The Internalization Theory of Emotions: A Cultural Historical Approach to the Development of Emotions

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Starting with an overview of theoretical approaches to emotion from an activity-oriented stance, this article applies Vygotsky's three general principles of development, sign mediation, and internalization to the development of emotional expressions as a culturally evolved sign system. The possible twofold function of expression signs as a means of *interpersonal* regulation and *intrapersonal* regulation predestines them to be a mediator between sociocultural and psychological processes in the domain of emotions. The proposed internalization theory of emotional development transfers Vygotsky's theory of the development of speech and thinking to the development of expression and feeling. Three stages of emotional development are described and underpinned by empirical studies: (a) the emergence of enculturated expression signs and related emotions from precursor emotions of newborns in the interpersonal regulation between caregivers and children during early childhood, (b) the emergence of intrapersonal regulation of emotions out of their interpersonal regulation by using expression signs as internal mediators that starts from preschool age onward, and (c) the internalization of emotional expression signs and the emergence of a mental plane of emotional processing.

INTRODUCTION

Activity theory assigns a central role to emotions. They are taken to be those psychological functions that signalize the personal sense of one's own and others' actions, thereby making emotions constitutive for activity regulation as a whole (Leont'ev, 1978). Even Vygotsky (1924/1971, 1933/1999) dealt intensively with emotions (see González Rey, 2011). However, despite this centrality, only a few studies and articles about emotions and emotional development are to be

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found within the domain of cultural-historical activity theory (e.g., González Rey, 2011, 2012; Holodynski, 1996; Ratner, 2000, 2007; Roth, 2007, 2008; Seeger & Holodynski, 1988; Semin & Papadopoulou, 1990; van der Veer & Valsiner, 1989), and these contributions did not yet provide an elaborated theory of emotion.

In other theoretical approaches, however, emotions are already a well-established topic of empirical research (Ekman & Davidson, 1994; Frijda, 1986; Jenkins, Oatley, & Stein, 1998; LaFreniere, 2000; Panksepp, 1998; Scherer, Schorr, & Johnstone, 2001). Moreover, the role of cultural-historical factors in emotions and their development has been addressed more thoroughly in other theories which, like activity theory, are oriented to the co-construction of emotions in social relationships. Examples of such coconstructivist emotion theories are the attempts to distinguish between emotional universals and culture-specific aspects of emotions within the framework of Wierzbicka's (1995, 1999) speech analysis approach (see also Goddard, 1997; Josephs, 1995), or in work of Mesquita and Leu (2007) or Shweder, Haidt, Horton, and Joseph (2008) that conceives emotions as a psychological system of components the configuration and differentiation of which should lead to different culture-specific emotion qualities. Their studies reveal that it is inappropriate to assume one universal concept of, for example, shame, and that it is necessary to distinguish culture-specific qualities of shame such as *lajja* in India, *malu* on the Indonesian island of Sumatra (Minangkabau), or the Western *shame* in the United States. All these concepts differ in their social ubiquity, their expression, and their societal evaluation.

Empirical findings on these coconstructivist emotion theories make it necessary to ask how far an emotion theory anchored explicitly in activity theory can still contribute any new insights into emotions and their development—or whether it is not more the case, as Toomela (2000) expressed so pointedly, that "activity theory is a dead end for cultural-historical psychology [of emotions]" (p. 353).

In the present article, I wish to counter this negative appraisal by introducing a series of new conceptual considerations and empirical findings. My suggestion is to integrate Leont'ev's (1978) functional definition of emotions as inner signals of the personal sense of one's own and others' actions and Vygotsky's general principles of development, sign mediation, and internalization. One could say in a nutshell that the activity approach offers a functional grounding of emotions in a structural framework that is within the macrostructure of activity, whereas Vygotsky's principles provide a procedural framework of how emotions are transformed into cultural-historically colored functions. I clarify my proposal in three steps.

First, I present the conceptualizations of emotions in prior theories within the cultural-historical paradigm, compare these with findings from recent emotion research, and provide a functional definition of emotions based on Leont'ev's (1978) activity approach. Emotions indicate the relation between the goals (or results) of a person's actions and the activated motives. They indicate this relation by triggering an action readiness of how the person can react to the elicitor of the emotion in order to satisfy the motives (e.g., anger mobilizes a protagonist's [physical] power in order to threaten or even attack his or her opposite who is perceived as intentionally blocking the goal striving of the protagonist). Thus, emotions have an activity regulating function.

Second, I reconstruct the methodological basis of the cultural-historical paradigm that provides general principles for a scientific analysis of psychological functions. Because emotions also realize a psychological function within the macrostructure of activity, these principles can be applied to the subject of emotions as well. They are (a) the principle of development, that is, the cultural-historical and genetic analysis of a psychological process (in this case, emotion);

(b) the principle of mediation, that is, the significance of culturally created signs and their use for ontogenetic development (of emotions) and, in particular, the use of culturally created signs of emotional expression; and (c) the principle of internalization, that is, the internalization of the use of signs as a developmental principle in activity theory. For each principle, I outline the independent contribution that a cultural-historical approach can make to research on emotions.

Third, I present a model of emotional development that is based on the methodological principles just sketched and plots the development of human emotions from their ontogenetic starting point, across the acquisition of emotion-related signs in the form of expression signs, up to their internalization. The challenging idea of the presented internalization theory is that in the course of development, emotions are basically mediated by culturally coconstructed expression signs such as a pout, a smile, kneeling down, and only on an *advanced* level *also* by verbal signs when children start to talk about emotions. Furthermore, the use of these expression signs for regulating activities can also be internalized as in the case for speech signs. Empirical evidence for these hypotheses is provided by reporting the results of numerous empirical studies.[1]

CONCEPTUALIZATIONS OF EMOTION WITHIN THE CULTURAL-HISTORICAL APPROACH

Vygotsky's Legacy

In his posthumously published work *The Teaching About Emotion. Historical-Psychological Studies*, Vygotsky (1933/1999) already pointed to the central significance of emotions for the regulation of activities. His main contribution to research in this field is his detailed methodological criticism of what he called a Cartesian concept of emotions. For him, this was expressed exemplarily in the James–Lange theory that was much favored at the time.[2] He noted that only a subset of emotional phenomena could be explained when emotions are defined as the subjective perception of objectively measurable bodily reactions triggered directly by an elicitor for the emotion. Other subsets of the emotions that people report as "subjective feelings" are accompanied by either no bodily reactions or ones that do not distinguish clearly between different qualities. However, Vygotsky considered that such an approach would finally lead to a dualism splitting the realm of the emotions into two "alienated" areas of knowledge: one scientifically analyzable area that is accessible to objective analysis (e.g., assessment of expressions or peripheral physiological reactions) and another area that can be analyzed only metaphysically because

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[1]This contribution is meant to go beyond a strategy sometimes adopted in cultural-historical approaches that seek thought-provoking quotations about the topic in question in the writings of the leading authorities of activity theory and then try to assemble them in order to formulate a theory. Vygotsky (1927/1997a) himself criticized such an approach when discussing his contemporaries' attempts to find an answer for a Marxist psychology by collecting quotations from Marxist classics: "It must be remarked that the heterogeneity of the material, its fragmentary nature, the change of meaning of phrases taken out of context and the polemical character of the majority of the pronouncements—correct in their contradiction of a false idea, but empty and general as a positive definition of the task—do not allow us to expect of this work anything more than a pile of more or less accidental citations and their Talmudic interpretations. But citations, even when they have been well ordered, never yield systems" (pp. 312–313).

[2]Vygotsky wrote this monograph between 1931 and 1933, and he died in 1934. It is not clear whether he was satisfied with the present version or had wanted to revise it (see Métraux, 1996; van der Veer & Valsiner, 1991). Whatever the case, these methodological approaches are Vygotsky's only theoretical analyses on the topic of emotions.

it is accessible only to subjective introspection (e.g., self-reports on what an emotion "feels" like). Although Vygotsky attempted to develop a possible approach based on Spinoza's work on affects, he eventually found this to be a dead end (see van der Veer & Valsiner, 1991, pp. 349–359).

Vygotsky countered this dualistic perspective with the postulate that emotions, just like all other psychological functions, need to be analyzed and explained in their entire phenomenal breadth on the basis of a *unified* system of concepts. He elaborated three general principles for the construction of such a unified system (Vygotsky, 1931/1997b; see also Vygotsky & Luria, 1994):

1. *Principle of development.* Incompatible dichotomies such as behavior versus subjective experience or the sphere of culture versus the sphere of mind can be overcome not by analyzing the two parts as static essences within the world of adults but by reconstructing their cultural-historical and ontogenetic development and uncovering their common origin.
2. *Principle of mediation.* Sociocultural processes do not influence a person's mind directly. Their impact is mediated by culturally coconstructed signs. A special feature of signs is that they serve to coordinate not only outer, social actions between people but also inner actions of an individual. For example, words can be used as outer speech for social coordination and as inner speech for self-regulation. In addition, signs are not just restricted to verbal language but embrace every other conventionalized sign system. Searching for and analyzing these mediating signs may well be the key to understanding the domain of emotions.
3. *Principle of internalization.* Signs have the potential to be used as means of coordinating inner, mental actions. The emergence of these mental functions, however, seems to follow an ontogenetic order. This developmental order can be used as a heuristic for analyzing the development of emotions.

Vygotsky (1934/1987) successfully applied these principles to the construction of a conceptual system of thinking and speech in which he established verbal language as the mediating sign system that people internalize in the course of ontogenesis. Because emotions also realize psychological functions, these three principles can be applied to the analysis of emotions as well. I provide such an application in the further sections.

A somewhat different reception of Vygotsky's writings has been taken by González Rey (2011, 2012), who presented a collection and reconstruction of defining elements which Vygotsky wrote about the topic of emotion and which are scattered over *the psychology of arts* (1924/1971) and *the teaching about emotion* (1933/1999). González Rey identified the categories *subjective sense* and *perezhivanie* (integral subjective experiences) as the major units of analysis for a theory of emotions. However, these analyses offer no concrete proposals regarding which kinds of cultural signs mediate the development of human emotions and no concrete specifications regarding how to define or classify emotions or how to conceptualize their culture-historical or ontogenetic development.

Leont'ev's Definition of Emotions as Signals of Personal Sense

Leont'ev moved beyond the criticism of a dualistic analysis of emotions and presented both a first preliminary classification of emotional phenomena and a definition of emotions.

Classification of emotions. Leont'ev (1971/2011) distinguished between three classes of emotional phenomena: (a) the merely transitory affects such as fear, frustration, joy, and so forth, that are experienced after an event that has already occurred; (b) what he called the "proper" emotions that already arise in anticipation when selecting goals and are therefore a reaction to what is only an imagined future event that marks the personal sense of these goals (see also Zaporozhets, 2002); and (c) the object-related feelings that are linked permanently to a specific object or person and signalize the fundamental relation to this object such as love of one's child or pride in one's nation (see Frijda, Mesquita, Sonnemans, & Van Goozen, 1991, and their category of *sentiments*). Nonetheless, Leont'ev contributed no further descriptions or empirical studies on these classes of emotional phenomena.

Definition of emotions. Retrospectively, Leont'ev's (1978) definition of emotion proves to be more decisive for formulating a theory (with a cultural-historical orientation), because he no longer defines emotional phenomena through their form, that is, through behavioral indicators such as a smile as a necessary indicator for inferring joy. Instead, he defines emotions through the *psychological function* they play in the macrostructure of activity. This views emotions as inner signals that possess the function of appraising the relations between a goal (or the outcome of an individual action) and the actual activated motive (or need). This appraisal occurs before these relations are evaluated by a conscious, verbally based reflection. As Leont'ev (1978) said,

> Emotions have the function of inner signals; that is, they do not directly represent the psychological reflection of object-oriented activity. The special feature of emotions is that they reflect relationships between motives (needs) and success, or the possibility of success, of realizing the action of the subject that responds to these motives. Here we are speaking not about the reflection of those relationships but about a direct sensory reflection of them, about experiencing. Thus they appear as a result of actualization of a motive (need), and before a rational evaluation by the subject of his activity. (p. 120)

Emotions accordingly embody a relation between the actualized motives of an individual and his or her action goals and outcomes in a given situation, thus linking emotions to the motivational sphere of a person. Emotions mark the personal sense of these aspects for this individual (see also González Rey, 2012). This personal sense may well deviate from a societal meaning, as when, for example, a student gets angry about a good grade because he expected a very high grade.

By defining emotions through their *function* within the macrostructure of activity, Leont'ev (1978) opened up a new *nondualistic* perspective for analyzing emotional phenomena. The theories criticized by Vygotsky still defined emotions as "essences" that exist in an unequivocally describable form and therefore have to be unequivocally measurable. For example, the emotion sadness would have to be defined by unequivocal behavioral indicators such as crying. This would imply the opposite inference that a person who is not crying is not sad. Leont'ev, in contrast, defined emotions as function: The emotion (sadness) signalizes to the subject that a loved person (or loved thing) has been lost irretrievably. Depending on what is possible, this signal function can express itself in completely different forms—only in behavioral indicators such as a sad-looking face, only in subjective feelings such as melancholic thoughts, or in both. A functional definition enables emotions to be anchored in both spheres: the material world of behavior and the mental world of feelings.

Hence, already in the 1970s Leont'ev had formulated a functional definition of emotion that essentially has a great deal in common with the definitions of emotion in the so-called appraisal theories currently shaping emotion research (see Frijda, 1986; Lazarus, 1991; Scherer et al., 2001).

Expanding the definition of emotion.   Leont'ev's definition can be criticized in that it focuses exclusively on the appraisal function of an emotion and neglects a second important function of an emotion: Recent research has identified that emotions also have an activity-regulating function. An emotion manifests itself in an urge to act or an urge to inhibit an action (Campos, Campos, & Barrett, 1989; Frijda, 1986; Holodynski & Friedlmeier, 2006). For example, in his pioneering work *The Emotions*, Frijda (1986) defined emotions "as changes in action readiness":

> That is: Emotions are changes in readiness for action as such (we called these changes in activation) or changes in cognitive readiness (they have come under investigation as attentional arousal), or changes in readiness for modifying or establishing relationships with the environment (we called these action tendencies), or changes in readiness for specific concern-satisfying activities (we called these desires and enjoyments). (p. 466)

Hence, emotions have the functions of appraising a situation according to its relevance for the satisfaction of motives and of triggering an emotion-specific action readiness that prepares an individual to act in a motive-serving way.

Ratner's Cultural-Historical Analysis of Emotions

Emotions as thoughtful feelings.   As important as a general definition of emotions is, it fails to indicate which features distinguish between single emotion qualities and which cultural-historical conditions determine their emergence. Ratner (2000) addressed these issues with an activity-theory-oriented conceptualization of emotions. For Ratner, emotions are linked inseparably to cognitions because they contain a schema-based appraisal of situations. This emotion-specific appraisal determines the quality of the various emotions. Hence, Ratner (2000) also defined emotions functionally. "We become angry when someone hurts us because we assume that he intended to hurt us or is in some way responsible for it. A different conceptual understanding of the act would lead to a different emotional reaction" (p. 9). Therefore, emotions "are feelings that accompany thinking. They are the feeling side of thoughts; thought-filled feelings; thoughtful feelings" (Ratner, 2000, p. 6). These thoughtful feelings can be, but do not have to be, linked to expressive reactions (smiling, fist clenching, etc.) and (peripheral physiological) bodily reactions (sweating, secretion of hormones, etc.). Ratner (2000) referred to a host of studies with adults that all reveal no regular link between subjective feelings and expressive and/or bodily reactions.

Cultural-historical situatedness of emotions.   Turning to the culture-historical conditions that lead to the emergence of single emotion qualities, Ratner (2000) pointed not only to the dominant activity structures within a culture (e.g., in the practice of professions or other social relationships) but also to the ways in which these are reflected in social systems of meaning that also cover the realm of emotional phenomena in the form of emotional concepts.

When addressing the question regarding how cultural conditions can modify the psychological sphere of humans, Ratner (2000) referred to Vygotsky's (1931/1997b) internalization principle. According to this principle, higher psychological functions are constructed from and reflect social activities and the corresponding cultural concepts regarding these activities. He applied this idea to the analysis of emotions:

> Understanding the concrete cultural character of emotions requires elucidating their correspondence with the manner in which people act, think and are treated in cultural activities . . . [and how these] social relations of practical cultural activities and their associated concepts imbue emotions with specific characteristics, form the experiences which socialize emotions in people's minds and bodies, are motivated by—i.e. are a teleological goal of—emotions, and dictate a unique relationship between emotions and physiological processes. (p. 9)

Hence, the members of a culture also acquire the dominant cultural concepts about emotions during the process of internalization. This also enables them to display and feel the appropriate emotions in their social activities. With the help of these emotional concepts, individuals develop a relationship to their own emotional reactions; recognize elicitors of emotions, mechanisms, and consequences; and intervene in their own emotion processes in order to regulate them. "Socialization generates emotions as a new social-cognitive phenomenon in children who previously, as infants, only felt sensations such as pleasure, pain, hot, cold, excitement" (Ratner, 2000, p. 24).

Ratner backed up this statement by referring not only to a host of culture-specific differences in the quality, expression, and control of emotions and the accompanying emotional concepts but also, and in particular, to cultural-historical analyses of the change in emotional concepts about romantic love from the Middle Ages to Modernity as well as to Stearn's (1994) cultural-historical analyses of the change in the experience and expression of anger within the context of the socioeconomic changes in the United States during the 20th century.

That emotions acquire their cultural-historical differentiation by applying the culture-specific emotional concepts to one's own subjective feelings is an idea that can also found in other activity-oriented approaches to emotions (see Magiolino & Smolka, this issue) as well as in language-based anthropological emotion theories (see Lutz, 1988; Wierzbicka, 1999).

Limits of conceptualizing emotions as thoughtful feelings.   Ratner's emotion theory has been criticized on two fundamental aspects: First, Menon (2000) pointed out that Ratner's emotion theory assigns no constitutive significance to the embodiment of emotions in the form of expressive and bodily reactions. Instead, these are reduced to a more or less unspecific arousal, the meaning of which becomes specific only through integration into emotional concepts that can, in turn, be molded relatively easily by enculturation processes. This approach, which is reminiscent of Schachter and Singer's (1962; Schachter, 1964) two-factor emotion theory, has proven to be too simplistic (see Reisenzein, 1983). Emotions cannot be reduced to thoughtful feelings in the form of situational appraisals. Then they would no longer be distinguishable from rational and conscious evaluations of a situation—as Leont'ev (1978) pointed out. Instead, emotions are anchored in the bodily self, and expressive and bodily reactions are genuine components of an emotion that also have to be taken into account conceptually (Menon, 2000).

Second, Toomela's (2000) critique of Ratner's approach has pointed out that the way social activities and social interpretations are linked to emotions is too unidirectional and fails to analyze

the necessary mediation processes in detail. Toomela also recommends paying attention to the use of signs and their ontogenetic interiorization that Vygotsky considered to be the central mediator between individuals and their social environment.

Conclusion

How can we summarize the discussion so far on the activity-theory-oriented concepts of emotion? In a nutshell, one can say that Vygotsky's call to overcome the Cartesian dualistic concept of emotion and to integrate the duality of behavioral versus mental features of emotions into a unified conceptual system has not been answered so far. However, we have collected some essential conceptual pieces concerning the definition, classification, and development of emotions that can be used as a starting point. It seems reasonable to elaborate them by means of Vygotsky's aforementioned three general principles of development, mediation, and internalization and to subject them to empirical research.

Emotion definition.   The question regarding how emotions can be defined from an activity theory perspective has been answered by examining them in terms of their function within the macrostructure of activity. Such a functional definition allows emotions to adopt different features—behavioral and mental. Emotions are defined by the (prerational, preverbal) appraisal function in which they evaluate the goals and outcomes of an individual's action in the light of its motive-serving effects (Leont'ev, 1978). I have suggested expanding this definition by a second main function of emotions, namely, their action-regulating function in which they embody changes in an individual's action readiness. Therefore, I want to formulate a working definition of emotion that considers these (and further) aspects and serves as a basis for the subsequent sections.

I define an emotion as a functional psychological system involving the synchronic interplay of several components and serving to regulate actions within the macrostructure of activity in line with a person's motives (Frijda, 1986; Leont'ev, 1978). An emotion is made up of four components: appraisal, expression, body regulation, and subjective feeling. These form a dynamic psychological system that takes the following prototypical course (using shame as an example): (a) An external (e.g., the violation of a social norm) or internal (e.g., an anticipation of the norm violation), context-related elicitor is appraised in terms of its significance for satisfying the individual's motives (the violation threatens one's inclusion in the social group). (b) This appraisal triggers adaptive expressive reactions (gaze aversion, submissive body posture) and body reactions (blushing). (c) Through body feedback, these reactions are experienced subjectively as bodily sensations (feeling small and feeling hot) that are related to the elicitor of the emotion (the norm violation). It is precisely this that is experienced as the subjective feeling of the ongoing emotion (Holodynski & Friedlmeier, 2006).

Emotion classification deals with the question regarding which criteria can be used to differentiate emotion qualities such as anger, envy, shame—or, for example, *lajja* and *malu* as non-Western labels of shame. One answer has been to define emotion qualities as felt and culturally preformed situation appraisals, that is, as "nonbodily thoughtful feelings" (Ratner, 2000) that grant a culture-specific meaning to an unfocused bodily arousal. This conceptualization has been criticized for paying insufficient attention to the obvious embodiment of emotions, to the

significance of expressive and bodily reactions that realize the action readiness function of an emotion. The insufficient consideration of the expressive component of an emotion has also been criticized in language-based emotion theories, and it has been suggested to "re-embody" research on emotion (Lyon, 1994, 1995; Holodynski & Friedlmeier, 2012; Röttger-Rössler, 2004).

Emotion development.   The question of how emotions are cultural-historically coconstructed is answered by stating that the emotion-specific meanings are conveyed in social interactions through verbal labeling of the specific reasons, feelings, expressive, and bodily reactions (Magiolino & Smolka, this issue; Ratner, 2000). Confirmation for the cultural-historical origins of emotional processes in adults is seen in the diversity and culture specificity of verbally mediated emotion concepts.

However, the limits of purely verbal mediation processes become apparent in the analysis of emotional development in early childhood. Young infants are still unable to comprehend speech signs. They comprehend only their intonation that also represents a facet of expression. Therefore, the analysis of expressive reactions can reveal that infants already run through a rapid, culturally conveyed differentiation of their emotions during their first year of life without any speech processes being involved on their side. Five discernible emotions in the neonate (distress, disgust, fright, interest, endogenous pleasure) differentiate into approximately 15 discernible emotion qualities during the first year of life (Holodynski & Friedlmeier, 2006; Sroufe, 1996). Hence, from a culture-psychological perspective, an analysis of expressive reactions can be conducted already at this early age. This idea has been taken up in the work of Demuth (this issue); Kärtner, Holodynski, and Wörmann (this issue); and White (this issue)—all found in this special issue on emotions.

VYGOTSKY'S GENERAL PRINCIPLES OF ANALYZING HIGHER PSYCHOLOGICAL FUNCTIONS

As described in the previous section, the contributions mentioned so far provide no elaborated activity-based theory of emotions. Therefore, my goal in this section is to describe suitable categories for such a theory with the aid of Vygotsky's general principles for the analysis of higher psychological functions. In the following, I briefly recapitulate each of the three principles (development, mediation, and internalization) before introducing new concepts and empirical findings that offer a promising application of each principle in the domain of emotion. These concepts and results cannot be found through an exegesis of Vygotsky's works but are the outcome of an interplay between theoretical elaboration and empirically based emotion research.

The Principle of Development: Reconstructing the Development of Emotions

Vygotsky's first general principle states that the higher psychological functions of humans can be understood as a product of their social and cultural development. The ontogenetic development of the prototypical human psychological functions is possible only because the individual

is embedded in an already culturally formed context that provides the means for coconstructing (the emergence or establishment of) these particular functions. As Vygotsky (1931/1997b) said, "In the process of historical development, social man changes the methods and devices of his behavior, transforms natural instincts and functions, and develops and creates new forms of behavior—specifically cultural" (p. 18).

Such a cultural-historical perspective can also be applied to the domain of emotions if they can be conceptualized as higher emotional functions. Then the explanation of higher emotional functions requires a reconstruction of the development of human emotions from both a cultural-historical and ontogenetic perspective.

The analysis of the cultural-historical development of human emotions.   Empirical studies and proof are needed to confirm the hypothesis that emotions are also subject to a cultural-historical development. Such studies have to reveal how societal conditions, mediated by culture-specific meaning systems and interactional practices, correspond with culture-specific qualities of emotions. One example of such a cultural-historical analysis of emotions is Elias's (1939/1994) analysis of civilization in Western Europe from the ninth to the 19th century that traces how the control of affect and self-control increased during this period. Other examples are Ratner's (2000) analysis of the cultural-historical development of romantic love in Western societies and Stearns's (1994; Stearns & Lewis, 1998) analysis of the socialization of anger in the United States during the 20th century. Both are well-founded qualitative studies that also considered economic and political changes over time (see also Shweder et al.'s, 2008, cultural-psychological analyses of emotions).

These cultural-historical analyses have focused particularly on the emotions of adults. Hardly any attention has been paid to how emotions are socialized within interactions between adults and children or to the decisive impact of culture-specific childrearing ethnotheories and practices. One conceptual framework that can be applied to these issues is Keller's (2007) ecocultural model of development.

Keller's model assumes that parenting behavior is composed of universal and biologically pre-pared behavioral inclinations that are designed to meet the infant's basic needs and codesigned to complement the infant's behavioral repertoire. The specific combination of these components and their relative weighting depend on the sociocultural context and its affordances. Within a given cultural context, the model distinguishes three levels of the ecosocial context: (a) socializing goals, (b) ethnotheories about childrearing, and (c) child-rearing practices. These levels are taken to be culture specific and to be adaptations to specific ecocultural environments (Greenfield, Keller, Fuligni, & Maynard, 2003; Keller, 2007; Whiting & Whiting, 1975). They provide the space of possibilities for individual pathways of development within a particular cultural context.

If this ecocultural model of development is applied to the domain of emotions and their socialization, it is necessary to analyze the following three levels of the selected sociocultural context: (a) child-rearing goals that are relevant for emotions, (b) ethnotheories about emotions and related child-rearing strategies, and (3) the child-rearing strategies actually practiced along with the emotional reactions of caregivers and children. Several empirical studies are now available that have disclosed connections between socializing strategies and the emergence of culture-specific emotional reactions, for example, the culture-specific emergence of social smiling in infants (Kärtner et al., this issue; Wörmann, Holodynski, Kärtner, & Keller, 2012) or the culture-specific development of norm-socializing emotions (Funk, Röttger-Rössler,

& Scheidecker, 2012; Röttger-Rössler, Scheidecker, Jung, & Holodynski, in press; see also Friedlmeier & Trommsdorff, 1999; Quinn, 2005). Nonetheless, a cultural-historical analysis of the socialization of emotions is still in its infancy.

The analysis of ontogenetic pathways of human emotions. I now examine how guided social cooperation between an adult (or another competent alter) and a child growing up potentially evokes higher psychological functions in the child. Social cooperation can be seen as intentional alignment between two people (or more) to produce a (common) output or effect. Vygotsky (1931/1997b) proposed that it is necessary to consider a developmental relation between the two poles represented by the individual versus his or her sociocultural environment. During the course of their development, social cooperations between people are transformed into psychological functions, even though these psychological functions remain embedded in social relations throughout life. In Vygotsky and Luria's (1994) own words,

> Every higher psychological function was formerly a peculiar form of psychological co-operation, and only later became an individual way of behavior, transplanting inside the child's psychological system a structure that, in the course of such transfer, preserves all the main features of its symbolic structure, altering only its situation. . . . The history of the higher psychological functions is disclosed here as the history of the transformation of means of social behavior into means of individual psychological organization. (p. 138)

Applying this principle of development to the ontogenetic development of emotions makes it necessary to ask: What are the features of this social cooperation that are transformed into individual psychological functions in the domain of emotions? An answer to this question requires a closer look at the beginning of the ontogenetic development of emotions, namely, the emotional reactions of infants. This clearly reveals their cooperative aspects. Infants' emotional reactions are directed toward their caregivers, and their primary function is to regulate the actions of these caregivers (Holodynski & Friedlmeier, 2006). For example, an infant cries as an expression of distress because of being hungry, alone, or in pain. However, this does not lead to any problem-solving actions by that infant that would solve the unsatisfied need. An infant is incapable of performing such motive-serving actions. Crying functions as an outward signal to the caregiver. The caregiver interprets this crying as an "intentional" appeal of the child and feels obliged to seek its cause and then perform what is taken to be a motive-serving action on behalf of the infant such as feeding, amusing, or freeing from pain.

What is special about emotion episodes at this stage is that the emotional functions are distributed across two persons: The emotional appraisal of the situation is carried out by the infant and is shown in her or his expression, whereas the realization of the emotional action readiness, that is, the appropriate motive-serving actions, is carried out by the caregiver. Hence, the activity mediated by the triggered emotion is regulated *interpersonally*. Insofar, when looking at the ontogenetic starting point of emotions, one could say that they are built for social cooperation.

Although numerous emotion episodes in adulthood also involve such interpersonally regulated encounters, a great many such episodes are *intra*personal. In other words, an emotion is experienced as an inner signal of the actualized action readiness that leads the adult to perform the motive-serving actions without anybody else being involved. For example, adults can console themselves when feeling sad, can do something to prolong an enjoyable situation, and so forth (see Frijda, 1986; Lazarus, 1991; Leont'ev, 1978).

It is clear that the ontogenetic starting point of emotional development lies in the social cooperation between caregiver and infant. The next question concerns the mediational processes: Which sociocultural means integrate the emotions of infants into the system of cultural meaning and regulatory means that eventually result in the sociocultural coloring of their emotions? This question brings us to Vygotsky's second general principle, the principle of mediation and the use of signs as mediators between sociocultural and psychological processes.

The Principle of Mediation: Sign-Use as a Mediator between Culture and the Individual

The specific functional properties of signs and their use. Applying his cultural-historical approach, Vygotsky (1931/1997b) identified the use of signs as a unique feature of human culture that enables the development of higher psychological functions. He considered the origin of sign-mediated activity to be due to human activity being embedded in the system of cooperation with other humans (Vygotsky, 1931/1997b; Vygotsky & Luria, 1994; see also Rissom, 1989): An activity is mediated socially; in other words, every successfully performed activity depends on cooperation with other persons, and every successfully performed cooperation with others is based on the use of signs such as speech signs representing a meaning that is shared by those involved.

Vygotsky and his successors have delivered enough proof of the significance of sign-use for speech and verbal communication, and Davydov and Radzikhovskii (1985) concluded that

> the idea of the sign as a psychological tool in Vygotsky's theory is one of the most successful examples of the application of semiotic ideas in psychology. This is frequently seen as the basic merit and result of Vygotsky's research as a psychologist. (p. 54)

This mediating function of sign-use can be applied not only to verbal signs, spoken words, and written words, but to all human signs. My hypothesis is that human emotional expressions in all their channels can be transformed into culturally conventionalized signs and that this plays a decisive role in the cultural-historical mediation of human emotions (Holodynski & Friedlmeier, 2006). Before explaining this hypothesis in more detail, I summarize the properties of conventionalized signs to be found in not only verbal but also nonverbal expression signs:

1. *Signs belong to the material cultural sphere.* Alongside tools, signs are a special group of artificial means that humans have created and to which they have assigned conventionalized meanings and functions. Wartofsky (1973) called these artificial means *artifacts* (see also Cole, 1996). Signs belong to the material cultural sphere because other people can perceive them and can use them as means of communication to influence others and to be influenced by others. Signs take the form of gestures, facial expressions, body postures, speech, written language, and so forth.
2. *Signs belong to an individual's psychological sphere.* However, signs do not just belong to the material cultural sphere. They are also part of an individual's psychological sphere and can be used to communicate not only with others but also with the self in order to regulate one's own actions and emotions (Holodynski & Friedlmeier, 2006; Vygotsky, 1934/1987). Therefore, when signs are viewed as bodily behavior, they form the interface

between the psychological processes of individuals and their cultural environment not only in terms of their assigned meaning but also in their bodily manifestations.

3. *Signs can be externalized by the individual to gain control over his or her own behavior.* The acquisition of sign-use incorporates also the possibility of applying the signs deliberately to remember the meanings and imaginations that are assigned to the particular signs but also to gain control over one's own behavior. For example, children start to use private speech to guide and regulate their own actions (Vygotsky & Luria, 1994).

4. *Signs are arbitrary concerning their form.* Unlike tools, signs are based solely on social conventionalization. This is what makes it so difficult to reconstruct and understand the meaning of signs from earlier epochs or foreign cultures. To some extent, the same applies to emotional expression signs, for example, the gesture of an "O" formed by touching the tip of thumb and index finger to form a circle that can mean excellence especially in North America but a negative evaluation (iconic representation of a null) especially in Belgium, France, and Tunisia (Morris, 1994). This is the reason why children depend on interactions with members of their culture to grasp the meaning of typically used expression signs and to learn how to use them appropriately to regulate these interactions.

If we want to apply this mediating function of sign-use to the domain of emotions, we need to know which kinds of signs are used as mediators in social interactions. This leads us to the domain of expression signs.

Expressions as a culturally evolved sign system. In contrast to previous activity-oriented approaches (Magiolino & Smolka, this issue; Ratner, 2000), my hypothesis is that verbal language is neither the only nor the primary cultural sign system by which emotions are mediated in social interactions. I hypothesize that, from the perspective of the child growing up, expression signs are the first culturally evolved sign system that mediates emotional regulation between children and caregivers. For the child, it is only in a second step that emotions and their expressions are introduced and interpreted within the meaning systems of verbal language (Holodynski & Friedlmeier, 2006, 2012). For the caregiver, however, expression signs and their meanings are also embedded in the meaning system of verbal language. There is, however, not a one-to-one relation between these two meaning systems. Therefore, it is useful to differentiate between the use of preverbally acquired expressions signs, as is the case for young children, and the use of expression signs that are already incorporated and amalgamated by verbally mediated meaning systems (see the final section).

A look at the preverbal interactions between young children and their caregivers can help to explain the precedence of expression signs. Children in all cultures depend on the care and support of their caregivers, who must respond to the current needs of their offspring appropriately by ensuring their satisfaction. These initial conditions require a perceivable expression of the child's needs. The expression serves to signalize the prevailing needs of the child through how she or he appraises the current state of motive satisfaction (Holodynski & Friedlmeier, 2006; Sroufe, 1996). Some examples are crying as a signal for unsatisfied motives, nose wrinkling and tongue protrusion as a signal for unpalatable food, or smiling as a signal for "effortful assimilation of external stimulations" (Sroufe, 1996, p. 83). In social cooperation between older children, or between adults, there is a huge range of specific expressions (a frown, a pout, a clenched fist, kneeling down) that are interpreted more or less explicitly as meaningful signs

within a given cultural context. These expressions are the perceivable signs of the elicited emotions.

The following features of emotional expressions are intended to show not only their semiotic qualities and use as signs in social interactions but also their potential for the regulation of activity by emotions.

Signs are constructed for use in social interactions. Therefore, what is the function and use of expression signs? Their main purpose is not only to convey a message but also to make an impact on the interaction partner as a symptom, an appeal, and a symbol (Holodynski & Friedlmeier, 2006).

1. *Expression signs are interpreted and used as symptoms.* They signalize classes of motive-related person–environment relations, that is, they refer to the way the individual appraises a situation in terms of its motive-relevant aspects and they refer to the action readiness of what the individual is going to do next. For example, frowning refers to the appraisal that the person has not believed that the appraised event would really happen, and it refers to the action readiness of wanting to continue his or her goals and to know more about the event (Kottonau, 2010; Wierzbicka, 1999). At this point, I do not take into account the distinction between genuine (sincere) and deceptive (fraudulent) intentions.

2. *Expression signs are interpreted and used as appeals.* They simultaneously form an impression on the receiver, indicating that he or she should act in a certain way. For example, frowning refers to the appeal that the receiver should give more information or a pout to the appeal of consoling the sender and fulfilling his wishes (Kottenau, 2010). At a minimum, a sender requires a receiver to pay attention to the signaled message and to demonstrate an attempt to understand it. Usually, the receiver should do something in conformity with the signaled message such as help the sender, give him or her information, stop doing something, and so forth. Whether the receiver will respond appropriately to the appeal depends, first, on whether they both assign comparable appeals to the signs—indicating the need for a shared pool of conventionalized signs—and, second, on the receiver's intentions, wishes, and expectations. Thus, expressions signs (and not only speech signs) also serve to regulate social interactions.

3. *Expression signs are interpreted and used as symbols (and displays).* An expression sign additionally points to a generalized meaning that can be disengaged from the sender's current mood. The expression is then not only a symptom but also a symbol representing an emotion. A smile represents joy; bared teeth, rage. In this generalized meaning, expression signs such as smiling, bared teeth, or astonished faces are used in, for example, storytelling, commercials, or picture books, and already in children's pretend play. Furthermore, a sender can use an expression as a display in order to influence the receiver without really feeling the expressed emotion, when, for example, smiling over a disappointing gift to please the giver. As children grow older, they become capable of using their expressions strategically and of deceiving their interaction partners about their real intentions and feelings (Feldman, Jenkins, & Popoola, 1979; Feldman, Tomasian, & Coats, 1999).

Expression signs embody a first-person present-tense perspective. The person who expresses the sign is the one who is feeling it and is feeling it now; the one to whom the expression is being addressed is the one who should now act (Wierzbicka, 1999). Expression signs refer only

to the emotionally relevant relationship between sender and receiver (or elicitor, if the receiver is not the elicitor of the emotion). The analysis of expression can be supplemented by additional features and capabilities that are applicable to conventionalized expression signs, but this is not the case in the expressions of young children. Only at an advanced level is it possible to refer to a past or future emotion or to an emotion of another person, and then only through using additional indications or information. Therefore, a complete analysis of expression must include the object or person to whom the expression is addressed (Holodynski & Friedlmeier, 2006, 2012).

Expression signs are coded in all channels of expression. They contain not only facial expression but also body posture, gestures, tone of voice, touch, gaze behavior, and spatial behavior (Collier, 1985). Older children and adults also use symbolic actions as expression signs, for example, the exchange of (wedding) rings as a sign of attachment or love and waving one's country's flag as a sign of national belonging. Expression signs are also culturally constructed and conventionalized, as illustrated by countless examples of culture-specific emblems that are used as emotional expressions, such as the victory sign, giving someone the "finger" (or bird), kneeling down, and so forth (see Ekman & Friesen, 1969). These signs can be compiled into a lexicon (Kottonau, 2010; Morris, 1994; Posner & Serenari, 2003).

Expression signs can be used in both interpersonal and intrapersonal regulation. Like speech signs, they serve to regulate not only social but also individual actions. Their primary pragmatic function is their appeal character in social interactions. For example, babies are obliged to use expressive reactions to signalize their current state of need satisfaction to their caregivers. Caregivers can then satisfy these needs vicariously. It is important to know that expression signs designed to impress others, such as pouting or whining, are also represented proprioceptively as expressive sensations (Fogel, 2009; Holodynski & Friedlmeier, 2006, 2012). Children can learn to use these proprioceptive sensations of expressions as *intrapersonal* signs to perform their own coping actions to satisfy their motives. This is similar to the way in which they learn to use their inner speech for self-instruction. Then, these sensations can be used in *intrapersonal* regulation as an internal feedback of expressions (and bodily reactions) accompanying an emotion and directed toward the elicitor of the emotion.

Although research provides evidence that the feedback loop seems to be a universal feature of an emotion, there is an ongoing discussion on whether the subjective feeling of an emotion can be conceptualized as an internal feedback loop (see Damasio, 1994; Holodynski & Friedlmeier, 2006; McIntosh, 1996). To the extent that expressions have culture-specific features, the subjective feelings as internal sensations of these expressions are also colored in a culture-specific form via the feedback loop. Furthermore, the level of self-awareness on which the feedback is experienced may also have a culture-specific coloring, because the way in which individuals interpret their sensations as a quality of feeling (conceptual self-awareness) depends on the emotional concepts they have acquired (see Fogel, 2009; Magiolino & Smolka, this issue).

Taken together, the possible twofold function of expression signs as a means of *interpersonal* regulation and as a means of *intrapersonal* regulation predestines them to be a mediator between sociocultural and psychological processes in the domain of emotions. This leads to Vygotsky's third methodological principle, the principle of internalization, and the question how children internalize the use and meaning of the expression signs triggered by their emotions to regulate their individual actions.

The Principle of Internalization: The Internalization of Sign-Use as an Ontogenetic Development Principle

The two methodological principles sketched so far—the principle of development and the principle of mediation—can be combined with the third methodological principle, the internalization of sign-use, to explain how children appropriate culturally shaped psychological functions during the course of their development (Vygotsky, 1931/1997b). This principle can also be applied to the emotion domain.

Vygotsky's principle of internalization.   Both features of activity, its social and its semiotic mediation, are subject to a transformation during ontogenesis that Vygotsky (1931/1997b) viewed as a basic principle in the development of psychological functions. He labeled this as interiorization or internalization. In this article, I use the term "internalization."

With regard to the first property of an activity, the fact that it is mediated socially, the principle of internalization states that development proceeds from the *inter*personal regulation of activity to its *intra*personal regulation. In interpersonal regulation, children induce another person to act on their behalf. The baby girl cries, and her parents interpret her crying as a symptom of loneliness and an appeal to pay attention to her. In *intra*personal regulation, children assign themselves the task of carrying out the necessary actions. Feeling lonely, the young girl seeks social contact or imagines having social contact.

With regard to the second feature of activity, the fact that it is mediated through signs, internalization means that development proceeds from body signs that outsiders can perceive to mental signs that are perceivable only for the individual him- or herself such as inner speech. *Inter*personal regulation is possible only with the help of body signs that can be perceived by the interaction partner.

For *intra*personal regulation, that is, communication with oneself, the bodily reference of the sign does not impose restraints on its use. The independence of the sign's function from its material form is the specific basis for its special further development. As Rissom (1989) pointed out,

> Even when signs gradually change or completely lose their external form during the process of their appropriation, they remain inherently unchanged as long as they retain their function. They can be transferred from one system of signs to another; they can be abstracted from their external form and further developed only in their inner mental function. (p. 21, translated)

Intrapersonal regulation can use signs that continue to be perceivable only for the individual him- or herself and exist as mental signs. The *form* of the sign used adapts itself to the changed application context. In line with the increasing differentiation of intrapersonal from interpersonal regulation of activity, this form changes from body signs that outsiders can also perceive into mental signs that only the individual him- or herself can still perceive—just like the shift from audible speech signs to inner speech signs.

Applying the principle of internalization to emotional development.   The principle of internalization can also be applied productively to emotional development and the development of the use of expression (see Holodynski & Friedlmeier, 2006, 2012). Vygotsky (1931/1997b) already anticipated the underlying principle for such an application in his example of the gesture.

The expression turns into a gesture for others, and it is only through this mediation that it becomes a gesture for the child. This sequence of development can also be applied to the development of emotional expression signs. In the following, I give a first sketch of this application. In the section "An Internalization Model of Emotional Development," I outline these hypotheses in more detail and provide also empirical confirmations.

It is assumed as a first step of internalization that the *intra*personal use of expression signs emerges from their *inter*personal use. The expression in itself, which the child exhibits spontaneously, such as crying for sorrow, becomes a sign for others. These others interpret this expression as a meaningful sign addressed to them, and it induces them to respond with appropriate actions: The father comforts the child. In the next step, the successful impact of the expression sign on others helps it to become an expression sign for the child. The child can now apply expression intentionally to others. When sad, the little girl promptly and unequivocally starts to cry in order to gain her father's comfort. In a further step, the expression sign that the child applies to others becomes an expression sign that the child applies to the self by interpreting the proprioceptive sensations of the expression as an emotional signal. The child can now follow the appeal of this internally perceived expression sign autonomously and carry out the appropriate motive-related actions. The girl comforts herself.

It is assumed as a second step of internalization that body signs can be transformed into mental signs. That means that a "private" expression—analogous to private speech—can shift to an "inner" expression—analogous to inner speech. By using expression signs for *self-regulation*, originally perceivable expression signs adapt their form to this special new function: A full-fledged performance of perceivable expression signs becomes increasingly superfluous as individual children become aware of the internal proprioceptive sensations of these expression signs, learn how to interpret them appropriately, and learn which actions are appropriate for satisfying the signaled motives. A person still needs a subjective feeling of an emotion, that is, these inner signals (Leont'ev, 1978) such as the proprioceptive sensations in frustration of tightening muscles and frowning directed toward the unwanted obstacle. My hypothesis is that, on a higher level, subjectively feeling the corresponding emotion expression will suffice to select the appropriate motive-serving action without any display of an intensive expression. For example, before a strongly perceivable expression of frustration with frowning and loud cursing and swearing emerges, an individual will have already anticipated and selected suitable actions to overcome the obstacle. This dissociation between expression and feeling can be interpreted as an outcome of an increased efficiency of action regulation that cuts back and eliminates superfluous parts of behavior.

Studies on adults (Holodynski, von Olberg, & Upmann, 2001) provide evidence for the existence of mental expression signs in analogy to mental or inner speech signs: Participants had to recall experienced episodes of pleasure at seeing a loved one again and episodes of pride over a past achievement during a deep relaxation exercise. They reported feeling not only the emotion again but also the proprioceptive sensations of the corresponding expression signs of pleasure and pride. For the recalled pleasure episodes, they reported experiencing a smile, a joyful intonation in inner speech, and an action impulse to hug the person met; in the case of recalled pride episodes, they reported experiencing not only a smile but also erect body posture and a triumphant intonation of their inner speech. In both cases, outsiders could neither see nor hear any hints of either joyful or proud expressions. Thus, the subjective feeling component of an emotion can be composed of proprioceptive sensations of expression signs that can be internalized to such

an extent that outsiders can no longer perceive them—as is the case for inner speech. Further empirical support for the internalization of expression signs is reported next.

Benefits of internalizing expression signs.   However, what are the benefits of such an internalization of expressions signs? Several benefits can be identified: Internalization is useful in complex (social) situations in which one needs to anticipate the effects and consequences of one's actions to bring about a positive outcome or avoid a negative one. As previously mentioned, Leont'ev (1971/2011) introduced the concept of "proper" emotions. In contrast to what he called affects, these have the property of already being triggered in advance when selecting an action goal; they are reactions to an only imagined future event or future outcome of an action. Although these "proper" emotions signalize the significance of what are only imagined goals in relation to an individual's motives, they trigger a real emotion-specific action readiness to—in the simplest case—strive toward or avoid the imagined goal. They equip mental images with a motivating psychological force. Zaporozhets (2002) applied this idea to clarify the importance of the development of this emotionally driven power of imagination for the development of moral and social motives.

The ontogenetic emergence of an intrapersonal use of expression out of an interpersonal use is a long-drawn-out process in which children take over increasingly more parts of the regulation previously carried out by their caregivers. Nonetheless, it has to be pointed out here that this developmental sequence does not have to reach full completion in all cultures or for all expression signs. This depends on the specific affordances and normative conventions of a given culture. Furthermore, individuals at all ages and on each developmental level fall back on interpersonal regulation with the help of observable expressions when situational circumstances and/or their motives require it.

Critical remarks on the principle of internalization.   There have been several criticisms of Vygotsky's principle of internalization claiming that it cannot fulfill its assigned purpose of bridging the gap between either social and individual processes or bodily and mental processes (see Lave & Wenger, 1991; Lawrence & Valsiner, 1993; Still & Costall, 1991; Wertsch, 1993). Critics have accordingly rejected its use for conceptualizing the transformation from communicative speech, across private speech, to inner speech. If the principle of internalization is to be applied to another psychological function, in this case, emotions, it is necessary to address these criticisms (see Arievitch & van der Veer, 1995; Hildebrand-Nilshon & Kim, 2002) and their consequences for the development of emotions.

The main criticism is that the principle of internalization suggests a simplistic transfer of societal into personal meaning. It contains an oversimplistic idea on how the use of signs and the meanings assigned to these signs are handed down culturally (see González-Rey, 2012; Toomela, 2000). The principle of internalization is interpreted as if, on one side, there is one person within the social interaction who is seen as culturally more advanced and competent (the expert) and who introduces the culturally "correct" use of conventionalized signs and their societal meanings to a person, on the other side, who is still learning (the novice) and who adopts the use of signs and their meanings as demonstrated by the expert. This is then taken to be the way in which the use of signs is passed on from generation to generation. This appropriation of personal meanings is a transfer not necessarily of the full set of societal meanings but of a larger or smaller subset of them.

It is certainly correct to say that some approaches based on an activity approach apply such a transmissive and unidirectional interpretation of enculturing children. However, by accentuating the difference between the concept of societal meaning and personal sense, both Vygotsky and Leont'ev showed that a unidirectional transfer of meaning from one person to the other simply does not exist. What happens is a transformation of societal meanings into the personal sense of those involved. The personal sense that an individual assigns to interactions, facts, and experiences through the use of signs can be conceptualized not as a subset of societal meanings but as a particular sphere of mind that is constituted by two psychological factors in particular (a) the relation to the motives of the person, and (b) the relation to the situated and sensorially mediated experiences of the individual within the process of internalization.

The first psychological factor deals with the personal sense of sign-use and its relation to the motives of a person. An individual's psychological sphere is determined by his or her motives and the emotions that signal them (Leont'ev, 1978). Vygotsky (1934/1987) wrote that thought

> is not born of other thoughts. Thought has its origins in the motivating sphere of consciousness, a sphere that includes our inclinations and needs, our interests and impulses, and our affect and emotion. . . . A true and complex understanding of another's thought becomes possible only when we discover its real, affective-volitional basis. (p. 282)

People do not appropriate the use of signs and their meanings during social interactions in an impartial way. They interpret and use them in the light of their actually elicited motives along with the motives they assign to the interaction partner (see González-Rey, 2012). The societal meaning of the used signs does not have to match the individually assigned personal sense. For example, an outsider may well interpret a public fit of rage by a low-ranking bank employee toward his superior as an inexcusable violation of social etiquette. However, for the menial employee, it may well be a reassertion of self-esteem in response to a humiliating directive.

The second psychological factor deals with the situatedness of sign-use. The personal sense of sign-use is also determined by the situatedness and sensory mediation of the previous encounters in which the use of signs is (or was) embedded. Societal meanings are coded primarily not by propositional phrases (e.g., "a dog is a mammal" or "wide-open eyes signal fear") but through their ties to sensorially mediated and situated perceptions—as complex as these interrelations may be (Leont'ev, 1978). For example, two persons can use propositional phrases to agree on the same definition of the term "dog" or "fear." These terms, however, will be situated very differently and enriched with other sensory perceptions when one person grew up with a very likeable family dog and the other person experienced a highly dramatic episode with an overpoweringly large and aggressive dog. Research on "grounded cognition" (Barsalou, 2008) and developmental studies on the appropriation of goal-directed actions (Hommel & Elsner, 2009) and of speech (Bruner, 1983; Tomasello, Carpenter, Call, Behne, & Moll, 2005) have also corroborated this sensorially anchored use of signs.

Thus, conventionalized signs and the meanings assigned to them are subject to an interpersonal process of interpretation and coordination that more or less successfully supports the embodiment and expression of personal sense. People do not have a private "speech" at their disposal that they can construct and use on their own (Wittgenstein). Therefore, they depend on the appropriation and use of conventionalized signs when they want to communicate successfully and satisfy their motives in social interactions (Gebauer, 2012). From this perspective, it is the principle of internalization in particular that offers concepts that help us to conceptualize the particular status

of the mind as a coconstruction of the social and material world by means of conventionalized signs that are anchored in sensory perceptions related to the motives of a person.

Taken together, I have applied Vygotsky's three general principles to the domain of emotions and introduced new concepts and empirical findings that represent promising applications of these principles for the analysis of human emotions. This brings together the main elements needed to formulate and test an internalization model of emotional development. This is the subject of the next section.

AN INTERNALIZATION MODEL OF EMOTIONAL DEVELOPMENT

This section examines how these ideas on how to apply Vygotsky's principles to the domain of emotions can be used to formulate an activity-based approach to emotions and their development. The last section identified the development of the relation between expression and subjective feeling as a basis for a theory of emotional development. This section describes the three main ontogenetic phases during which children appropriate and internalize the use of expression signs, shows how these relate to the development of emotions, and presents empirical evidence supporting this approach (for a more comprehensive explanation, see Holodynski & Friedlmeier, 2006, 2012). The three main ontogenetic phases are as follows (see Figure 1):
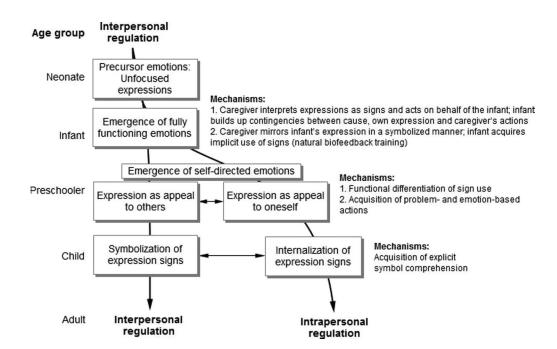

FIGURE 1 Milestones and mechanisms of emotional development according to the internalization model.

1. *Appropriation of sign-use for interpersonal regulation.* In this developmental phase, children appropriate the use of signs as a means of interpersonal regulation. The main question is how children learn that particular patterns of expressions (a smile, a pout, a submissive body posture, etc.) and particular patterns of speech can be used as signs for regulating social interactions. With reference to the relation between speech and thinking, this concerns the appropriation of the symbol function of spoken words; with reference to the relation between expression and feeling, the appropriation of the symbol function of expressive patterns.

2. *Emergence of sign-use for self-regulation.* In this developmental phase, children appropriate the use of signs as a means of self-regulation and distinguish this from the use of signs for interpersonal regulation. The main question is how children learn to use expression signs for the regulation of their own actions as well as those of others and, likewise, to use speech signs as a means of volitional self-regulation (see Holodynski, Seeger, Kortas-Hartmann, & Wörmann, 2013).

3. *Internalization of sign-use.* In this developmental phase, the signs being used start to lose their perceivable forms for outsiders, and a level of mental imagery emerges. This imaginative behavior is self-oriented and can function potentially without any externally perceivable body signs—be they speech or expression signs—because this level operates with mental signs. A prototypical example is the emergence of *inner speech* (Vygotsky, 1934/1987). However, an analogous development can evidently be observed in the emergence of inner sensations of expression signs (Holodynski, 2004).

When looking at individual pathways it has to be noted that the single emotion qualities do not all emerge within the developmental phases named in the following overview. Their emergence depends on the socialization conditions in the observed culture, and these can lead to culture-specific developmental pathways in the appropriation of particular emotions (see Funk et al., 2012; Röttger-Rössler et al., in press; Wörmann et al., 2012).

The following overview considers all developmental processes that deal with the control or regulation of emotions through volitional functions and that deal with the relation between expression signs and speech signs, that is, the embedment of emotions in the system of verbal meanings (for more detail, see Holodynski & Friedlmeier, 2006, 2012; Holodynski et al., 2013; Zelazo & Cunningham, 2007). The discussion of these topics would go beyond the scope of this article.

The Ontogenetic Starting Point

In the following, I take the emotion repertoire of neonates as an ontogenetic starting point, although research has now shown that emotional development can already be observed before birth (Soussignan & Schaal, 2005). Studies on the emotional reactions of neonates provide unanimous indications that they are able to react consistently to five discernible classes of elicitors with five different patterns of expression (see Izard & Malatesta, 1987; Sroufe, 1996). This allows us to conclude that neonates have five emotions at their disposal:

1. *Distress* is expressed particularly through crying preceded by motor restlessness, and this crying signals an urgent need (be it for food, warmth, body contact, or attention) that

the caregiver not only has to satisfy but also feels obliged to satisfy (see Boukydis & Burgess, 1982).

2. *Disgust* is expressed by screwing up the nose and sticking out the tongue in order to spit out food, and it signalizes unpalatable food (see Rosenstein & Oster, 1988; Soussignan & Schaal, 2005).

3. *Startle* is expressed by wide-open eyes and body tension, and it signalizes a threat of overstimulation that may be triggered by an abrupt and strong irritative (such as losing balance or being splashed with water).

4. *Interest* is expressed by turning toward the source of stimulation, visual focusing, and an inhibition of motor activity. It signalizes the novelty of an external stimulation (Langsdorf, Izard, Rayias, & Hembree, 1983) and serves to detect contingencies in the perception of the environment.

5. *Endogenous pleasure* is expressed by smiling that signalizes the completion of a tension-relaxation cycle triggered initially by subcortical stimulation. Nonetheless, over the first weeks of life, it is triggered increasingly when the baby recognizes contingencies between stimuli, for example, repeatedly seeing the face of the caregiver (Sroufe, 1996; Sroufe & Waters, 1976).

These emotions in the neonate possess an essentially interpersonal regulation function. They are designed so that caregivers will interpret them as appeals to carry out those actions that are necessary to satisfy the infant's needs. Although these findings have been gathered in Western cultures, it is to be expected that these five emotional patterns are universal to all neonates.

The Acquisition of Expression Signs

The emotions of neonates represent the biological inheritance for emotional development. They are not, however, comparable with the developed emotions of sorrow, disgust, fear, interest, and joy in adults. This is because the emotions of neonates do not share the same decisive features: (a) They are triggered by absolute physical stimulus thresholds and not by acquired, meaning-related appraisals, and (b) their expressive and bodily reactions are still not coordinated with the situational elicitors and context but are, in part, reflex-like. Therefore, Sroufe (1996) labeled them as only "precursor emotions" and not as fully functioning emotions. The latter can precisely orient caregivers toward the specific motive involved and the motive-serving actions to be performed.

To explain these differences, it is instructive to remember Leont'ev's (1978) differentiation between need and motive and his claim that before its first satisfaction, a need "does not know" its satisfying object and, therefore, can only activate behavior but cannot align it with specific situational conditions. Only through repeated experiences of need satisfaction do the sensory qualities of the satisfying objects of a need and its situated circumstances become stored in memory and can go on to align an infant's behavior with these circumstances. In this process, the innate expressive reactions are transformed into well-coordinated and situated expression signs with a conventionalized meaning, for example, the development from an unfocused crying with closed eyes to a gesture with arms up directed toward the mother as an appeal to be picked up and cuddled.

The first phase of emotional development in babyhood and infancy confronts children with the following tasks:

- to start with the precursor emotions and build up a differentiated repertoire of fully functioning emotions conveyed by expression signs, and
- to acquire a repertoire of actions that enables them to satisfy their motives by themselves.

In the following, I focus particularly on the first developmental task and describe the underlying developmental mechanism.

From precursor emotions to fully functioning emotions.   Research on neonates and infants in Western societies indicates that through interpersonal regulation with sensitive caregivers, the fully functioning emotion qualities listed next emerge from the five precursor emotions: (a) frustration, anger, and defiance along with sorrow and sadness emerge from distress; (b) disgust is joined by aversion; (c) fear and embarrassment emerge from fright; (d) interest is joined by surprise; and (e) pleasure, joy, affection, and amusement emerge from endogenous pleasure (Barrett, 1998; Sroufe, 1996).

Cross-cultural studies are needed to reveal whether infants in different cultures acquire a comparable range of emotions with comparable conventionalized expression signs.

The cross-sectional study of Stenberg and Campos (1990) provides an empirical illustration of the emergence of differentiated and fully functioning emotions. It shows how the unfocused distress reaction of the neonate evolves into the already directed frustration of the 4-month-old and finally the fine-tuned anger of the 7-month-old infant. The development of expressive reactions can be described as follows: The undirected, in part still unorganized expressive reactions of the neonate, which also require some time to "build up steam," turn into cause-directed, emotion-specifically organized expression signs with an unequivocal appeal character. The latter follow the elicitor promptly, their timing and orientation are coordinated with the specific context, their effect is confirmed by appropriate bodily reactions, and they can purposefully trigger motive-serving reactions—generally in the caregiver (see also Bennett, Bendersky, & Lewis, 2005; Camras, Lambrecht, & Michel, 1996).

Which developmental mechanism underlies this differentiation of fully functional emotions? According to the internalization model, the decisive mechanism is to be found in the interplay between two factors: (a) the caregiver's motive-serving response and mirroring of infant emotional expression interacting with (b) the infant's imitation of the caregiver's emotional expression and learning from experience (see Fontagy, Gergely, Jurist, & Target, 2002; Gergely & Watson, 1999).

Infants do not just differentiate their emotions in physical space. They also differentiate them in a semantic space in which their emotional experiences are mediated by the interpretations of their caregivers (Holodynski & Friedlmeier, 2006). The infant's expressive reactions take on a major mediating role in the emergence of these interpretations, and not just as instrumental adaptive reactions to the physical environment (e.g., avoiding threatening elicitors) but also as signs that impress the caregiver (e.g., wide-open eyes as a sign of fear). Caregivers use the contingency between situational features, their knowledge of the infant, and his or her current expressive and bodily reactions as a basis to deduce his or her emotions and intentions, and they react in line with this interpretation of infant expression. In turn, they deduce how successful or unsuccessful their actions have been from the further course of infant expression and bodily reactions. By doing this, caregivers make it possible for the infant to experience temporal, sensory, and spatial contingencies between the emotional elicitor, the emotional expression, and the motive-serving action.

These experiences lead to the construction of situation-dependent, emotion-specific appraisal patterns in the infant that are determined by the meaning assigned to them and no longer by absolute stimulus qualities.

Another social mechanism of emotional development can be observed especially in cultures with extensive face-to-face interactions between caregivers and their infants, such as Western cultures and the Minangkabau culture in West Sumatra. This is called affect mirroring (Gergely & Watson, 1999). When infants show emotional expressions, caregivers often intuitively use their own expression to mirror the inferred infant expression in a succinct and conventionalized manner, for example, by mirroring a baby's smile and praising him for it or by playfully mirroring a baby's painful grimace and sounds of distress before accompanying the removal of the distress with soothing sounds. Affect mirroring works like a natural "biofeedback" training that enables the infant to also experience contingencies between her own feelings and the corresponding expression mirrored in the face and body of her caregiver. It supports the acquisition of the conventionalized expression signs within the given culture and prepares the conscious perception of feelings (see Fontagy et al., 2002).

Culture-specific conditions can have an impact on the development of emotions because of the incomplete state of neonate emotional expression and cognitive abilities, as just described. Two pathways are possible: Culture-specific educational practices determine the extent to which children are exposed to situational causes of single emotions, such as, elicitors that trigger distress or joy. Second, culture-specific patterns regulate how caregivers interpret children's expressions and how they react to them.

As cross-cultural studies have shown, parents from different sociocultural contexts value different socialization goals and strategies. These strategies, in turn, depend on culture-specific ethnotheories of parenting that specify what is considered to be appropriate contact with one's infants (Keller et al., 2006; Keller, Völker, & Yovsi, 2005) and influence the interactional parenting practices that parents apply (see Demuth, this issue; Kärtner et al., this issue; Keller & Otto, 2009).

The differences in these practices can be observed in a cross-cultural comparison of the development of social smiling in the young infants of middle-class mothers in the German city of Münster and rural Nso mothers from Kumbo in the northwest of Cameroon (Wörmann et al., 2012). During free interactions, the urban German mothers particularly preferred dialogic communication with their 6- and then 12-week-old infants. This was based on positive emotional expressions with smiles and a friendly intonation. Rural Nso mothers, in contrast, preferred a prompt satisfaction of their infant's bodily needs but considered face-to-face interactions to be unimportant. In line with these different ethnotheories, German mothers and their 12-week-old infants not only smiled at each other more frequently but also imitated the smiling of the other more frequently than Nso mothers and their infants, who only occasionally displayed social smiling.

The study also shows how dialogic, face-to-face interactions between infants and parents are not practiced to an equal extent across all cultures, indicating that conclusions based on such behavior cannot be generalized without further empirical research (see White, this issue). Several cross-cultural studies have demonstrated how different educational practices lead to different frequencies and features of expression (Cole, Bruschi, & Tamang, 2002; Friedlmeier & Trommsdorff, 1999; Lewis, Takai-Kawakami, Kawakami, & Sullivan, 2010).

Observation of the development of emotional expression from birth to 3 years shows how context- and emotion-specific expression signs emerge from the few, initially unfocused expression reactions of the neonate:

- Expression signs become more varied, better organized, and focused on the elicitor of the emotion and the person who should intervene and regulate. In addition, they are readjusted in response to their interpersonal effect. For example, 8-month-old infants are already able to modulate their expression actively, to weaken it or strengthen it, and thus to actively apply the appeal function of the expression sign (Malatesta & Haviland, 1985; Stenberg & Campos, 1990).
- Expression signs are used increasingly in conventionalized forms and as symbols representing emotions. The expression can be used intentionally as a sign that does not just point to a simultaneously actualized emotion. Instead, it is used like a word to represent this emotion with a meaning that consists in a generalized emotion-specific action readiness.

The conventionalization of the expression and its use as a symbol for an emotion can be observed in the social referencing of older infants (see Hirshberg, 1990; Klinnert, Campos, Sorce, Emde, & Svejda, 1983; Walden, 1991). By the age of 10 months, infants are already able to use the facial expression sign of their caregiver as a symbol for dealing with unfamiliar situations. When facing the so-called visual cliff, a research design in which infants are confronted with the novel situation of having to crawl across a transparent glass top to reach their mothers, the first thing they do is look at their mothers. If the mothers smile, then they crawl across the visual cliff; if, in contrast, the mothers show an anxious face, the infants do not move (Klinnert et al., 1983).

Taken together, infants' precursor emotions develop into completely functional motive-serving emotions. Caregivers support this development by appropriately interpreting the still-unfocused infant expression and body reactions, mirroring them in their own expression in the form of succinct expression symbols (or displays), and responding promptly with motive-serving actions. Hence, the infant emotion process is initially shared between child and caregiver; they function together as a coregulated system. Starting with interpersonal regulation initiated by the caregiver, the infant develops an increasingly autonomous regulation over the course of the second year of life—particularly by actively demanding the caregiver's support in regulation.

Acquisition of a repertoire of actions.   Alongside this differentiation of emotions, children learn a variety of motive-serving actions in their first 2 years of life such as fetching things for themselves, handling everyday objects, and extending their range of mobility. As a consequence, by the age of 2, they can already carry out a number of motive-serving actions by themselves, making them less completely dependent on vicarious regulation by their caregivers.

From Interpersonal to Intrapersonal Regulation of Actions by Emotions

The second phase of development experienced by toddlers and young children sees the first emergence of *intra*personal regulation. The child becomes increasingly able to perform motive-serving actions alone without any social support and to coordinate satisfaction of their motives with the social environment and situational demands. In the first phase of development, caregivers make

sure they react immediately to the emotional reactions of their infants and satisfy the accompanying motives promptly and appropriately. In the second phase of development, in contrast, caregivers increasingly demand that their children should regulate their actions and emotions by themselves. The following developmental tasks emerge for toddlers and young children: (a) use of expression signs for self-regulation and performance of motive-serving actions by themselves, and (b) compliance with normative standards through the acquisition of socializing emotions such as pride, shame, and guilt, but also particular qualities of fear (Funk et al., 2012; Röttger-Rössler et al., in press).

Use of expression signs for self-regulation and performance of motive-serving actions by themselves. Children need to learn to carry out actions to satisfy their motives by themselves. Therefore, they are encouraged to use the expression signs and actions acquired during interpersonal regulation for their own intrapersonal regulation. Emotional expression should no longer be an appeal directed toward others but should now be understood as an appeal to the self to carry out the necessary actions alone. Communication with others becomes communication with oneself, as Vygotsky (1931/1997b) stated in his general principle of the development of higher psychological functions. This principle can also be applied to the use of expression signs: During the first phase, a child learns how to apply expression signs intentionally to others. When sad, the little girl seeks her father's comfort by herself. During the second phase of development, expression signs that children apply to others become expression signs that they apply to themselves. A child can now follow the appeal of her expression sign autonomously and carry out the appropriate motive-serving actions. The girl comforts herself. This final, decisive transition to an intrapsychological regulation of emotions is a very lengthy process extending across the entire preschool age and into elementary school age (Holodynski & Friedlmeier, 2006).

The observation that older infants and toddlers do not want to remain alone but always seek the proximity of a familiar person can be explained in terms of the internalization model. Studies in attachment research have shown that separation from the mother in the Strange Situation Test (Ainsworth & Wittig, 1969) and being alone is a stress factor that generally elicits fear of separation in young children, thus motivating them to seek their caregivers. In this way, they can ensure that their caregiver remains available for any potentially necessary interpersonal regulation. It is only when children reach preschool age that they become able to remain alone and handle an emotion episode by themselves without immediately seeking another person with whom to share their emotions (Steinhoff & Holodynski, 2008).

Emergence of socializing emotions. Children have to master a second developmental task in order to engage in an appropriate level of *intra*personal regulation. They have to learn that a currently stimulated motive cannot always be satisfied immediately but that motive satisfaction has to be coordinated with the social environment. This requires the ability to rank motives in a socially accepted hierarchy, to delay their gratification, or drop them completely, and that means to gain control over the emotions that signal the immediate urge to satisfy the currently stimulated motive (see Zaporozhets, 2002). For instance, a toddler gets angry and aggressive because he also wants to sit on his mother's lap, but she is busy feeding his little sister. How does the little boy learn to control his anger? Or a kindergarten child has to fulfill her duties and clean up the tables after lunch although this is boring and keeps her from playing with her classmates. How can she learn to do this?

Caregivers start to set behavioral standards for their children and thereby expect them to acquire culture-adaptive forms of socializing emotions such as shame, fear, guilt, or pride that are directed toward fulfilling these demands and social norms (Funk et al., 2012; Röttger-Rössler et al., in press). The term *socializing* is used as an *adjective* and is meant in the sense of actively getting offspring to conform to the social norms and conventions accepted within a society. Socializing emotions are assigned a regulation function that enables children to adjust their behavior and emotions to normative prescriptions. As Quinn (2005) inferred from her review of child-rearing practices in different cultures, caregivers in all societies use emotionally arousing strategies to inculcate these socializing emotions. They differ only in the particular disciplining strategies they use, such as frightening, corporal punishment, mocking, shaming, or praising. In line with Vygotsky's genetic principle of development, I suggest that the socializing emotions become internalized so effectively over the course of ontogenesis that they can fulfill their regulation function without any further need for disciplining. The development of socializing emotions in cross-cultural comparison is described in detail in Funk et al. (2012) and Röttger-Rössler et al. (in press) and is not addressed in detail here.

The Internalization of Emotional Expression

As already mentioned, I propose that the developmental mechanism of internalization can also be applied to the development of expression signs (Holodynski & Friedlmeier, 2006): As the child passes through preschool age, the externally perceivable expression signs become subject to a similar fate as the spoken self-instructions during problem solving: Just like school-age children no longer need to speak out loud to themselves when solving, for example, a problem task, they no longer have to display their frustration when their solution fails through its external form of expression by, for example, crying out loud or smashing up what they have been working on.

Their awareness of the content of thought while thinking and the quality of emotion while feeling due to their acquisition of emotional concepts makes it possible for them to miniaturize or "internalize" the external forms of both their thoughts and their emotions: the abbreviation of speech in thinking and the abbreviation of expression signs in feeling. Just like private speech becomes increasingly idiosyncratic and abbreviated during its transition to internal speech, the same thing may happen to emotional expression signs. Depending on the situational context and on the intention, an emotion can predominantly take the communicative function of influencing others—in which case, the corresponding external expression signs are applied—or exclusively the self-referential function of regulating one's own actions—in which case, the expression signs become miniaturized.

The internalization process from body signs to mental signs can also be observed in the development of emotions: Expression signs also adapt themselves to their applied context. They change their form during the transition from an interpersonal to an intrapersonal regulation of emotions. During intrapersonal regulation, the parts of the expression sign that are perceivable for others become obsolete. Although one still needs, for example, an intense feeling of anger when an obstacle unexpectedly blocks the attainment of one's goals so that one can then refocus one's actions on the new situation, the expression itself no longer needs to be intense. Even before an intense expression of anger has been built up, goal-directed actions are being anticipated and are on their way to being implemented as actions (Holodynski & Friedlmeier, 2006). The body-related, externally perceptible expression signs are transformed into mental expression signs that

remain accessible only to subjective experience (Holodynski et al., 2001). It then becomes possible to experience emotions without exhibiting their corresponding expression. This makes the emergence of a private emotional world that cannot be observed by outsiders into a product of the internalization of expression signs.

There are empirical findings that corroborate the assumed transformation process. It can be observed in the way that expression becomes miniaturized when an emotion exclusively serves intrapsychological regulation. This is nearly always the case in solitary situations. A series of carefully controlled laboratory studies have now shown that given the same emotion trigger and a comparable intensity of feeling, adults display a weaker expression when they are alone compared to when they are in a communication situation: The intensity of expression becomes miniaturized, whereas the intensity of feeling remains unchanged. This effect has been confirmed repeatedly for the emotion of joy (Fridlund, 1991; Hess, Banse, & Kappas, 1995; Jakobs, 1998) but could also be replicated for frustration (Holodynski, 2004). The miniaturization effect has also been found in diary studies of everyday emotion episodes in German and Spanish men (Pöpel, 2010) and women (Gendolla Morillo, 1997).

A study comparing adults with preschool children has revealed that the miniaturization effect found in adults is not yet present in preschoolers (Holodynski, 1995). In a cross-sectional study, joy and disappointment were induced in both 6- and 8-year-olds (Holodynski, 2004). Results showed that the 6-year-olds displayed a comparable emotion intensity in both a solitary situation and a contact situation, whereas 8-year-olds displayed a much lower intensity of expression in a solitary compared to a contact situation in both joy and disappointment episodes. These results have now been replicated in a longitudinal study (Hirte, 2003) and generalized to the emotion of disgust when confronted with unpleasant smells (Fölling, 2003).

This dissociation between expression and feeling processes has two decisive benefits for the regulation of emotions and actions: On one hand, it makes it possible to apply expression signs strategically as displays during communication with others without these signs having to correspond to the accompanying emotional feeling. This makes expression control during interpersonal regulation more flexible and adjustable. It becomes possible to match one's expression to so-called cultural display rules—the normative rules that prescribe in which situations one may or should display which expression to whom (see Ekman, 1972).

On the other hand, it is the dissociation between expression and feeling in intrapersonal regulation that first permits the emergence of a world of private feelings to which other individuals have either no or only very indirect access. The expression of infants, in contrast, is still linked so directly to their emotional feeling that one can read off what they are feeling as if it were written in an open book. This suggests that the intimate world of private feelings is a product of the internalization of previously externally perceivable expression signs.

CONCLUSIONS AND OUTLOOK

In the present article, I have recapitulated the three general principles introduced by Vygotsky as a foundation for a cultural-historical approach to the analysis of psychological functions. These are the principle of development, the principle of mediation by culturally coconstructed signs, and the principle of internalization. Applying these principles to the analysis of emotions and their development delivers new and inspiring conceptual considerations. The core idea of this

application is that not only do emotional concepts, that is, verbally mediated meanings, mediate the development of emotions, but on a more basic level, culturally coconstructed expression signs and their assigned meanings mediate the development of emotions.

Expressions as the Primary Interface for the Development of Emotions

A careful analysis of emotional expressions reveals that they function mainly as signs that mediate and regulate social interactions between members of a given culture. Expression signs are constructed culturally and used by individuals because of their appeal function. They are designed to have an effect on the receiver's intentions, so that the receiver will follow the appeal and signal approval by reciprocating to the sender through complementary expression signs. Hence, emotions become culturally shaped primarily not by introducing them in verbally mediated meaning systems but by introducing them in so-called mimetic meaning systems (see also Donald, 2005; Gebauer & Wulf, 1992; Raeithel, 1994), especially from the perspective of young children. Although caregivers who interact with their young children interpret their expressions also in the light of verbally mediated meanings, there is not a one-to-one relation between these two meaning systems. It is a particular developmental task to integrate the use of expression signs into the more comprehensive system of verbally mediated meanings (see Holodynski et al., 2013). It is a still open question whether such an integration is a necessary step for an externalized use of expression signs in order to gain control over one's own emotions.

Findings from a Developmental Analysis

The application of the aforementioned principles to the ontogenetic development of emotions provides intriguing insights for a cultural-historical analysis of emotions:

1. Neonates seem to exhibit a repertoire of five distinguishable emotions that can be labeled as types of distress, endogenous pleasure, interest, disgust, and a startle reaction. Expressing these emotions serves as an appeal to the caregiver to act on behalf of the child in order to satisfy his or her motives. However, comprehensive cross-cultural studies are still necessary to verify the universality of what is assumed to be an innate repertoire.

2. From birth onward, both children and caregivers use expressions to regulate their interaction. The child's expressive reactions are modified by the child's and the caregiver's mutual reactions and interpretations and transformed into meaningful expression signs that represent a repertoire of culturally shaped emotions. More fine-graded cross-cultural studies are necessary to uncover the range and cultural specificity of emotions that children appropriate in the first years of life.

3. When children also become capable of applying a repertoire of motive-serving actions, they are sooner or later encouraged by their caregivers to use their emotions and their subjectively felt expressions for self-regulation as well and to adapt and regulate their emotions in line with cultural norms and expectations. This transition from interpersonal to intrapersonal regulation is a major step in the internalization process that can be observed in the use of speech signs as well as in the use of expression signs. Nevertheless, it still remains unclear how universal this shift is.

4. A further step in internalization is the possibility of transforming bodily signs of expressions into mental signs, thereby enabling the development of a private sphere of emotional feelings. Up to now, it is unclear whether this step in internalization is a developmental outcome particular to Western cultures or is universal.

Outlook on Further Research Topics

A first, interesting strand of research deals with the universal and culture-specific meanings of expression signs. A research strategy could be to assess the meanings that members of a given culture assign to expression signs and to compare them cross-culturally, just like researchers have already done for linguistic terms describing emotional states. This would make it possible to compile culture-specific lexicons of expression signs containing information on which particular appraisal and action readiness each sign refers to, and which particular appeal each sign signals to the receiver (see Kottonau, 2010; Posner & Serenari, 2003; Wierzbicka, 1995, 1999). This analysis would also enable a more fine-tuned interpretation of expressions displayed in an emotional episode. It is, however, a challenge for the future.

A second strand of future emotion research deals with the impact of sociocultural environments on the development of emotions. A research strategy can be to describe the pathways between cultural values, socialization goals, socialization practices, and children's emotion skills in a much more comprehensive way than before. Emotion socialization is universal. Most parents in all cultures care about their children's emotions, emotional well-being, and acquisition of self-regulation. Their caregiving practices already contain implicit messages about desirable emotion outcomes, and cultural differences probably refer to the way support, nurturing, and warmth are expressed along with how caregivers react to children's emotional behavior. Interdisciplinary collaboration between social anthropologists, sociologists, and psychologists can enrich our scientific understanding of emotional development and emotion socialization (see, e.g., Demuth, this issue; Funk et al., 2012; Röttger-Rössler et al., in press).

A third challenging task for future emotion research deals with the interrelations between the cultural coconstruction of emotions by expression signs and by speech signs. The latter contains the verbally mediated system of meanings related to emotions. The task is to uncover the interrelations between the level of emotional regulation mediated by expression signs and their conscious reflection by means of verbally mediated meaning systems (see Magiolino & Smolka, this issue). In emotion research, the latter topic is investigated under the label of emotion understanding (see Meerum Terwogt & Stegge, 1998). These interrelations do not just influence the level of self-awareness with which individuals perceive and interpret their subjective feelings, that is, on an embodied level of self-awareness or already on a conceptual level (Fogel, 2009). These interrelations also influence the ability to volitionally control and regulate the intensity, quality, and duration of an already-elicited emotion. In emotion research, this topic has been investigated under the label of emotion regulation (Gross, 2007). The question of how the appropriation of conceptual knowledge about emotions and the use of speech for self-instruction can influence individuals' ability to volitionally manage their own emotions is a hot topic of emotion research. A cultural-historical approach can contribute challenging insights to this debate as well (see Holodynski et al., 2013).

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