstract paintings. From a literary viewpoint, the structure of a sentence or of a story is constrained by linguistic and stylistic rules.

Internal meaning refers to the structure of relations among the elements within a system. Thus, dots in a picture may be organized in a unique way that is internally constrained or determined. Garner (1962) himself has noted that the arts "have been much freer to use high degrees of internal constraint. Modern visual art, for example, has tended more and more to keep external structure to a minimum in favor of internal meaning" (p. 172).

Garner (1962) articulated the elegant principle that external and internal constraint are inversely related. To the extent that the meaning of a system is
defined by external rules and conventions, it will be more readily interpreted. Thus, a readable story adheres to conventional rules regarding narrative structure, the use of description, the delineation of characters, etc. While requiring the reader to adopt an appropriate frame or reference it does not pose "reading problems". A system that is high in internal constraint is organized according to a syntax that is unavailable to untutored readers. Martindale (1975) has described the kind of radical shift in structure that takes place when more extreme versions of a single style no longer satisfy a preference for originality.

Internal and external meaning are associated with different psychological processes. External meaning is associated with the process of perceptual discrimination, "the ability to distinguish one stimulus from another" (p. 163). The availability of schemas or rules makes it easier to distinguish among stimuli. The psychological process associated with internal meaning is free recall learning, the recall of elements after observational study of the internal system. Uniqueness in the pattern of relations among elements in a system makes it more memorable.

Mental representations or models are clear examples of externally constrained systems. Their meaning resides in the referent with which they are associated. Artists and authors produce representations when they create artworks and stories constrained by world-systems and stylistic conventions. Personal experiences are examples of internally constrained systems. Their meaning is shaped by the unique interpretations and diverse qualities which integrate the aesthetic stimulus with the viewer or reader's distinctive personal response. Artists and authors can project personal experiences onto the aesthetic objects that they produce. Mental models are easier to understand because they are constrained by social convention, while personal interpretations may seem more alien (but distinctive) because the contexts out of which they arise are not well known.

5. Historical roots

The intellectual roots of the distinction between representation and holistic experience can be traced to a historical conflict between Content and Act psychology (see Boring, 1950). Content psychology is derived from the founding principle of British Empiricism (e.g., Locke, Hume) which holds that the contents of mind are best expressed as connected ideas. In its different guises as Associationism or Connectionism, the underlying epistemology remains the same. Rooted in a belief in tabula rasa, and in the primacy of sense data, Empiricism maintains that elements of knowledge are built up into associated structures. Elements of sensation or ideas have primacy over associa-
tions. Modern versions of this approach can be traced through Wundt to structuralism and experimental cognitive psychology.

Act psychology, on the other hand, was expressed in the ideas of Scottish (e.g., Reid, Hamilton) and German philosophers (e.g., Leibnitz, Wolff) who stressed the unity of the mind over its elements. Emphasis was placed on the ways that mind can function as opposed to its particular momentary contents. Modern versions of this holistic perspective were expressed in Gestalt psychology (Kohler) and in phenomenology (Brentano) with its emphasis on constitutive intentionality. The individual is held to create unique meaning in the context of his or her personal existence.

If schema-based and constructive processes can be described as complementary, then the same may be said for representational and experiential processes. Experiential processes have primacy because they spontaneously occur during the flow of daily life, including aesthetic episodes. However, representational processes are essential because they enable the person to stand back and reflect both on internal experience and on external happenings. A person who is trapped in the experiential process lives as a solipsist, bound by subjectivism. On the other hand, someone who engages primarily in the act of constructing representations, is always busy analyzing and reducing, and never enjoys the spontaneity of a moment.

6. Artistic production

The distinction between mental models and personal experiences has been explored in a recent analysis of rule-based and image-based mode of artistic production (Cupchik, 1992). The rule-based model is analytical and objective, and is best illustrated in the context of representational art. A representational artist uses the rules of Euclidian geometry to construct linear perspective and recreate the perceptual experience of a natural scene. The careful pairing of a rigorous analysis of visual properties of a scene with the formal manipulation of a medium enables an artist to preserve these relational properties in their most informative aspect (Gibson, 1971).

However, a similar analysis can be applied to the production of abstract art. The abstract artist uses a different set of rules (which may be of his or her own making) to ensure that particular visual effects are produced. In order to achieve these effects, the medium must be carefully operated on. For both types of artistic endeavour, representational and abstract, a matching criterion is applied to assess the extent to which the unfolding image conforms to the rules which guided its execution. Formal or rule-based knowledge thus guides both the perceptual/cognitive parsing of a visual scene and its recreation through the manipulation of a medium.
The central role of experience is revealed in the image-based model of artistic production. The image-guided process is subjective in nature, emphasizing expressive and personally meaningful qualities of an emerging image. The physical image, unfolding on a canvas, is a projection of an artist's personal experience (i.e., a subjective image) and is tied to a freer manipulation of a medium. Consider, for example, an artist who perceives the image of an abstract face in the grain of a block of oak. The experience of this image provides the artist with "inspiration" which directs the application of pencil to paper or chisel to the block of wood.

The unified image experienced by the artist fosters coherence or internal structure in the unfolding work. The work elaborates rather than departs from the artist's mental image. The image-guided approach to art-making also provides a means for the dynamic expression of emotion. The physical manipulation of a medium provides a channel for the indirect expression of emotion (for example, by pressing lightly or forcefully on a mass of clay or on a paint brush). Ideas which shape an artwork are always accompanied by feelings that serve to unify the work, bridging its different stages of development and layers of meaning (Arnheim, 1971).

The complementarity of rule-based and image-based modes of production must be acknowledged. A skilled artist is someone who has acquired technique, the ability to achieve visual effects of style or subject matter by manipulating a medium in particular ways. These are the skills of problem solving which make the reproduction of scenes possible. However, drafting skills alone can reproduce clear but banal images, as in the case of sentimental art (Winston, 1992). The internal images experienced by artists provide a foundation for novel images on paper, in bronze, etc. However, novel images which lack order are perceived by discerning audiences as incoherent and potentially self-indulgent. Thus, successful artists blend the perception of novel images with a skilful manipulation of materials. Sometimes, however, it takes a while for an audience to catch on (as in the case of Impressionist painting). The implicit rules which constrain the internal structure of an original artistic or literary style must be formalized and conventionalized so that the general public can interpret the structure. In this sense we observe swings from novelty to readability, from the internal constraint of personal visions to the external constraint of aesthetic conventions.

7. Biological processes

The differences between representations and unique personal experiences are grounded, respectively, in contrasting models of neural self-regulation, activation and arousal (Tucker and Williamson, 1984). The activation model stresses a careful analysis of the stimulus environment that is paired with the
selection of overlearned (i.e., highly practised) motor responses. It is a survival-oriented mechanism which enables animals to respond quickly and precisely to cues in the environment. These cues resolve basic needs relating to survival, food, reproduction, etc.

This vigilant attention to the environment is analogous to what happens in rule-guided artistic activity. Careful analysis of a physical scene in terms of qualities, such as spatial organization, colour, and tone, produces highly organized (i.e., redundant) information. This information in turn governs the execution of highly practised motor techniques for manipulating a medium. The artist then matches the output of this activity against expectations (e.g., the external scene) and corrects as needed. At both the artistic and physiological levels, the rigorous analysis of stimuli is paired with controlled responses.

The arousal model stresses the use of diverse actions to produce novel stimulation which has an affective quality. This kind of activity is initiated when the organism experiences a lack of stimulation for a period of time. The creation of personally meaningful images is what the image-guided model of artistic activity yields. Whereas novelty at the organismic level is simply a mismatch between existing neuronal patterns and incoming stimulation, at the artistic level it involves the intentional production of personally stimulating experiences. The affective quality of the emerging stimulus is important in determining its personal appeal, both at the animal and human levels.

This analysis has several implications. First, the basic mechanisms underlying perception, vigilant attention and orientation to novelty, affect both everyday and aesthetic processing. Second, the psychobiological mechanisms are transformed from the lower level of animal processing to the higher level of human creative activity. At the lower level, vigilance involves a stereotyped response to a fixed stimulus, and novelty is a departure from momentary expectations. At the higher level, vigilance is transformed into the careful analysis of relations (e.g., spatial relations) which guide highly practised modes of manipulating media. Novelty changes from the mere mismatch between actual and anticipated stimulation into a criterion for assessing a coherently emerging image. Thus, the cultural world may be founded on basic biological structures, but it elevates them to more substantial levels of meaning.

In addition, human flexibility makes it possible for an individual to combine rule- and image-guided activity within a single project. The artist can spend some time applying rules and other time trying to develop a personally meaningful image. The essential point of this analysis is that psychobiology is part of aesthetic activity, but does not dominate it. The artist uses these physiological structures in accordance with his or her needs and culturally oriented goals.
8. Emotional processes

Differences between analytical representations and holistic images play an important role in emotional processes. The role of emotion in aesthetics has barely been explored. Meutsch (1986) did not provide a place for emotion in his model of mental image construction. For Miall (1989), emotion was related to the process of anticipating events in the structure of a narrative. Brewer and Lichtenstein (1981) have focused on different aspects of uncertainty (e.g., suspense, surprise, and curiosity) in literary reception.

Two kinds of emotional processes, which have been distinguished in the area of emotion theory, map onto analytical schema-based and wholistic experiential theories of processing. A distinction has been drawn between dimensional and category types of reactions to evocative events (Izard, 1971). Dimensional responses are closely tied to bodily states of pleasure and arousal (Wundt, 1903); they can be experienced in varying degrees of intensity. Dimensional reactions have figured prominently in cognitive theories of emotion (e.g., Schachter and Singer, 1962). Arousal is generally paired with a cognitive component which has some kind of hedonic implication. Interestingly, the behavioralist antecedents of Schachter's famous \textit{EMOTION} = AROUSAL + COGNITION model maintained that emotion is not a distinct state (see Duffy, 1941). Rather, it represents an intense state of arousal with reference to a particular stimulus.

The second kind of emotional response pertains to primary emotions, such as happiness, interest, surprise, fear, anger, disgust, or sadness (Izard, 1971) and also their blends. This approach emphasizes the spontaneity of emotion (Darwin, 1872) and the role of feedback from facial expressions in shaping the subjective experience of emotion. William James (1894) argued that the experience of emotion is perceptual in nature and involves a total situation, not an isolated object. The original notion of Einfühlung (Lipps, 1903) or "empathy" (as translated by Titchener, 1910) implied the projection of emotion onto aesthetic objects. Empathy makes it possible for the recipient's self to be objectified in an event or art object that is separate from it.

This review of perspectives in emotion theory reveals one kind of emotional process that fits with a schema-based or representational mode of affective comprehension and another that is appropriate for an experientially oriented theory. The behavioral/cognitive tradition is closely related to a schema-based approach because it links bodily excitation with an analysis of the evocative stimulus. The stimulus is important because it has pragmatic implications for the recipient (i.e., bringing pleasure or pain) and the recipient approaches it in a deliberate, goal-oriented manner. The expressive and experiential tradition, which emphasizes specific emotions, fits nicely with an approach to aesthetic comprehension emphasizing the experience of particular emotions in context. The recipient actively participates in the interpretive...
process, responding subjectively to the evocative stimulus, and placing it spontaneously in a meaningful context.

9. Reaction and reflection

The link between schema-based and holistic modes of appraisal with dimensional and experiential types of emotional response yields two models, reactive and reflective, respectively (Cupchik and Winston, 1992). The reactive model is one in which specific codes for interpreting an aesthetic stimulus are bound with affective responses that map onto dimensions of pleasure or arousal. The evoking stimulus is examined in a restricted way so that the presence of particular concrete features, characters, or events evokes a predictable emotional reaction. For example, sentimental art, in its simplicity and idealization, is arousal-moderating (Berlyne, 1971) and evokes responses of warmth in unsophisticated audiences (Winston, 1992; Winston and Cupchik, 1992).

When affective response is of primary interest, this reciprocally interferes with the depth of interpretive activity. It is under these circumstances that mechanisms assume a critical role. If profound meaning is not the central focus, then arbitrary links between appraisal and response might assume greater importance. Automatic processes such as association, conditioning, adaptation, stimulus generalization, and habituation might shape affective response. In this sense, mechanisms function to determine the form of aesthetic processing and, consequently, the structure of aesthetic experience.

The reflective model links a contextual process of appraisal with a subjective emotional mode of response. This model is associated with aesthetic objects which are uniquely meaningful and pose an interpretive challenge to the recipient. The person must search for (i.e., construct) a structure that meaningfully relates the different parts of the message. In addition, appropriate interpretive contexts must be brought to bear that render the different facets of the message interpretable. Coherence is an important quality of the meaningful interpretation. This accommodation to the unique structure of the message results in a more complex level of response. The recipient does not simply like or dislike the message, or perceive it as arousing. Rather, many different emotions may be experienced through identification with the characters in the work and their experiences. It is in this sense that Vygotsky (1971) wrote that “art is the technique of emotion”.

The reflective model has several implications for the relations between appraisal and response. First, complex interpretive activity requires effort on the part of the individual and this should slow the tendency to an immediate emotional reaction: deliberation hinders spontaneity. Second, the active generation of abstract meaning runs counter to the operation of mechanisms
Table 1
Contrasting modes of appraisal and response

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which might link appraisal with reaction. Finally, when subtle combinations of emotion are generated to interpret an event, the boundaries between appraisal and reaction are obscured. While pleasure or excitement are not given priority, the person experiences more complex emotions which take time to form.

10. Summary and conclusions

This paper has explored a diverse set of topic areas including: literary reception, artistic production, and emotion process. The problem of narrative comprehension was initially conceived as a conflict between schema-based and constructive theories. The two modes of processing were found to be complementary, using formalized knowledge to understand, explain, and predict the unfolding of a narrative line. However, the common emphasis by both theoretical approaches on “representations” or “mental models” of a text raised some interesting questions. If representations are derived structures founded on selective analysis, then what role does a person’s immediate experience have to play in the aesthetic process? Can it not serve as an internal stimulus, directing exploratory activity and interpretation?

Garner (1962) provided an elegant framework within which to begin considering this problem. Representations can be described in terms of external constraint, the effects that one system (e.g., a natural scene, or a set of conventions) has on another (e.g., a story or a painting). However, external constraint varies inversely with internal constraint, the unique relations among components within a system. Internal constraint can be related to unique and coherent aspects of private experience which link an external stimulus with idiosyncratic meaning. Thus, internal constraint offers a formal way to describe a person’s phenomenology. The spontaneous and emergent nature of private experience may have primacy over logically constructed representations (Kimchi, 1992).
Artistic production offers an excellent example of how representation and personal experience provide contrasting directions in art. In the case of representation, specific features of stimuli are linked with carefully controlled responses in order to produce particular visual effects such as realism. This kind of rule-guided activity can similarly account for the production of abstract artworks. On the other hand, personal experience can be projected onto a canvas and the resulting novel image can provide direction for the emerging artwork. The rule-guided and image-guided processes utilize different criteria for success, matching and coherence, respectively. They also have an analog in fundamental physiological mechanisms which are oriented toward vigilance or novelty, respectively. This analysis implies that basic physiological mechanisms are elevated by cultural convention and personal vision to a higher level of meaning.

The analytical skills which are central to representation, and the holistic processes observed in personal experience also figure prominently in emotional activity. Two traditions of emotion theory were described which favoured either analytical or holistic processing. The behavioural/cognitive tradition emphasized the selection of particular stimulus properties which can be associated with broad dimensions of emotion, such as pleasure or excitement. This is typified in sentimental forms of aesthetic response where idealized themes elicit basic emotional responses, such as warm feelings. The category tradition in emotion research has focused on experiences of primary emotions, such as sadness or fear, in relation to specific evocative contexts. This holistic treatment of emotion evoking situations yields a more complex pattern of emotional experiences.

In sum, analyzing events into elementary components, which are then related according to established formulas, has very different implications than responding to events spontaneously and holistically. While a rule-based analysis fosters explanation and prediction, a holistic analysis is better suited to understanding (verstehen). Together, they provide a complementary foundation for comprehension in everyday life and in aesthetics.

References


Duffy, E., 1941. An explanation of "emotional" phenomena without the use of the concept "emotion". Journal of General Psychology 25, 283–293.


James, W., 1894. The physical basis of emotion. Psychological Review 1, 516–529.


