The Perceptual Learning of Affective Properties

Marta Benenti

University of Murcia

Abstract

This paper investigates the perceptual nature of affective properties—qualities such as sadness, excitement, boredom, or comfort—that we experience as belonging to objects, environments, or events. I propose a taxonomy that distinguishes three classes of affective properties: arousal properties, expressive properties, and affective affordances, each characterized by different relations to perception, affectivity, and response dependence. Drawing on philosophical accounts of high-level perception and ecological psychology, I argue that these properties can be considered at least partly perceptual insofar as they contribute to the phenomenal character of experience. I then explore how we learn to detect and refine our sensitivity to these properties by appealing to the phenomenon of perceptual learning, focusing on mechanisms such as repeated exposure, attentional weighting, conceptual feedback, and emotional responsiveness. While the learning of arousal properties is largely shaped by affective reactions, the learning of expressive properties depends on recognizing perceptual patterns, and the learning of affective affordances relies on accurately perceiving opportunities for effective emotional interaction. I conclude that affective properties are overall amenable to perceptual expertise.

Keywords: Affective properties, Perceptual learning, Arousal properties, Expressive properties, Affective affordances.

1. Introduction

The aesthetic vocabulary offers a particularly rich repertoire of labels referring to properties that we may call "affective", in the sense that they are somehow related to affects while being experienced perceptually. Think for example when we refer to artworks as being amusing, boring or cheerful, or when we describe natural landscapes as desolate, melancholy, or serene. Such qualities are often encountered in our everyday experiences as well, and ascribed to both animated and inanimate objects. If one acknowledges that they can be treated, at least to some extent, as perceivable properties of these objects, then it is worth asking

Argumenta 11, 2 (2026): 413–426
ISSN 2465-2334

DOI 10.14275/2465-2334/202622.ben
First published: 31 May 2026
© 2026 Marta Benenti

what exactly makes them perceptual properties, on the one hand, and how they relate to affectivity, on the other hand.

Many theories of perception deal with these and related questions. For instance, affective properties can be seen as high-level perceptual properties (Stokes 2018), as projective properties that depend on our emotional states (Logue 2018), as properties attributed via affectivity (Goffin 2018), as values or evaluative properties (Tappolet 2016). In this paper, I would like to contribute to this broad debate in two ways. First, I will introduce a taxonomy of affective properties that allows us to treat them as perceptual properties, at least in the sense that they feature into the phenomenal character of our experiences. I will identify three categories, namely arousal properties, expressive properties, and affective affordances (§2). Second, I will elaborate on the way in which we can learn and improve our capacity to detect affective properties. To this aim, §3 will be devoted to introducing the phenomenon of perceptual learning both from a philosophical and a psychological perspective, by combining insights from the scholarship on perceptual learning and insights from the tradition and ongoing discussion in ecological psychology. In §4 I will apply this phenomenon to the learning processes that, I hypothesize, enable us to perceive arousal properties, expressive properties, and affective affordances.

2. Affective Properties: A Taxonomy

The label "affective properties" is admittedly vague. To converge on the kind of properties that I have in mind when I suggest that we encounter affective properties that we experience perceptually, in this section I will identify three kinds of properties, namely *arousal properties*, *expressive properties,* and *affective affordances*. For each of them I will introduce some examples, discuss their perceptual nature, and suggest how they relate to our affective life. Isolating these aspects will prove helpful in assessing the way in which we improve our capacity to detect them. While I believe that this taxonomy captures all affective properties, I am aware that, in actual experiences, they appear in a much less defined way, they intermingle, and they are almost never separable. Still, the idea is that the following characterizations offer a sufficiently refined analytic tool to grasp their paradigmatic differences.

2.1 Arousal Properties

The first class of properties that I have in mind is constituted by *arousal properties*. Think of when we find a speech *boring*, or a pun *amusing*, when we describe a musical piece as *exciting*, or a depicted landscape as *melancholy*, when we deem a situation *scary*, or when we consider a person *attractive*. In all these cases we are ascribing to what we experience some affective quality that corresponds to the way such objects make us feel. In other words, it seems that we can explain these ascriptions in terms of our own emotional reactions to these objects. This means that, while being attributed to objects, these properties are actually the result of some form of *projection* of our own emotions on them. As such, they result from the way in which perceivers react to the stimuli provided by objects or, more broadly, by environments. The property of *scariness* ascribed to a movie entirely depends on the way viewers react to that movie; the property of being *fun* of a joke can be fully explained by the amusement it provokes in listeners.

According to this characterization, the accuracy conditions of our experiences of arousal properties are fixed by our own occurring emotional reactions. Consider a case of disagreement about a joke being fun or not. It is plausible that an agreement is never reached simply because what causes a reaction of amusement in someone does not elicit the same reaction in someone else. While one may reply by pointing out those features of the joke that merit one's amusement—its being particularly well-suited to the context, its subtlety, and the comic timing with which it was delivered—it would be legitimate to reply that, well, we still don't find it amusing as it does not provoke laughter in us. Similarly, it would be pointless to insist, with someone suffering from vertigo, that looking down from the top of the Shanghai Tower is not at all frightening and that they are having a wrong reaction. The arousal property height being frightening is, in this case, fixed by the fear of vertigo sufferers and not by the height itself.

The ascription of arousal properties to works or everyday objects admittedly results in an evaluation of the object (the environment, or some of its features) as somehow relating to our well-being, or at least as positively or negatively valenced. However, it is worth pointing out that they differ from evaluative properties as they are understood, for instance, by theories of values dispositionalism (e.g. Smith 1989). Unlike evaluative properties, which describe how something would elicit emotions under suitable conditions, and therefore allow for possible misattributions, arousal properties can be seen as actualized dispositions. The only sense in which one may go wrong in ascribing an arousal property is by mistaking one's own occurrent feelings. For instance, the property of sexiness is instantiated only while someone is experiencing sexual excitement toward the object, person, situation in question; once that excitement fades, the property no longer holds. Going wrong about such an attribution would amount to misinterpreting one's own unease as sexual excitement. By contrast, evaluative properties as they are understood by values dispositionalism, do not require any such occurrent emotional response.

2.2. Expressive Properties

The second class of affective properties that we encounter is that of *expressive properties*, that is, those emotional expressions that we detect perceptually in other living beings, but also in inanimate objects. We experience facial expressions as expressive of sadness or of *gaiety*, musical pieces as expressive of *anxiety*, architectural spaces as expressive of *solemnity*. While it is reasonable to think that expressive properties are perceived as belonging to objects—they are to the objects "rather like the redness to the apple, than […] like the burp to the cider" (Bouwsma 1954: 98)—it is debated whether such perceptual experience they feature in is enabled by or explicable in terms of non-perceptual mental processes. For example, some have defended that expressive properties can be reduced to arousal properties, being the projection of felt affective states as well (Matravers 1998; Ridley 1995; Robinson 2005). Others have accounted for the experience of expressive properties by appealing to imaginative projection (Levinson 1990, 1996; Walton 1999; Noordhof 2008). Finally, especially in philosophy of music, expressive properties have been qualified as perceptual properties with a *sui generis* phenomenal character (Boghossian 2010; Davies 1994, 2005; Kivy 1980, 2002; Benenti and Meini 2017; Benenti 2020).

One first sense in which expressive properties have a special phenomenal character—that is, they appear in our perceptual experience in a somehow specific way—is that, compared to other perceptual properties, like colours, sounds, or shapes, expressive properties seem to be more response-dependent (e.g. Noordhof 2008). For example, expressive properties can be intentionally neglected, way more than other perceivable properties. Consider, for instance, the case of a novice architect who is so concentrated on the correctness of her calculations as not to pay attention to the expressive properties—the solemnity or the uninvitingness—of the space she is designing. Moreover, the accuracy conditions for the experience we have of expressive properties are not fully exhausted by standard perceivable features such as colors and shapes, like in the case of my experience of the sky as blue or of the book as rectangular. If the sky is blue, then the fact that you do not see it as blue automatically makes your experience incorrect, or inaccurate. Rather, if I see someone's bodily posture as sad it seems that the accuracy of my experience might depend, at least partly, on contextual, cultural, and affective elements. We can thus say that while accessible through perception, expressive properties are less stable than standard perceptual properties. Like "tertiary qualities" (e.g. Verstegen & Fossaluzza 2018; Forlè 2018), they elude precise measurements and emerge from (or supervene on) more stable perceivable cues.

In spite of their variability and perspectival nature, however, expressive properties differ from arousal properties in that they do not depend, for their instantiation, on the perceiver's emotional reaction to the stimuli. Nor, I have argued, do they necessarily result from imaginative engagement with the perceived patterns (e.g. Benenti 2017; 2020). Instead, their instantiation in our experiences is strictly dependent on the perceivable patterns we are presented with. Think again about the case of disagreement. If we were to discuss whether a piece of music sounds cheerful, it would be reasonable (though probably not sufficient) to insist on its audible structure, its rhythm, the resemblance it bears to movements that are typically produced by someone happy. In order to justify our expressive attributions, we may, in other words, point at the way the pattern looks like and in principle can be perceived by others, rather than at how it makes us feel. We may, for instance, say things like: "I can hear the cheerfulness of Christmas jungles, but they don't make me feel cheerful at all".

2.3 Affective Affordances

The third class of identifiable affective properties is that of *affective affordances*, that is, of perceived opportunities for emotional interaction. Introduced relatively recently in the 4E cognition debate, affective affordances account for those cases in which we detect certain cues in our environment as capable of interacting and modifying our affective condition (Krueger and Colombetti 2018; Caravà and Scorolli 2020; Caravà and Benenti 2024). The notion has been patterned after that of *affordances for action* (or affordances, full stop), which are possibilities for motor interaction that we perceptually detect in objects, like the walkability of the street or the graspability of a cup (Gibson 1979).

The nature of affordances, and especially that of affective affordances is still very much discussed. According to some authors, affordances are dispositions or dispositional properties of the environment that manifest themselves when the right conditions, i.e., the right causal relationship between the environment and

an organism, are given (Turvey 1992). According to others, affordances are relationships between the environment and the skills or abilities of an organism that deals with that environment (Chemero 2009; Heras-Escribano 2019). For the sake of this contribution, I will adopt the latter view as it more easily extends to affective affordances. Rather than resulting from a causal chain necessarily leading from the presence of a property in the environment to the realization of an organism disposition, affective affordances should be understood as ways of making sense of how organisms emotionally interact with their environments.

The relational nature of affective affordances makes them capable of capturing both the constants and the variables of many experiences of affective properties. Like affordances for action, affective affordances require the coupling between the environment (or some of its objects) and an organism that interacts with it, given some aim. Similarly to when, driven by the goal of reaching the other side of a room, one perceives the "walkability" of the floor, the goal of feeling emotional healing makes one perceive the solace offered by a sofa. The piece of furniture made of a given material, with a certain shape and occupying a certain portion of the space (e.g. the corner and not the centre of the room) will offer an opportunity for emotion regulation to an organism in an unstable affective condition and in need for comfort. Clearly, a different sofa may not afford the same regulatory opportunity to that organism, and a different organism (one with a different bodily constitution or in a distinct affective condition) may not perceive the affordance of solace in that very sofa.

However, unlike arousal properties, affective affordances are not reducible to the organism's emotional reaction to some stimulus, as they are anchored to the material, perceivable features of the environment. Similarly to how the floor, given its solid texture and its orientation will hardly be perceived as "climbable" by a human adult capable of walking, a soft sofa will hardly be perceived as threatening by someone seeking emotional healing. Yet, unlike expressive properties, affective affordances emerge if and only if they are perceived as capable of moving us. That is, while someone may well ascribe the expressive property of melancholy to a piece of pure music without detecting its potential to move her, the "sadness-inducing" affordance emerges only if we detect the piece's potential to actually alter our affective condition (what Susanna Siegel (2014) calls the *experienced mandates* of affordances).

3. Perceptual Learning

If the taxonomy that I have presented is sound, then one may ask how we improve our capacity to detect affective properties. This question is relevant in two ways, or so I believe. On the one hand, it is relevant because it allows us to assess, from a peculiar angle, the perceptual nature of affective properties. That is, rather than questioning the extent to which these properties are perceivable by focusing on the way they feature in our experiences, we can look at the way we gradually learn to detect them and elaborate on the role that perception, emotions and possibly other cognitive functions play in the related processes. On the other hand, focusing on learning processes of affective properties makes it possible to clarify the explanatory potential and the role of these properties in complex experiences, such as aesthetic and moral ones, in which it is not merely perceptual properties that are perceived, but most likely values (Benenti 2025).

Arguably, learning processes that result in an increased capacity to seize affective properties involve perceptual learning. Importantly, this does not imply that they are fully perceivable properties nor standard perceptual properties, but rather that they are at least partly perceivable. This is consistent with the phenomenal character of the experiences they feature in: when I see the clown's movement as funny, I feel like I am perceiving it as such, even though the affective property of "fun" fully depends on my affective reaction to it. Similarly, when I hear a squeak as sinister, it seems to me that I am seizing a perceivable feature of the sound itself. Finally, when ascribing the affective affordance of being unwelcoming to an environment, I am at least partly describing the way it appears to me. Therefore, perceptual learning processes can be considered at least partly responsible for the learning processes of affective properties.

3.1 Perceptual Training

In a paper from 1963, psychologist Elanor Gibson coined the term "perceptual learning" to refer to changes in perception that result from practice or experience. The phenomenon was not new, having been seized and described by philosophers since antiquity, but the psychological discussion since Gibson's definition allowed to circumscribe it to specific conditions (Connolly 2019). We thus talk of perceptual experiences as resulting from perceptual learning so long as they (i) are the outcome of repeated experiences rather than from physiological or contextual changes, (ii) they become stable in time, rather than being short-lasting, and (iii) they are genuinely perceptual rather than resulting from (certain, to-be-specified kinds of) cognitive integrations. Standard cases of perceptual learning include the *unitization* of perceptual patterns, like when we learn to see a certain arrangement of chess pieces on the board as a unitary consistent formation, and the *differentiation*, like when we train as sommeliers and learn to perceptually distinguish the flavours typical of a given vintages blend (Jenkin 2023; Landers 2021).

The classic example of perceptual learning is that of birdwatchers who improve their capacity to perceptually classify birds by sight (Tanaka and Taylor 1991; Tanaka, Curran, and Sheinberg 2005). When they undergo their training, birdwatchers are repeatedly exposed to exemplars of birds, both depicted and in the natural environment, and these perceptual experiences are accompanied by descriptions and labels that help classify them. As a result, observers learn to perceptually recognize birds as belonging to different categories in a gradually quicker and more accurate way. This process has been accounted for in terms of allocation of attention, i.e. the capacity of focusing on those saliences that allow for perceptual discrimination while overlooking other, less relevant ones. The automaticity of this process is crucial for distinguishing it from standard attention allocation. When successful attentional weighting becomes automatic, then we have perceptual learning (Wu 2014; Stokes 2020).

The effects of having learnt to discriminate among different kinds of birds do not easily fade away. That is, once a birdwatcher is able to tell a Hose Sparrow (*Passer Domesticus*) from a Song Sparrow (*Melospiza Melodia*), she will hardly go back to the situation in which she was not able to do that. The permanence of perceptual learning effects has been explained in terms of "stimulus imprinting", that is the neural modification of the perceptual system which develops

specialized detectors at the level of the inferior temporal cortex, following repeated exposures (Goldstone 1998; Gilbert et al. 2009).

Finally, which long-lasting changes in perceptual discrimination count as genuinely perceptual is debated. This is unsurprising, given that the boundaries of perception are themselves the object of ongoing philosophical discussions (e.g. Siegel 2010; Macpherson and Hawley 2011). The crucial difficulty is to distinguish modifications that take place and persist in perception from post-perceptual modifications, that is, changes that have to do with what one believes, thinks, imagines about one perceptual content. If we think again of birdwatchers, it is reasonable to suppose that part of the training they undergo consists in applying new conceptual knowledge to what they see. They learn to interpret certain perceptual features—e.g. the size of the birds, their colours, their typical movements, their singing—as pertaining to a given species. While this new way of looking at the stimuli will help watchers to categorize the birds correctly, it will not count as perceptual learning until the recognition occurs automatically, without mobilizing explicit instructions.

3.2 Purely Perceptual Training and Cognitive Integrations

The idea that perceptual learning can occur in absence of cognitive interventions has been widely explored. In ecological psychology, within which the phenomenon was originally introduced, perceptual learning is mainly conceived as resulting from direct perception of informationally rich arrays in which, given a certain practical aim, an organism improves its capacity to select the most useful variables (Gibson 1966). Accordingly, by being repeatedly exposed to features of the environment, we train our attention and gradually adjust our behaviours to fulfil our goals (Gibson 1991; Jacobs & Michaels 2007). Along similar (yet not fully compatible) lines, more traditional approaches to perceptual learning have focused extensively on the effects of repeated and systematic exposure to stimuli as a source of learning, like in the well documented "mere exposure effect" (Zajonc 1968; Gordon & Holyoak 1983; Bornstein 1989), that is the tendency to prefer stimuli to which we have been repeatedly exposed in the past.

Moreover, both approaches admit to perceptual training that is integrated by some cognitive interventions like the verbal feedback one receives while learning to categorize birds, play chess, or identify a variety of wine. One way of accommodating genuinely perceptual changes with cognitive interventions that might play some role in perceptual changes (such as practices of verbal categorization, see e.g. Benenti *forthcoming*), consists in appealing to the phenomenon of cognitive permeation of perception (Siegel 2012; Stokes 2013; Lupyan 2015). If one is prone to agree that perception is, at least at the phenomenal level (MacPherson 2012), permeable to our beliefs, then perceptual learning might give as its output perceptual experiences permeated or shaped by beliefs. While I prefer to remain neutral about cognitive permeation in general, I stand with views that favour perceptual learning when the two phenomena seem to overlap (Arstila 2016; Ransom 2020). That is, even if perceptual training can include conceptual training such as entertaining beliefs about what one perceives, following explicit verbal explanations or labelling association to categorize perceptual items, this does not imply that the resulting perceptual experience is cognitively permeated. Admittedly, ecological psychology scholarship is more resistant to including in training process stimuli that are not inherently perceptual.

Nonetheless, recent discussions about the way in which our social environment shapes the detection of affordances by educating our intentions suggest that social norms may function as constraints that are not necessarily perceptually salient (Segundo-Ortín 2022).

4. Learning to Perceive Affective Properties

Therefore, although the way in which perceptual and cognitive training interact in perceptual learning is philosophically controversial, perceptual expertise can be understood as resulting from repeated exposure to perceptual stimuli, sometimes paired with conceptual feedback that shapes and directs subsequent perceptual experiences. This overview allows me to go back to the question of how we learn to detect affective properties and to put forward a speculative proposal that, thanks to its empirical grounding, might lend itself to empirical testing.

4.1 Learning to Perceive Arousal Properties

Arousal properties, as I have introduced them, are dispositional properties. Their manifestation in experience depends on the perceiver's emotional reaction to some perceivable pattern whose perceptual nature is not responsible for the affective properties that can emerge. Two subjects may find the same slip on the banana peel amusing and grotesque, but the way the action looks like to either is only the beginning of a causal chain resulting in different ascriptions—whose justification resides in the subjects' affective reactions.

However, admitting that a causal connection links perceptual properties of objects to emotional reactions does not exclude perceptual experience from the training we undergo when we improve our capacity to detect arousal properties. On the contrary, the just mentioned "mere exposure effect", which is an eminently perceptual phenomenon, offers a good explanation of learning processes enabling the ascription of arousal properties. The tendency to favour those stimuli we are more familiar with, has been observed in a wide variety of domains, ranging from graphic signs to abstract artworks, and is attested both in cases in which subjects recognize the stimuli they are presented with, and in cases in which stimuli remain on a subliminal level (Bornstein 1989: 273–275). Overall, the positive affective reactions that are recorded after repeated exposure decrease once the limit of overexposure is reached and boredom intervenes (Bornstein 1989: 281). Accordingly, perceptual exposure results not only in increased perceptual acuity, but also in changes in affective sensitivity to those stimuli (Klorman 1974), and these changes can function as feedback about the stimuli that they are caused by. For example, repeated exposure to horror movies' scenes might end up in decreasing the arousal of viewers and therefore have an impact on the way they will attribute arousal properties to movies within that genre.

The developmental perspective on affective learning seems to corroborate this idea. According to Daniel Stern's theory of affect attunement in infancy, young children learn to ascribe and self-ascribe emotional states through emotional reactions to behavioural stimuli provided by caregivers (Stern 2010). At the very basis of affective learning, this process includes the perceptual experience of patterns like smiles, postures, movements offered by adults (but, notably, also by objects such as music), the emotional reaction of the child, and the subsequent response of the caregiver, that may or may not match the children

affective manifestation. This allows children to gradually adjust their emotional reactions to the stimuli that provoked them. As Stern writes, this matching/mismatching dynamics "can shape what the infant does and how he feels about doing it. It is like sculpting his mind from the inside out. It is a powerful tool in the parent's ongoing socialization of the infant into the family and wider culture" (Stern 2010: 115). This phenomenon can be redescribed, I suggest, in terms of an improvement in the capacity to ascribe arousal properties. On the one hand, this requires a process of familiarization with certain perceptual stimuli such as emotional expressions, while on the other hand it consists in adjusting one's emotional reaction so as to make it as consistent as possible with the social environment one is immersed in. The arousal properties attributed to the stimuli will therefore change as the emotional reactions change (intensify, attenuate, but possibly also as their valence changes).

This allows us to think that learning processes that improve our capacity to attribute arousal properties rely on perceptual training as it is causally connected to emotional reactions. Beyond this minimal level, learning processes are likely to require focused attention to the perceptual stimuli such that ascriptions of arousal properties may become subject to normative scrutiny. That is, one may question the adequacy of one's emotional reaction and therefore the legitimacy of the subsequent ascription. Am I correct in crying in front of a cheesy movie scene, thereby considering it moving, or my emotional reaction is, all things considered, unjustified? Answering this kind of question might require one to go back to the expressive properties of the movie scene (and probably its artistic qualities) looking for justifications. Still, at least on a purely theoretical level, arousal properties remain the causal outcome of emotional reactions, regardless of their being justified or unjustified by the stimuli that generate them.

4.2 Learning to Perceive Expressive Properties

Conceived as perceivable profiles, contours, or patterns, expressive properties can be treated as perceptual properties that one becomes gradually better at detecting thanks to a combination of exposure and of conceptual feedback. For example, the capacity to accurately distinguish between different kinds and intensity degrees of expressiveness in human emotional manifestations through facial expressions has been shown to depend on perceptual training (e.g. Yangyang et al. 2016; Apps et al. 2013, Hasegawa et al. 2013). Moreover, while perceptual learning as increasing our capacity to ascribe expressive properties to music has not been tested directly, the perceptual nature of these properties and the role of perceptual training have been widely defended (e.g. Davies 1994; Kivy 1980; Benenti and Meini 2017; Juslin 2019; Honing & Ladinig 2009). It can accordingly be argued that, by exposing ourselves to expressive music, we likely improve our abilities to detect increasingly subtler affective contours, distinguishing them from similar ones, drawing connections among them and to the paradigmatic affective states they convey. What is improved in this case is one's sensitivity to perceptual differences or to patterns combinations associated with emotions.

Consistently with the view that perceptual expertise can be accounted for in terms of improving one's capacity to detect gestalt properties (Landers 2021), expressive properties, like the sounding sombre of a musical gesture, seem something that we can learn to detect simply by being exposed to them. However, this is not incompatible with the view that becoming expert perceiver of expressive

gestalt may require as an additional condition that one receives some form of formal or theoretical training (Stokes 2020). Conceptual feedback is, for instance, involved in musical training. As it has been shown, offering musicians linguistic instructions on how to perform musical pieces in an expressive fashion is particularly effective, especially compared to methods that, rather, rely on the musicians' feelings (e.g. Juslin et al. 2004; Woody 2000). Contrary to the myth that musical expressiveness cannot be taught as it entirely depends on one's personal sensitivity and affective inclinations, Patrik Juslin and Petri Laukka (2000) have developed a method for improving musicians' capacity to produce expressive music through cognitive feedback. In their seminal experiment, performers—who are already perceptually acquainted with examples of expressive music—were given information about the degree to which their performances managed to communicate emotions to the audience. Through verbal instructions about how to manipulate auditory cues, musicians improved their accuracy in emotions communication.

4.3 Learning to Perceive Affective Affordances

Finally, our capacity to ascribe affective affordances in a gradually more precise and fine-grained way undoubtedly depends on perceptual exposure to environmental saliences. According to ecological psychology, we learn to perceive affordances for action through our perceptual and motor engagement with the environment's rich informational cues, aligned with our goals. In selecting the relevant information in the environment, given the goal that we want to reach, we encounter constraints that contribute to specify such information. For example, in becoming better skiers, we learn to quickly detect the opportunities for sliding on the ground under constraints such as the visual delimitations alongside the route, the sticks along the path, the irregularities of the snowy surface, the bodily limitations imposed by the skis. Exposure to these cues specifies the information that we need to perceptually grasp in order to effectively ski. Importantly, such cues are not limited to our material environment, but they rather encompass social saliences (Gibson 1979), like when we perceive certain behaviors as appropriate in a given context in virtue of what we have been taught by our community. Thus, perceptual exposure would be responsible for the direct learning of affordances emerging from the interaction with material as well as social features surrounding us.

Improving one's ability to detect affective affordances might accordingly depend on the repeated perceptual interaction with the perceivable properties of the environment with the aim (which can be more or less overt to the subject) of modulating one's affective condition. These properties mostly amount to expressive properties. For example, by being exposed to expressive cues of music, we increase our capacity to detect them as opportunities for regulating our own emotions (Caravà and Benenti 2024) when we are more or less intentionally inclined to do so. Similarly, by interacting with expressive saliences of everyday objects, we develop affective relations with them, such that we ascribe affective affordances in a gradually more stable fashion (Caravà and Scorolli 2020). Or, by being exposed to certain expressive behaviours, we may become more accurate in seizing their potential to make us feel at ease or, rather, uncomfortable. Like in the example of skiing, in which bodily movements provide one with feedback that constrains subsequent perception, affective reactions constrain subsequent

perceptual experiences of similar stimuli (Meaux et al. 2019). Amusement responses to stimuli, such as the slide on the banana peel, will gradually contribute to re-orient our attention to the stimulus as a perceptual opportunity to have fun. Similarly, scared responses to sharp objects will constrain our subsequent perceptual experiences of such profiles as affording fear.

Notably, the perceptual training of affective affordances does not in principle exclude cognitive training. For instance, if one is prone to accept that social norms constrain the possibility that we perceive certain affordances for action (McClelland & Sliwa 2023), then the training required to detect affective affordances might include analogous, non-perceptual constraints. We might for instance learn to perceive certain bodily attitudes, such as speaking while staring into the eyes of the interlocutor, as affording embarrassment or unease. Changing cultural context, however, the very same attitude might afford confidence and reliability. This difference can be easily explained by pointing at those cultural norms that one gradually internalizes and that determine—in a non-perceptual manner—the selection of the relevant affective affordances. Maybe needless to say, the nature of the cognitive training that is involved here deserves further discussion. However, this introductory explanation suffices to enrich the picture of perceptual learning processes for affective affordances.

5. Conclusion

Although they entertain different relationships with emotions, the affective properties I have described are grounded in perception. This is attested by their being genuine, though complex, objects of perceptual learning. On the one hand, I have tried to account for the differences of the learning process that improve our capacity to detect each kind of property. While arousal properties depend more heavily on emotional responses, expressive properties rely on perceptual cues and pattern recognition, and affective affordances emerge through the dynamic interaction between the perceiver's bodily and affective condition and the perceivable environment. On the other hand, despite these differences, our sensitivity to all three kinds of affective properties improves through repeated perceptual exposure that can be integrated and complemented by emotional feedback, and conceptual guidance. Hopefully, this proposal contributes to do justice to the role of perception in complex, evaluative experiences such as aesthetic and moral ones. In addition, it promises to do so in a way that is palatable to philosophers and psychologists embracing different scholarly traditions.[1]

References

Apps, M. A. J., and Tsakiris, M., 2013. Predictive codes of familiarity and context during the perceptual learning of facial identities. *Nature communications*, 4, 2698.

[1] This project has received funding from the European Union's Horizon Europe research and innovation programme under the Marie Skłodowska-Curie Actions grant agreement N° 10.3030/101062570. I am grateful to the participants in the 2024 Workshop "Mind, Art & Technology", IUSS, Pavia, for their insightful comments on an earlier version of this article.

Arstila, V. 2016. Perceptual learning explains two candidates for cognitive penetration. *Erkenntnis*, 81 (6), 1151–1172.

Benenti, M., 2017. Expressive experience and imagination. *Proceedings of the European Society for aesthetics*, 9, 46–72.

Benenti, M., 2020. *Expressiveness: perception and emotions in the experience of expressive objects*. Berlin: De Gruyter.

Benenti, M., 2025. Aesthetic experience in light of affective affordances. *Topoi*. Online first: https://doi.org/10.1007/s11245-025-10314-0.

Benenti, M., 2026. The role of concepts in the perceptual learning of aesthetic properties. *Rivista italiana di filosofia del linguaggio*, 222-236.

Benenti, M. and Meini, C., 2017. The recognition of emotions in music and landscapes: extending contour theory. *Philosophia*, 46 (3), 647–664.

Boghossian, P., 2010. Explaining musical experience. *In*: K. Stock, ed. *Philosophers on music: experience, meaning, and work*. New York: Oxford University Press, 117–129.

Bornstein, R. F., 1989. Exposure and affect: overview and meta-analysis of research, 1968–1987. *Psychological bulletin*, 106 (2), 265–289.

Bouwsma, O. K., 1954. The expression theory of art. *In*: W. Elton, ed. *Aesthetics and language*. Oxford: Blackwell, 73–99.

Caravà, M. and Benenti, M., 2024. Not so blue to be sad: affective affordances and expressive properties in affective regulation. *Topoi*, 43, 713–724.

Caravà, M. and Scorolli, C., 2020. When affective relation weighs more than mug handle: investigating affective affordances. *Frontiers in psychology*, 11:1928.

Chemero, A., 2009. *Radical embodied cognitive science*. Cambridge, MA: MIT Press.

Connolly, K., 2019. *Perceptual learning: the flexibility of the senses*. Oxford: Oxford University Press.

Davies, S., 1994. *Musical meaning and expression*. Ithaca: Cornell University Press.

Davies, S., 2005. *Themes in the philosophy of music*. Oxford: Oxford University Press.

Forlè, F., 2018. *Qualità terziarie: saggio sulla fenomenologia sperimentale*. Milano: Franco Angeli.

Gibson, E. J., 1991. *An odyssey in learning and perception*. Cambridge, MA: MIT Press.

Gibson, J. J., 1966. *The senses considered as perceptual systems*. Boston: Houghton Mifflin.

Gibson, J. J., 1979. *The ecological approach to visual perception*. Boston: Houghton Mifflin.

Gilbert, C. D., Li, W., and Piech, V., 2009. Perceptual learning and cortical plasticity. *Annual review of neuroscience*, 32, 1–24.

Goffin, K., 2018. The affective experience of aesthetic properties. *Pacific philosophical quarterly*, 100(1), 283–300.

Goldstone, R. L., 1998. Perceptual learning. *Annual review of psychology*, 49, 585–612.

Gordon, P. C. and Holyoak, K. J., 1983. Implicit learning and generalization of the "mere exposure" effect. *Journal of personality and social psychology*, 45 (3), 492–500.

Heras-Escribano, M., 2019. *The philosophy of affordances*. New York: Routledge.

Hasegawa, H., Unuma, H., and Kellman, P. J., 2013. Perceptual learning of facial expressions. *Journal of vision*, 13 (9), 254.

Honing, H. & Ladinig, O., 2009. Exposure influences expressive timing judgments in music. *Journal of experimental psychology: human perception and performance*, 35 (1), 281–288.

Jacobs, D. M. and Michaels, C. F., 2007. Direct learning. *Ecological psychology*, 19 (4), 321–349.

Jenkin, Z., 2023. Perceptual learning and reasons-responsiveness. *Noûs*, 57, 481–508.

Juslin, P. N., 2019. *Musical emotions explained*. Oxford: Oxford University Press.

Juslin, P. N. and Laukka, P., 2000. Communication of emotions in vocal expression and music performance. *Psychological bulletin*, 129 (5), 770–814.

Juslin, P. N., Friberg, A., Schoonderwaldt, E., and Karlsson, J., 2004. Feedback learning of musical expressivity. *In*: A. Williamon, ed. *Musical excellence: strategies and techniques to enhance performance*. Oxford: Oxford University Press, 247–270.

Kivy, P., 1980. *The corded shell: reflections on musical expression*. Princeton: Princeton University Press.

Kivy, P., 2002. *Introduction to a philosophy of music*. Oxford: Oxford University Press.

Klorman, R., 1974. Habituation of fear: effects of intensity and stimulus order. *Psychophysiology*, 11 (1), 15–26.

Krueger, J. and Colombetti, G., 2018. Affective affordances and psychopathology. *Phenomenology and the cognitive sciences*, 17 (3), 579–596.

Landers, C., 2021. Specialized visual experience. *Philosophical quarterly*, 28 (1), 74–98.

Levinson, J., 1990. Beauty and the imagination. *Philosophy and phenomenological research*, 50 (2), 417–427.

Levinson, J., 1996. Musical expressiveness. In: *The pleasures of aesthetics: philosophical essay*s. Ithaca: Cornell University Press, 90–126.

Logue, H., 2018. Can we visually experience aesthetic properties? *In*: A. Bergqvist and R. Cowan, eds. *Evaluative perception*, Oxford: Oxford University Press, 42–57.

Lupyan, G., 2015. Cognitive penetrability of perception in the age of prediction. *Review of philosophy and psychology*, 6 (4), 547–569.

Macpherson, F., 2012. Cognitive penetration of colour experience. *Philosophy and phenomenological research*, 84 (1), 24–62.

Macpherson, F. and Hawley, K., ed., 2011. *The admissible contents of experience*, Oxford: Wiley-Blackwell.

Matravers, D., 1998. *Art and emotion*. Oxford: Oxford University Press.

McClelland, T. and Sliwa, P., 2023. Gendered affordance perception and unequal domestic labour, *Philosophy and phenomenological research*, 107, 501–524.

Meaux, E., Sterpenich, V., and Vuilleumier, P., 2019. Emotional learning promotes perceptual predictions. *Scientific reports*, 9, 16867.

Noordhof, P., 2008. Expressive perception as projective imagining. *Mind and language*, 23 (3), 329–358.

Ransom, M., 2020. Expert knowledge by perception. *Philosophy*, 95 (3), 309–335.

Ridley, A., 1995. Musical sympathies: the experience of expressive music. *Journal of Aesthetics and Art Criticism*, 53, 49–57.

Robinson, J., 2005. *Deeper than Reason*. Oxford: Oxford University Press.

Segundo-Ortín, M., 2022. Affordances and social perception. *Synthese*, 200 (5), 1–18.

Siegel, S., 2010. *The contents of visual experience*. Oxford: Oxford University Press.

Siegel, S., 2012. Cognitive penetrability and perceptual justification, *Noûs*, 46, 201–222.

Siegel, S., 2014. Affordances and the contents of perception. *In*: B. Brogaard, ed. *Does perception have content?*. Oxford: Oxford University Press, 39–76.

Smith, M., 1989. Dispositional theories of value. *Proceedings of the Aristotelian society*, 63, 89–115.

Stern, D., 2010. *Forms of vitality*. Oxford: Oxford University Press.

Stokes, D., 2013. Cognitive penetrability of perception. *Philosophy compass*, 8, 646–663.

Stokes, D., 2018. Rich perceptual content and aesthetic properties. *In*: A. Bergqvist and R. Cowan, eds. *Evaluative perception*. Oxford: Oxford University Press, 19–41.

Stokes D., 2020. On perceptual expertise. *Mind & Language*, 36, 241–263.

Tanaka, J. and Taylor, M., 1991. Object categories and expertise. *Cognitive psychology*, 23, 457–482.

Tanaka, J. W., Curran, T., and Sheinberg, D. L., 2005. The training and transfer of real-world perceptual expertise. *Psychological science*, 16 (2), 145–151.

Tappolet, C., 2016. *Emotions, values, and agency*. Oxford: Oxford University Press.

Turvey, M., 1992. Affordances and mental representation. *Ecological psychology*, 4 (3), 199–207.

Verstegen, I. and Fossaluzza, C.M., 2018. Tertiary qualities. In: *Paolo Bozzi's Experimental Phenomenology*. London: Routledge, 345–364.

Walton, K., 1999. Projectivism, empathy, and musical tension. *Philosophical topics*, 26 (1–2), 407–440.

Woody, R. H., 2000. Learning expressivity in music performance. *Research studies in music education*, 14 (1), 14–23.

Wu, W., 2014. *Attention*. London: Routledge.

Yangyang, D., Zhang, F., Wang, Y., Bi, T., and Qiu, J., 2016. Perceptual learning of facial expressions. *Vision research*, 128, 19–29.

Zajonc, R. B., 1968. Attitudinal effects of mere exposure. *Journal of personality and social psychology*, 9 (2), 1–27.