THE COMMUNICATIVE DEMANDS OF TOOLMAKING SKILL TRANSMISSION

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Hypotheses about the co-evolution of language and toolmaking consider both the cognitive demands of production and the communicative demands of social transmission. Regarding the latter, it has been suggested that increasingly complex toolmaking technologies required and selected for more complex communication technologies (Gärdenfors and Högberg 2017, Goren-Inbar et al. 2018, Laland 2018; for a different approach, see Tennie 2017). I evaluate this hypothesis considering Dor's (2015) theory of language and Donald's (1991) theory of mimesis. According to Dor (2015), the distinguishing feature of language is that it is an instructive communication technology rather than an experiential one; it aims not to show an experience (as one does, for example, with pointing and pantomime), but rather to provide the receiver with instructions on how to imagine it. Its unique function is therefore the instruction of imagination. Donald (1991), as well as other researchers, has suggested a mimetic stage in human evolution, in which communication was intentional, representational and multi modal, but lacked compositionality and arbitrariness. This experiential communication technology would have been highly valuable for interactions confined to the here-and-now, including the ones involved in the social transmission of skills. Consequently, I argue that the unique function of language - the instruction of imagination - is not necessary for toolmaking skill transmission, and that mimetic communication, its likely precursor, is sufficient. To demonstrate this, I review evidence from both ethnographic and experimental studies.

Hunter-gatherer ethnographies suggest that the social learning of skills relies mainly on observation, experimentation, participation, and play (e.g. McDonald

2007, Hewlett 2016, Lew-Levy et al. 2017). Explicit instruction is rare, a fact that might be related to the emphasis on personal autonomy common to forager societies. More elaborate use language, in conversations and storytelling, focuses primarily on social norms. Studies of traditional stone cultures (Hampton 1999, Stout 2002) describe how the social transmission of toolmaking skill is facilitated through group activities with simple, context-bound interactions embedded in the here and now. Feedback consists mostly of gestures and short utterances (e.g. 'do it here', 'don't do that') that are easily emulated by mimetic communication.
Experimental studies comparing gestural and verbal teaching of toolmaking skills also demonstrate that gestural communication is sufficient, and most have found that language does not improve transmission (Onhuma et al. 1997, Putt et al. 2014, Morgan et al. 2015, Lombao et al. 2017, Cataldo et al. 2018). I therefore conclude that mimesis would have been sufficient for the social transmission of toolmaking skills. The ethnographic evidence suggests the same is true for other hominin skills like hunting and foraging. Finally, I would suggest that in terms of cultural demands, it wasn't teaching per se that drove language evolution, but rather the structuring of social norms through complaints, gossip and storytelling.

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