

EMOTIONS AS EXPERIENCES OF INFORMATION FLOW

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Emotions play a very significant role in all areas related to the human factor [1]. The problem, however, is that the existing theories of emotion seem to be quite relevant each for its own narrow field only. Attempts to use each of the theories in other areas are highly criticized [2, 3].

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A particularly difficult situation arises in application areas, where it is necessary to take into account many different aspects of the real process. Such, for example, is urbanism. The city is a complex system for which psychological, economic, political and so on factors matter. For modelling of most of these factors need to consider the influence of emotions. Disagreements in the interpretation of the emotions concept itself are holding back the development of urbanism.

Our idea is to define emotions as experiences of the characteristics of the information flow.

Consider the flow of information through the human senses. Like any stream, this stream can be strong (intense, with a lot of information per unit of time) or weak. It can also be ordered (laminar) or chaotic (turbulent).

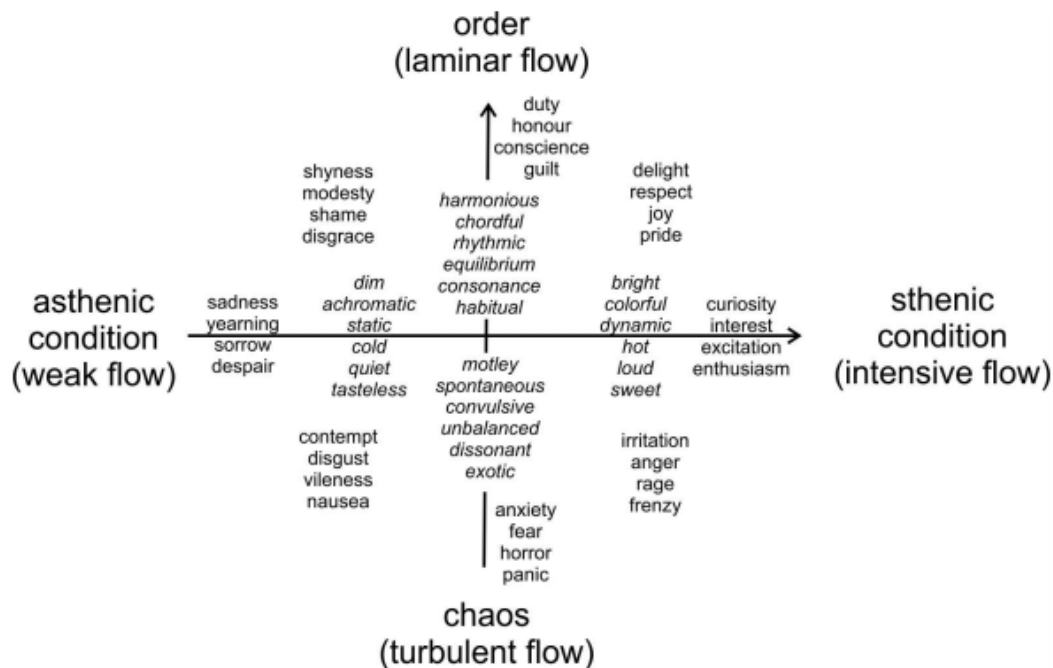
The high intensity of the flow corresponds to the emotions of the group “interest, enthusiasm, excitement”. Low - to the emotions of the group “sadness, despondency”. The laminar flow of information corresponds to the emotions of the “conscience, guilt” group. Turbulent - “fear, anxiety.”

The axes “intensity” and “ordering” are orthogonal to each other and form the base of the Cartesian two-dimensional space. Thus, we get a “space of emotions” in which each point

corresponds to a particular emotion. For example, the diagonal vector between the “interest” and “fear” half-axes corresponds to the emotions of the “anger, aggression” group, and the vector between the “fear” and “sadness” half-axes corresponds to the emotions of the “disgust, contempt” group. On the diagonal between the vectors “sadness” and “conscience, guilt” are the emotions of the “shame” group, and between “conscience” and “interest” - the group of emotions “joy, pride”.

Of course, only a few of the areas in the emotional space have their own names in any language. Most of the emotions are either “nameless” or are indicated allegorically, using similes and metaphors.

The center of the space of emotions is the state of indifference. In ancient Greek philosophy, this state was designated as “ataraxia”, in Sanskrit it corresponds to the term “ahimsa”, and in Chinese philosophy - the principle of “wu-wei”.



Pic. 1. Space of emotions and its perceptual attributes.

The further the distance from the center, the more intense the emotion. For example, the weak form of the emotion “anger” is called “discontent, irritation”, and the extremely strong emotion from this group is called “rage, frenzy.”

The growth of the intensity of any emotion has a natural physiological limit. The emo-

tions of the right half-plane (from the “conscience” axis to the “fear” axis through the “interest” axis) are sthenic and stressful. In these emotional states, physiological processes in the body are accelerated and become more intense. At high intensities of emotions of the “interest” group (for example, during good sex), the depth and frequency of breathing and pulse increases, body temperature may rise, and so on. A further increase in the intensity of the information flow may turn out to be incompatible with life. The intensity of physiological processes may become too high.

The emotions of the left half-plane, around the “sadness” half-axis, inhibit the processes in the body (they act in an asthenic manner). When experiencing sadness, breathing and pulse become slower and shallower, metabolism and energy production are inhibited at the cellular level, and so on. The unlimited growth of such processes can also become incompatible with life. In the same way, other groups of emotions have their own physiological limitations in intensity.

The bodily aspect of experiencing emotions allows us to associate them with the qualities of the images that a person perceives.

Sthenic emotions, exerting an exciting effect on the body, contribute to an increase in visual acuity, especially in color (since the cones in the retina of the eye are more mobile in their states than the rods). Other perceptions are also sharpened. As a result, a person in a sthenic state perceives the world as brighter, more colorful, dynamic, loud and sonorous, full of intense smells and tastes.

Accordingly, the emotions of the sthenic group (“interest” and those close to it) can be stimulated with the help of “hot” images with high brightness, colorfulness and dynamism. Voiced and loud sounds, intense smells and tastes, and so on are perceived as more interesting.

On the contrary, the emotions of the asthenic group (“sadness” and around it) are stimulated by the perception of “cold” images - static, dull and gray. The “sounds of sorrow” are quiet and muffled, tastes and smells weak and nuanced.

Images corresponding to the emotions of the upper half-plane (“conscience, guilt” and those close to it) are characterized by orderliness and harmony. In terms of visual mode, they rely on classic color chords, clear symmetry and poise. In terms of sound, they are rhythmic and harmonious. In the odoral sense, natural, natural combinations of taste and smell are used.

The lower half-plane of the space of emotions corresponds to emotions of a chaotic type (“fear”, “anger”, “disgust” and those close to them). Such states correspond to motley, disharmonious, arrhythmic, dissymmetrical and dissonant images.

The interpretation of emotions as parameters of the information flow makes it possible to

build quantitative models for the analysis and synthesis of images in various fields.

We are currently analyzing the urban environment of Sofia, Bulgaria. The city is undergoing intensive development without any general plan. At the same time, the quality of construction is extremely low, since the buildings are mainly intended not for people's lives, but for speculation in the real estate markets. Most new builded complexes are dominated by a dull gray color scheme. New buildings are clad with cheap materials or just exposed concrete. The chaotic arrangement of new buildings creates a space devoid of rhythm and symmetry. Large amounts of debris and randomly parked vehicles add to the feeling of chaos. In general, an image is formed that is in the area of emotions of the "disgust" group. A more accurate quantitative analysis of the images gives a cluster of points in the space of emotions with a center

corresponding to the emotion "greed" (between the axis "fear" and the diagonal semiaxis "disgust").

The data obtained indicate the real deep motivation of the processes taking place in the city, as well as the threats that the disorderly development poses for the townspeople.

References

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