“Putting Feelings into Words” or “Putting Words into Feelings”? Reconsidering the Effect of Emotion Labeling on Emotional Experience

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Introduction

Imagine sitting in the final five minutes before a PhD interview. Your heart races, your hands tremble, and your mind is filled with worry. A friend asks, "How are you feeling?" You reply, "I'm anxious." Does putting this feeling into words help calm your nerves? Or does it intensify your anxiety, as if you're integrating your words into feelings? This paper focuses on the effect of such labeling on emotional experience—whether labeling emotions decreases or increases their intensities. *Emotion labeling* refers to the act of verbalizing or naming one's emotions. It's important to distinguish emotion labeling from affect labeling: "affects" refer to more general subjective feelings (e.g., pleasant or unpleasant), while "emotions" (e.g., anger) are discrete experiential states involving subjective feelings, specific targets, and action tendencies (Lindquist, 2017). Emotion labeling is considered a more ecological and effortless emotion regulation strategy, making it easier to adopt in daily life compared to other strategies (J. B. Torre & Lieberman, 2018). As a result, emotion labeling is widely used in clinical therapy (Marks et al., 2019). Despite the unique value and therapeutic potential of emotion labeling, there is no consensus regarding its effects. Different theoretical perspectives propose different mechanisms (Lindquist, 2017; J. B. Torre & Lieberman, 2018), and research findings remain inconsistent. For example, some studies suggest that naming emotions can decrease their intensities (e.g., Tabibnia, Lieberman, & Craske, 2008), while others indicate that it may intensify them (e.g., Levy-Gigi & Shamay-Tsoory, 2022; McRae, Taitano, & Lane, 2010). To address these inconsistencies, I propose that the predictive coding model could serve as a unified framework to understand emotion labeling and how it shapes emotional experience.

This paper is structured as follows. In the second section, I will briefly discuss two key perspectives on emotion labeling and their limitations. In the third section, I will introduce the predictive coding model, outlining its main components and explaining how it contributes to our understanding of emotion labeling. In the fourth section, I will address previous inconsistent findings by proposing a potential mechanism and related contextual factors, demonstrating how this mechanism can guide future research. Finally, I will summarize the main arguments of this paper and reiterate its scientific and societal implications.

Current Perspectives on Emotion Labeling

There are two main perspectives that attempt to explain the effect of emotion labeling: the implicit emotion regulation perspective and the psychological constructionist perspective. The implicit emotion regulation perspective suggests that emotion labeling functions as a form of emotion regulation (J. B. Torre & Lieberman, 2018). This view is supported by evidence that emotion labeling can reduce participants' subjective feelings (Levy-Gigi & Shamay-Tsoory, 2022; Ortner, 2015). Moreover, neuroimaging studies have shown that emotion labeling is associated with increased activation in the ventrolateral prefrontal cortex (vlPFC) and decreased activation in the amygdala, both of which are considered markers of successful regulation (e.g., Lieberman et al., 2007). The key difference, however, is that emotion labeling does not require conscious supervision or explicit intention (J. B. Torre & Lieberman, 2018). In other words, individuals can regulate their emotions simply by naming them, without being consciously aware that they are using a regulation strategy.

Nevertheless, the implicit emotion regulation perspective does not account for all findings related to emotion labeling. First, emotion labeling does not consistently reduce subjective feelings. For example, Nook, Satpute, & Ochsner (2021) found that participants who labeled their emotions experienced no significant change in feelings, similar to those who passively viewed the stimuli. Additionally, some studies have shown that labeling emotions can even increase emotional intensity (Levy-Gigi & Shamay-Tsoory, 2022; Ortner, 2015). Second, this perspective cannot explain why labeling specific emotion words (e.g., "anger") is necessary for its regulatory effect. Studies have shown that emotion labeling is more effective at reducing emotional intensity compared to labeling other objective aspects, such as gender or the color of a photo frame, suggesting that the effect is not merely due to distraction (e.g., Levy-Gigi & Shamay-Tsoory, 2022). Additionally, research has found that emotion introspection (i.e., being aware of one's current emotions and bodily feelings) increases amygdala activation, indicating that emotion labeling is not simply a process of emotional awareness (e.g., Herwig et al., 2010). These findings suggest that to regulate emotions, individuals must label their feelings using emotion words, rather than just becoming aware of their emotions or using other forms of labeling.

To address these gaps, the psychological constructionist perspective focuses on the role of language in shaping emotional experience (Lindquist, 2017). This approach argues that language is crucial for transforming general sensations, such as affects, into specific and meaningful emotional states (Lindquist, Satpute, & Gendron, 2015; Lindquist, 2017). For example, knowing and using the word "anger" allows individuals to interpret their unpleasant feelings, heightened physiological arousal,

and clenched fists as the emotion of anger. From this perspective, the activation of the ventrolateral prefrontal cortex (vlPFC) during emotion labeling is not evidence of emotion regulation. Instead, the vlPFC is responsible for retrieving semantic knowledge to categorize emotional experiences into distinct states (Lindquist, 2017). However, the psychological constructionist perspective also suggests that emotion labeling might increase amygdala activity, potentially intensifying emotional experiences (Lindquist, 2017; Satpute et al., 2016). This view contrasts with previous findings, which often show reduced amygdala activation following emotion labeling. To account for this inconsistency, this perspective proposes that contextual factors and individual goals may modulate the effects of emotion labeling, although not provides a clear and comprehensive explanation.

The Predictive Coding Model of Emotion Labeling

The predictive coding model offers a framework to explain how emotion labeling influences emotional experience (for a simple illustration, see Figure 1). This model consists of three key components: emotion concepts, interoception, and the predictive coding process. Emotion concepts refer to people's knowledge about specific emotions (Niedenthal, 2008). For example, people have an understanding of what anger "looks like": it is typically associated with feelings of displeasure, aggressive behavior, clenched fists, and so on. However, emotion concepts are embodied and abstract representations. Language, particularly emotion category words (e.g., "anger," "disgust," "fear"), serves as the "glue" that binds these representations together and makes them meaningful to humans (Lindquist, MacCormack, & Shablack, 2015). During emotion labeling, individuals actively retrieve relevant emotion concepts (Lindquist, 2017). For instance, when exposed to negative stimuli and asked to label their feelings as "anger," individuals must recall their conceptual knowledge of "anger" and assess whether it accurately describes their emotional states. Interoception refers to the brain's representation of the body's internal state, including signals from the heart, lungs, gut, and other internal organs (Barrett, 2017). Within the psychological constructionist framework, interoception is considered fundamental to emotional experience (Barrett, 2017; Critchley & Garfinkel, 2017). For example, when an individual's goal is obstructed, they may frown, clench their fists, and experience an elevated heart rate and rapid breathing. These bodily sensations, whether consciously or unconsciously processed, are integrated by the brain, contributing to the overall experience of anger.

Emotion labeling and emotional experience can be conceptualized as the retrieval of emotion concepts and interoceptive signals, respectively. The predictive coding process links these two com-

ponents and explains how emotion labeling shapes emotional experience. Predictive coding is a theoretical framework which describes how the brain processes information by continuously generating and updating an internal model of the environment (Barrett, 2017; Seth, 2013). In the context of emotion labeling, the brain draws on past experiences to make predictions about emotional responses when labeling specific emotions. For example, if individuals labels their feeling as "anger," the brain uses related concepts of anger to predict the corresponding emotional experience like displeasure. These predictions are then communicated to other sensory areas, guiding the body's physiological state. In addition to guiding physiological states, the brain also compares its predictions with actual interoceptive signals. If the interoceptive signals align with the labeled emotion, the emotional experience remains stable. However, when there is a mismatch between the labeled emotion and sensory input, this results in a prediction error, which serves as feedback for the brain to update its predictions. For instance, if the brain labels the emotion as "anger" but detects relaxed bodily sensations, it will adjust its prediction and shift from anger to a calmer emotional state.

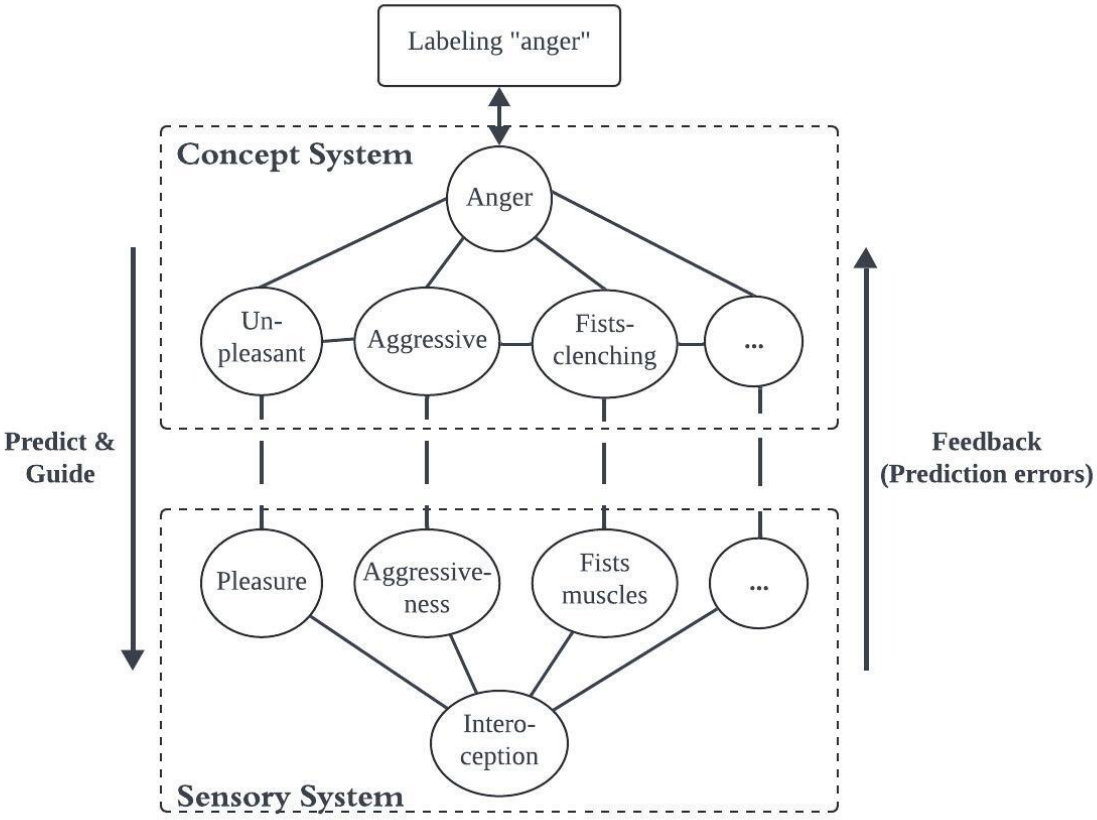

Figure 1: Simple Example of Anger Labeling

Understanding the Effect of Emotion Labeling with Predictive Coding Model

The predictive coding model offers a framework for explaining inconsistent findings on the effects of emotion labeling on emotional experience.

Uncertainty as the mechanism. The uncertainty of predictions (or prediction errors) during labeling likely serves as a key mechanism through which emotion labeling influences emotional experience (J. B. Torre & Lieberman, 2018). According to the predictive coding model, emotion labeling involves generating and categorizing predictions about emotional experiences. These predictions are then compared with actual sensory inputs and experiences. The resulting prediction errors are the focus of attention for the brain. The more prediction errors that are generated, the more attention is directed toward them, as well as to interoceptive signals. For example, when individuals hear a tragic story, they may initially experience vague unpleasant feelings. Simultaneously, their brains retrieve relevant emotion concepts and generate multiple predictions, such as sadness, fear, or anger. When asked to label their feelings using emotion words (e.g., "sadness," "fear," "anger"), they must compare their predictions with their actual feelings to identify the appropriate labels. The greater the uncertainty in their predictions, the more attention they need to direct toward their subjective feelings and the resulting prediction errors. This heightened attention amplifies their self-reported feelings. Conversely, when prediction uncertainty is low, individuals pay less attention to their feelings, resulting in fewer prediction updates and lower self-reported emotional intensity. This explanation is consistent with the role of the amygdala. Theoretical and empirical research suggests that amygdala activation does not merely reflect emotional intensity but rather signals uncertainty or prediction errors (Barrett, 2017; Whalen, 2007). The amygdala is thought to represent uncertainty and prediction errors, conveying these information to the cortex (including the vlPFC), which facilitates further prediction updates. Therefore, the inconsistent findings regarding subjective emotional intensity and amygdala activation following emotion labeling may be attributed to varying levels of uncertainty across different contexts. I identified two key contextual factors: the intensity mismatch between the emotional label and the actual experience, and the degree of freedom in choosing emotion labels.

Contextual factor: Intensity. The intensity mismatch between an emotional label and the actual experience plays a critical role in shaping uncertainty during emotion labeling, which in turn affects emotional experience. When an individual labels an extremely unpleasant feeling with a low-intensity word, the prediction error and uncertainty increase, requiring more attention to inte-

roceptive signals in order to update predictions. Conversely, when the label intensity matches the emotional experience more closely, prediction errors are reduced. This attention process is reflected in the level of amygdala activation. For example, J. T. Torre (2016) investigated the influence of labeled word intensity on emotional experience (Study 1). The study found that amygdala activation was higher in participants who labeled the same negative stimulus with low-intensity words (e.g., "worried") compared to high-intensity words (e.g., "terrified") and categorical words (e.g., "scared"). Beyond neural representation, the discrepancy in intensity also affects self-reported emotional experiences. For instance, Levy-Gigi & Shamay-Tsoory (2022) demonstrated that selecting the most suitable label from two options (e.g., "anger" and "fear") reduced distress when participants viewed highly intense negative images, but increased distress when viewing low-intensity images. Although the intensity discrepancy is a potential explanation, previous studies have not consistently defined or measured it. For instance, different emotional category words convey varying subjective intensities: "anger" may be perceived as more intense than "sadness." The extent to which these intensity differences affect emotional outcomes, and how to precisely measure them, remains unclear. Future research should develop clear methods to measure and manipulate intensity differences and determine when such differences amplify or reduce emotional experiences. Moreover, it is essential to recognize that intensity is not the only label characteristic contributing to uncertainty. Other elements, such as emotion categories, may also influence uncertainty. For example, labeling "anger" instead of "sadness" could increase uncertainty and intensify feelings in a scenario where sadness is more appropriate. Therefore, future research should explore additional factors that may influence uncertainty during emotion labeling.

Contextual factor: Labeling freedom. The degree of freedom in choosing emotion labels should also influence uncertainty, resulting different outcomes of emotion labeling. The degree of freedom can generally be divided into categories, namely freely labeling and constrained labeling. Freely labeling refers to situations where individuals are allowed to choose any word to describe their emotions without constraints. Within the predictive coding framework, this open-ended approach requires individuals to generate a wide range of potential predictions about their current emotional experience, increasing uncertainty. To identify the most appropriate label, individuals must focus more on their subjective feelings, which can intensify their self-reported emotional intensity. In contrast, constrained labeling limits the range of possible predictions by providing a pre-defined set of emotion labels. This approach simplifies the decision-making process by narrowing down options, thus reducing uncertainty. With fewer labels to choose from, individuals may pay less

attention to their feelings and more easily find the best match, resulting in lower emotional intensity. Research supports this distinction. For example, McRae, Taitano, & Lane (2010) found that participants who freely labeled their emotions exhibited heightened physiological arousal, as indicated by increased skin conductance rates, suggesting that free labeling can intensify emotional experiences. Conversely, J. T. Torre (2016) demonstrated that amygdala activation was lower in participants who selected labels from a limited set of options, reinforcing the idea that constrained labeling reduces uncertainty and emotional intensity (Study 3). Thus, the degree of labeling freedom plays a crucial role in modulating emotional intensity through its effect on uncertainty. Future research should further explore how varying levels of constraint in emotion labeling impact emotional regulation and identify optimal conditions for minimizing emotional distress by adjusting labeling freedom. Additionally, researchers should examine individual differences, such as emotional vocabulary breadth, that may affect the degree of labeling freedom and its outcomes (DeLap et al., 2024).

Conclusion

In conclusion, the effect of emotion labeling on emotional experience is not a straightforward "black or white" issue. While labeling emotions can reduce emotional intensity, as in "putting feelings into words," it can also amplify emotions, similar to "putting words into feelings." The predictive coding model offers a more nuanced framework, showing how the brain integrates emotion concepts and interoceptive signals to generate and update predictions about emotional states. A key mechanism underlying the effect of emotion labeling is uncertainty, which helps explain the mixed effects observed in previous research. Specifically, the mismatch in emotional intensity and the degree of labeling freedom are two major contextual factors contributing to these inconsistent findings. Future research should further investigate the moderating role of uncertainty during emotion labeling by identifying additional contextual factors and exploring the conditions under which labeling reduces or intensifies emotional experiences. By deepening our understanding of emotion labeling, we can refine its use as a therapeutic tool and enhance its application in emotional regulation across various contexts (Marks et al., 2019).

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