

10. 60-WORD ABSTRACT

While we applaud the general aims of the target article, we argue that Affective Social Learning completes TTOM by pointing out how emotions can provide another route to acquiring culture, a route which may be quicker, more flexible and even closer to an axiological definition of culture (less about what *is*, and more about what *should be*) than TTOM itself.

11. 1000-WORD MAIN TEXT

The quest to identify what is unique to being human tends nowadays to highlight two dimensions: an individual's ability to represent the mental states of one's conspecifics, or, *theory of mind*, and a social organisation that is highly dependent on shared practices and beliefs, or, *culture*. For a long time now, these two aspects of human life have been studied by disciplines that did not interact much: psychologists focussed on *internal* mentalistic processes, whereas sociologists and cultural anthropologists were interested in the *external* properties of cultural processes and institutions. Recently, however, more and more researchers from both sides acknowledge not only that psychological life does not occur in a social void, but also that the acquisition of culture necessitates complex social and psychological processes (Clément and Dukes, in review).

While the birth and development of theory of mind has given rise to a great number of articles and lines of research, attempts to understand how individuals blend into their culture have been far less numerous. One of the difficulties is that much of what is expected from members of any given culture (body practices, food preferences, ways of speaking, etc.) is not explicitly transmitted. Individuals have therefore to figure out what is expected of them. The model exposed in the target article, Thinking Through Other Minds, does an excellent job at explaining how this process is underpinned by “the ‘lens’ of expectations about another’s expectations” and how the kind of expectations that “*Homo Sapiens* have leveraged most over their phylogenetic history involve the capacity to ‘outsource’ cognition to relevant others” because it is these “evaluations by others that make worlds ‘meaningful’ for humans” (p.XX). One of the strengths of this model is to show that a standard view of theory of mind is insufficient to explain how culture is transmitted. When new members are trying to figure out what kind of behaviours are expected from them, they are usually not trying to represent other mental states. Most often, in fact, they are observing their social surroundings, trying to imitate what must be done. The concept of cultural affordance, that we also defend (Kaufmann & Clément, 2014), indicates how individuals can behave appropriately, even if they do not master explicitly the ‘rules of the game’.

However, while we entirely agree with the idea that it is possible to follow the norms and rules of a given culture “without engaging with others’ interiority” (p.XX), we believe that the scaffolding of attentional processes is not sufficient to explain how culture is transmitted. Of course, it is crucial to detect the right models to imitate, notably through social status or prestige, and even children are good at doing this (Cheruffedine et al.; Chudek et al.). It is also important to organize collectively cultural niches that will guide attention to what is socially relevant to reproduce the “regime of attention”(p.XX) that characterizes the mastery of any cultural forms. But these aspects of cultural learning do not do justice to the intrinsic *normative* dimension of culture. For instance, a child can detect via others that a given object or behaviour is worthy of attention. However, this does not yet specify how this object has to be evaluated or *appraised*. It is, for example, possible to be attracted by

a particular behaviour because it is highly despicable in a given culture (spitting on the ground). Or the same object (a trinket) can be judged as highly valuable in one community (collectors of said trinkets) but ludicrous in another (members of the ‘high society’).

Fortunately, humans are endowed with a faculty that plays an essential role in such evaluative processes: *emotions*. In the context of cultural learning, it is the valence and the intensity of others’ emotional expressions in particular that can be used to detect what is expected from each member. From a very early age, babies are sensitive to the emotional valences and intensities that help them evaluate their environment (Sorce & al., 1985). For us, emotions play such an important role in the process of socialisation that we recently proposed the concept of Affective Social Learning to refer to the different processes enabling humans (and, to a lesser extent, non-human primates) to use others’ emotional expressions to figure out the norms and values intrinsic to any social group (Clément & Dukes, 2017; Dukes & Clément, 2019). One of the advantages of Affective Social Learning is to show that the transmission of values can follow different paths, marked notably with variable intensities of intentionality. For instance, a first and basic evaluation of an object, person or situation can rely on *emotional contagion* (e.g. parents becoming anxious in the presence of out-group members). Affective social learning can also involve active exploration by the new member, even when the model is not aware that her emotional expressions are being observed. This is what we call *affective observation* (e.g. the expression of disdain for less fortunate people). When the model is explicitly communicating an emotional reaction, we find ourselves in a more classic situation: *social referencing* (e.g. a proud smile from her mother will encourage a child to browse the shelves of the public library). Finally, the transmission of values can be very explicit, with guidance by a passionate teacher who is planning the different steps of an interesting learning process, a procedure that could be called *natural pedagogy*.

Taking emotions into account completes the TTOM approach by pointing out another route to acquiring culture, a route that may be *quicker* (in terms of the reduced frequency of behavioural corrections or encouragements), *closer* to an axiological definition of culture (less about what *is*, and more about what *matters* and what is *meaningful*) and indeed may prove more *flexible* to the constant changes in cultural values than the model portrayed in the target article that relies on stability (see limitations, p. **XX**).

12. ALPHABETICAL REFERENCE LIST

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