

EFFECTS OF INTERPRETATION OF EMOTIONAL AND ENERGETIC COSTS IN PICTURE PERCEPTION

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1. Narrative Picture Perception:

Participant Account: we as viewers, spectators, and readers come to comprehend a narrative painting, film, drama, or work of fiction by imaginatively projecting ourselves into the event depicted and adopting the perspectives, or *simulating* the key beliefs and desires, of its characters from a 1st person point of view; our experience is in some specifiable way *internal to the work*.

Observer Account: we fail to respond to films, pictures, dramas, and texts as we would if we were the actual characters, or even if we were independent observers in the event; the spatial extent of films and paintings are radically (and noticeably) different from real life; as a result we can conclude that we come to understand the content of a narrative painting, film, drama, or work of fiction from a 3rd person point of view, or as a side-participant to the narrative; we do so by employing tacit folk psychological theories about the relationship between behavior and the beliefs & desires of others; our experience is essentially *external to the experience of the characters in work*.

* NOTE: These views are not incompatible and may be best interpreted as complimentary. For instance, a great deal of background knowledge is necessary to succeed at projecting oneself into a scene depicted in a painting. We interpret the debate to be about the role of what Wollheim called *central imaginings* (1st person imaginative experiences) in our understanding of narrative artworks.

2. Effects of Energetic & Emotional Costs on Apparent Distance:

a) Dennis Proffitt and his colleagues have demonstrated that apparent orientation and extent are influenced by two non-optical factors: *energetic costs* (task difficulty and fatigue) & *emotional costs* (fear & anxiety). For instance, wearing a heavy backpack, walking on a treadmill, or throwing a heavy ball increase the apparent distance to a target (Proffitt 2006a).

b) These effects are *experiential, not inferential*. Proffitt et al report that the effects of energetic & emotional costs on apparent distance are limited to 1st person contexts in which people directly anticipate an increase in task difficulty for themselves or experience an increase in fatigue or anxiety; no such effects are reported for cases in which people, for instance, observe someone else don a heavy backpack in preparation to walk to a target landmark.

c) *Purposiveness* is a critical variable. The influence of energetic & emotional costs on apparent orientation & extent is specific to an intended action (Proffitt 2006b):

- i) walking on a treadmill influences the apparent distance to a target if people anticipate walking to it.
- ii) However, IF participants view a target with the intention of *tossing* a bean bag to it after *walking* on a treadmill THEN there is no effect on apparent distance.
- iii) Likewise, throwing a heavy ball to a target influences apparent distance ONLY IF participants intend to throw to it again AND NOT if they intend to walk to it.

3. Effects of Energetic & Emotional Costs on Picture Perception:

Proffitt et al's results suggest that IF the Participant Account of narrative picture perception is valid THEN one should find similar effects from changes in the interpreted energetic & emotional costs of events depicted in narrative paintings.

In order to test our hypothesis we chose two images by Andrew Wyeth: *Christina's World* and *Winter, 1946*. These paintings appear to art historically naïve viewers as *realistic depictions* of mundane, emotionally neutral events. However the central figures of these paintings were real individuals who suffered from physical disabilities and difficult personal circumstances. Knowledge of this biographical information alters the perceived *energetic costs* (*Christina's World*) and *emotional cost* (*Winter, 1946*) of the events depicted in the paintings. We predicted that the introduction of this art historically salient information would, as a result, modulate the apparent extent of the landscapes depicted in the paintings.

Participants were divided into an energetic cost group (Christina's World) and an emotional cost group (Winter, 1946). Participants in each group were divided into 30 second, 1 minute, 3 minute, and 1 minute reverse groups. Participants were asked to make accurate drawings of the spatial layout of the scene depicted in the paintings in a *naïve condition* (without information about the character and event depicted) and then again in an *educated condition* (after reading the salient information). We then compared the spatial extent of the naïve and educated condition drawings. Participants read the salient information prior to their first drawing in the reverse condition. Prior to their second drawing they read a short passage designed to lessen the interpretation of energetic or emotional costs. Control groups for each timing drew the paintings twice without reading the salient information about the depicted events. In order to measure the *extent* of the drawn landscape in "Christina's World" we measured the area of the triangle formed by the head of the figure, the front corner of the house, and the point where a vertical line bisecting the head of the figure intersected with the horizon. We used the triangle formed by the head of the figure, the peak of the hill, and the point in the drawing where the left side of the road crossed the horizon for our measure in "Wyeth 1946."

Naïve viewers ordinarily interpret "Christina's World" as a landscape in a realistic representational style. They do not report anything unique about the figure depicted in the foreground. However, Christina suffered from a degenerative muscular disease. She was in her fifties when the painting was composed and had been unable to walk since she was 3 or 4. Despite these disabilities, Wyeth reports that she regularly used her hands and arms to drag herself across the field to her vegetable garden and back. Although some naïve viewers correctly assess the tone of the painting as bittersweet, very few perceive the visible cues that indicate the correct interpretation of her physiological state (e.g. her gnarled hands & emaciated arms and ankles). We predicted as a result that viewers would interpret the central subject of the paintings as *lying in the field* and in *good/average health* in the naïve condition. In contrast we predicted that they would interpret her as *dragging herself across the field* and in *poor physiological health* in the educated condition. We hypothesized that these changes in energetic cost of the depicted event would cause participants to draw the landscape as longer in the educated condition if the Experiential Account is correct.

Naïve viewers interpret "Winter, 1946" as a realistic depiction of a boy running down a gentle slope on a cold winter day. Although the scene is grey and dreary, it is ordinarily rated as an emotionally neutral painting. However, the boy depicted in the painting is a 12 year old Wyeth and Wyeth's father and a close cousin were run over by a train just over the crest of the hill in the background. Wyeth did not witness the accident, but the painting represents his recollection of the event. We predicted that participants would interpret the central subject as a normal boy *playing* in a field in the naïve condition and as *anxiously fleeing* from a tragedy in the educated condition. We hypothesized that changes in the emotional cost of the depicted event would cause participants to draw the landscape as longer in the educated condition if the experiential account is correct.

Results from the 1 minute ($p < 0.001$), 3 minute ($p < 0.01$), and 1 minute reverse ($p < 0.01$) energetic cost groups support our hypothesis. Results from the emotional cost group and the 30 second energetic cost group were inconclusive. We believe that the latter results can be explained as artifacts of task difficulty. Cohen (2005) demonstrated that non-artists have difficulty with copying tasks at timings shorter than 1 minute. Further, most participants had difficulty copying the spatial layout of "Wyeth, 1946." We hypothesize that this latter difficulty was an effect of the sparseness of the painting which caused participants to focus an inordinate amount of attention on the figure at the expense of other key features.

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