2 How Many Dimensions does Emotional Experience Have? The Theory of Multi-Dimensional Emotional Experience

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Summary. – Previous research has revealed that the construction of a general dimensional model of emotional experience could be quite difficult challenge. Past attempts were built on empirical evidence and employed the judgment of facial expressions, the factor analysis of questionnaire data, multi-dimensional scaling techniques, or also, the analogy with the visual perception of colors. Interestingly, such models yielded a very high level of inconsistency in mutual comparison. The present study aims to provide a theoretical, dimensional model of emotional experience based on the analysis of three current phenomenological systems of emotional typology. Although the phenomenological approach is sometimes criticized from the standpoint of positivistic psychologists, its application seems to be fruitful in situations when quantitative empirical evidence has brought inconsistent results. The limits of this approach are discussed in the final part of the chapter.

Searching for general qualities of emotional experience is one of the most challenging tasks of current psychology. Existing dimensional models of emotional experience stem most often from the research of several basic emotions (e.g., anger, fear, sadness, happiness). However, when we apply these models to the group of complex emotions (e.g., compassion, love, shame), we often are not able to precisely characterize these more complex experiential forms in the framework of several very general dimensions usually purported by these models. The following paper aims to offer an alternative theoretical basis which would bear all of the specifics of complex emotions in mind and could be applicable to a greater extent.

In the introduction of the chapter we briefly compare the current dimensional models. Furthermore, we indicate the necessary steps of structuring our theoretical model, which we then describe. In the next part we suggest several new dimensions that correspond also to the description of more complex emotions. In conclusion, we critically evaluate the newly suggested model.

OUTLINE OF PREVIOUS DIMENSIONAL MODELS OF EMOTIONAL EXPERIENCE

As mentioned above, it is very difficult to represent the complexity of emotional experience using a structure of only several general dimensions. The effort of defining emotions such as compassion or love using the dimensions of pleasure, arousal or control seems to be doomed to fail. If we analyze the seven presently existing dimensional models of emotional experience - Wundt (1896), Schlosberg (1952), Schlosberg (1954), Osgood (1966), Davitz (1969), Paramei *et al.* (1994), Sokolov & Boucsein (2000) – the only general dimension included in all seven models is pleasure vs. displeasure (sometimes referred to as pleasantness vs. unpleasantness). The second most common dimension relates to the intensity of emotions and is called arousal vs. calm, or also, the level of activation. This dimension is included in five models: Wundt (1896), Schlosberg (1954), Osgood (1966), Davitz (1969), Sokolov & Boucsein (2000). Other dimensions not included as often in the models are the dimensions of control (Osgood, 1966; Davitz, 1969), attention vs. rejection (Schlosberg, 1952; Schlosberg, 1954), relaxation vs. tension (Wundt, 1896) and relatedness (Davitz, 1969). The model described by Paramei *et al.* (1994) also includes the dimension of the degree of expression, however, this refers to the extent of the externalization of emotion and thus cannot be considered to be a general dimension of subjective emotional experience. The Paramei's *et al.* (1994) dimension of anger/fear is also disputable due to its high level of specificity. Sokolov & Boucsein's (2000) dimension of saturation does not have very clear semantic space and is only a secondary derivative of three other dimensions (pleasure, intensity and anger/fear). It seems that these models constructed mostly on the basis of empirical studies show a high degree of mutual inconsistency.

The above-mentioned models were constructed with the help of factor analysis (Osgood, 1966), multi-dimensional scaling techniques (Paramei *et al.*, 1994), theoretical analogy with the visual perception of colors (Sokolov & Boucsein, 2000) or on the basis of judging facial expressions (Schlosberg, 1952; Schlosberg, 1954). Only Davitz's (1969) study works with complex subjective testimonies and uses a wider palette of word constructs for emotions. The other studies are aimed more

on the narrower domain of several basic emotions. None of the studies worked with the method of phenomenological descriptions of prototype emotions. This served as the summons for this study.

THE PHENOMENOLOGICAL APPROACH TO THE ANALYSIS OF EMOTIONAL EXPERIENCE

The phenomenology of emotions interacts well with the conception of emotional meanings found in social constructionism. Members of a certain culture learn shared meanings / words, which they then use to describe their subjective emotional states (Gordon, 1990). Although the interpretation of such constructs may show slight divergence even within the same culture (for example, gender differences), one can theoretically define individual types of emotions in the sense of Max Weber's (2009) ideal types. It is this very aspect that the phenomenological method utilizes in researching the typology of emotional experience. The basic methodical procedure is description and organizing individual types of emotions within a single language / cultural environment. It emphasizes the differentiation of individual types of emotions and of their specific features. The result of phenomenological analysis is an exhaustive account of the types of emotions, for which the given culture has the linguistic constructs. The method of the phenomenological description of prototype emotions is qualitative in nature and is thus often criticized by quantitatively-oriented researchers. However, the need for an interdisciplinary approach and for using methods that allow us to view the problem from a different point of view is still more and more stressed in current academic discourse. We thus believe that the use of another type of method to analyze the issue of the dimensions of emotional experience is appropriate, as various types of quantitative methods have brought inconsistent results.

The phenomenology of emotions has its tradition in Czech psychological research. In fact, we had at our disposal three phenomenological systems of emotional typology at the beginning of our analysis: Plháková (2007), Stuchlíková (2002), and Nakonečný (2000). I use the plural form "we", because I consulted the progress of the analysis with few experts on phenomenology of emotions. In the first phase we subjected all three systems to theoretical comparative analysis. In doing so, we did not find any fundamental divergences in the semantic definition of individual types of emotion concepts. Therefore, we could continue to work with all three systems simultaneously. In the main part of the analysis we tested possible applicability of aforementioned general dimensional models on individual types of emotions included in the analyzed phenomenological systems. We attempted to apply such general dimensional models and to find out, whether

they are able to describe adequately the experiential meanings of individual emotions. Gradually, all non-synonymous word constructs for emotions included in the analyzed phenomenological systems were tested in this manner.

Theoretical analysis revealed many problems in the effort to define precisely the experiential meanings of all emotions with the help of a limited number of dimensions. For example, with emotions such as hate, desire, or contempt, using the basic dimensions we exclude the semantic aspect of deliberateness, or intentionality. Something must necessarily be the subject of our hate, longing or disdain. The active knowledge of the existence of such a subject should be therefore an essential part of our emotional experience. If, for example, such intentionality was absent when experiencing hate, we are more likely to be dealing with the emotion of nervousness or unspecific disgruntlement.

Another experiential aspect that is absent is the saturation of needs. This aspect is applied, for instance, in the defining of the emotion of grief or sorrow. The feeling of incompleteness, i.e., the feeling that something is missing, is a key part of these emotions, which in addition differentiates them from other emotions, such as anxiety.

Other aspects that are not discernable when utilizing basic dimensions are expectations / relating to the future, e.g., by hoping or worrying, the awareness of a public when shamed, or the awareness of trespassing moral norms when feeling guilty.

The critique of utilizing only a limited amount of basic dimensions does not apply to only complex emotions, but to basic emotions, as well. Roberts & Wedell (1994) point out the high degree of reductionism when utilizing the dimensions of arousal and pleasure within the framework of multi-dimensional scaling techniques. For instance, anger and fear are usually placed very near each other in two-dimensional space, since they mean a high amount of arousal with a strongly negative valence (Larsen & Diener, 1992; Russell, 1980; Watson & Tellegen, 1985). This might lead to the impression that the two emotions are very similar to each other (Roberts & Wedell, 1994), yet in reality they both have their specific experiential aspects.

THE CONCEPT OF EMOTION SPACES AND THE THEORY OF MULTI-DIMENSIONAL EMOTIONAL EXPERIENCE

In the past, quantitatively-oriented psychologists have attempted to capture the quality of all emotional experience in its entirety with the help of a small number of dimensions that should be generally applicable to all types of emotions. These attempts were motivated by the effort of the possible illustration of spatial relations between individual types of emotions with the help of graphs or figures. Such two-dimensional graphic depictions are synoptical and clear. However, they allow

the use of only two or three various dimensions of emotional experience. Not until Sokolov & Boucsein (2000) with their four-dimensional model illustrated with the help of Cartesian coordinates do we discuss the dimensionality of emotional experience. The concept of a hyperspheres that we work with here, however, was utilized already in the 14th century in the cosmology of Italian poet Dante Alighieri.

At this point, we would like to introduce our definition of the subjective emotion space that we will be working with further in the text. We understand subjective emotion space to be a subjective semantic environment, where the specific emotional experience of individuals takes place. We assume that this space is not equally limited in each person and that its size is given by the maximum extremes and minimal minimums of range of each the possible dimensions. As an example, in the dimension of arousal, one can experience the emotion of anger to various degrees. The experience of when in our personal history we were most angry and cross defines the maximum distance of the intensity of anger to the point where we don't experience any emotion at all in our emotional experiential space. This also means that the extent of subjective emotion space during life can change, and also that the size of subjective emotion space may differ from person to person.

However, we here encounter the problem of graphically illustrating such hypothetical emotion spaces. Can such spaces even have shape? On the basis of the aforementioned theoretical comparison of the present dimensional models we presume that subjective emotion spaces cannot be described utilizing only a few general dimensions. On the contrary, we believe that besides general dimensions, such as arousal or valence, other, more specific dimensions exist, which are involved in emotional experience only in some cases, i.e. only with some types of emotion. Especially with more complex emotions it is reasonable to assume that the number of dimensions activated at the moment that this emotion is experienced will be higher than the two to three general dimensions such as arousal, pleasure or control.

How can we conceive this mechanism? We assume that the subjective emotional spatiality cannot be understood only in the two-dimensional or three-dimensional spatial layout (e.g., as in width, depth and height). Our ability of visually perceiving reality is relatively limited. We can distinguish and also graphically illustrate objects only in the two-dimensional or three-dimensional spatial layouts. These possibilities are, however, insufficient for modeling our complex inner emotional experience. Let's turn our attention, then, to the possibilities of another of the human senses. Human hearing is able to capture in one moment a large amount of sounds of a various degree of volume and quality. At a concert of a symphonic orchestra, we simultaneously hear a huge amount of various tones of various strengths, pitch, length and qualitative characteristics. We are often not able to distinguish the independent parts of individual instruments, but we hear the harmony, creating in us the subjective feeling that we get from listening to the given part

of the composition. We thus assume that our emotional experience is similar to this.

To illustrate our model more clearly, let's abandon the model of the symphony in preference of a piano. We can imagine that the keys of the keyboard represent specific dimensions of our emotional experience. While playing the piano, some keys may be played and some not. The strength of the keystrokes varies, and also, not all keys of a chord must be played at the same moment. Similarly, the reverberation of individual chords may last different lengths of time, or may be deafened out by newly played tones. The consonance of tones heard in one moment as a whole metaphorically models the current emotional experience of the individual.

In the introduction we summarized the dimensions that have been constructed on the basis of previous research. If, however, we are now suggesting a new theoretical basis of multi-dimensional emotional experience, we must ask ourselves what other dimensions could hypothetically exist? Here we can profit directly from the aforementioned comparative analysis of the three phenomenological systems of emotional typology. In the segments where the currently used dimensions insufficiently described the experiential meaning of specific emotions, suggestions of other, complementary dimensions of emotional experience pointedly surface.

First we would like to cite the aforementioned dimension of deliberateness or intentionality. In contrast with unspecified types of emotions, such as anxiety, there is a whole range of other emotions aiming to a subject or an object. This directedness, or, in the case that the object in question is a person, this relating to, cannot be ignored in the comprehensive description of some emotions. As examples we can list the emotions of contempt, love, jealousy, regret or compassion. These dimensions are relatively similar to Davitz's (1969) relatedness.

Another suggested dimension is the dimension of saturation of needs. Feelings of incompleteness, i.e., the feeling that something is missing, or, on the other hand, the feeling of satisfaction that we have achieved something desirable, are characteristic, for example, for pride, grief, sorrow or nostalgia.

Another new dimension related to the future is the dimension of expectations. Although this term is tied to the homonymic psychological construct, we are not dealing with the same thing. Expectations as a part of subjective experience would not have to be only the result of cognitive processes, but they also create a qualitative dimension of emotional experience occurring with, for example, the emotions of hope and worry.

The next proposed dimension of the awareness of trespassing moral norms is relatively specific. Here, the narrow connection with the cognitive processes is obvious; however, it remains to be an issue whether this very dimension isn't necessary for the precise definition of some complex emotions, such as the feeling of guilt. This emotion can imminently follow the experience of fright or surprise, and doesn't become guilt until one realizes that they have trespassed moral norms, whether their own or social. However, complex emotions are suggested to be nar-

rowly connected with cognitive processes and also some general psychologists show that both processes are interconnected (Plháková, 2007). Therefore, explicitly separating cognitive and emotional processes would be oversimplifying.

The abovementioned suggestions of dimensions stem from theoretical work and their empirical testing would be the challenge of future research. The results of theoretical inquiry have, of course, their own limitations. These questions will be addressed in the final part of the text.

THE CRITICAL EVALUATION OF THE SUGGESTED THEORY

The first objection that we can expect from positivistic psychological research is the fact that the abovementioned theory does not stem from empirically gathered evidence. Here we must recall that the dimensional models created on the basis of empirical research show inconsistencies in their results. The only general dimension included in all seven models analyzed above is pleasure vs. displeasure. The second most common dimension, the level of activation, is included in five models: Wundt (1896), Schlosberg (1954), Osgood (1966), Davitz (1969), Sokolov & Boucsein (2000). However, individual models also include other various dimensions: the dimension of control (only Osgood, 1966; Davitz, 1969), attention vs. rejection (only Schlosberg, 1952; Schlosberg, 1954), relaxation vs. tension (Wundt, 1896) and relatedness (only Davitz, 1969). The dimensions of pleasure and of arousal are in themselves insufficient for describing all slight differences between unique types of emotions. We believe that in the case that quantitative studies with statistical analysis bring inconsistent results, this qualitative method may offer a different point of view of the issue and also generate new research questions.

Another issue is the feasibility of empirically testing the abovementioned model. Here we feel that the answer lies in testing the newly suggested dimensions themselves rather than the verification of the model as a whole in one empirical study. Innovations in future methodological starting points should rest in inquiry techniques, which should be able to comprehensively map out the subjective understanding of the meanings of individual word constructs for given types of emotions. Thus we can move closer to the more detailed understanding of the mechanisms of subjective emotional experience.

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