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Author
Malone, Kareen Ror

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Culture and the Subversion of Cognition

Kareen Ror Malone (kmalone@westga.edu)
Department of Psychology, State University of West Georgia
Carrollton, GA 30117 USA

Abstract

This paper seeks to conceptualize some of the issues at stake when cognitive science seriously takes up the question of culture. A number of approaches have begun to consider cultural context as more than yet another variable, the complexity of which will simply require more sophisticated computational models. Rather these approaches have undertaken to research the very form of cognition differently, as situated, distributed, and as a social practice. In these new endeavors, what is the implicit model of culture that is being used? This paper raises this essential theoretical question and takes Michael Tomasello's work on cognition, language, and culture as an example of how recent approaches in cognitive science can raise foundational questions on the relationship of culture to cognition.

Introduction: The Culture Question is Big

In the wake of a growing interest in the relationship between cognition and culture, it is important to supplement descriptive research and disciplinary debates with further reflection on the meaning and theoretical function of culture within cognitive science. What does the category of culture do for the study of cognition? Further, what does an interrogation of the concept of culture within cognitive research reveal about the range and function of culture as an analytic category? It would be a shame, at this time of intellectual energy and innovation, to simply fall into a default understanding of culture, imported and patched together from other disciplines (such as anthropology, sociology, or psychology). It would be equally dismaying to pre-suppose what is meant by culture as being part and parcel of other new factors current under the cognitivist eye (such as embodiment or social practice).

A paper that fully examines culture as an analytic category is extremely ambitious. Ideally, it would review all the formulations of culture implied by different regnant approaches to cognitive research and determine their commonalities, scrutinize their biases, and cull a more generalized formulation that would help push cognitive science research forward. But the aims of this essay are more modest. The paper begins by examining some of the motivations that have inspired the turn to culture within cognitive studies, not to rehearse arguments that are better made by others, but in order to show the manner in which these debates frame how culture has been viewed within cognitive research. Then it teases out some of the implications of the work of Michael Tomasello (1999) on language, intersubjectivity and cognition to indicate how both his and Vygotsky's (1979) insights push the envelop of the place of culture within cognition.

Although one can surmise from the tenor of my argument that I would hope for a broader understanding of culture within the science of cognition, it seems that many of the important pieces for such a broad conceptualization of culture are in place. New paradigms in cognitive research that question the external/internal division, that look at cognition as situated, embedded, and/or embodied provide novel ways of conceiving the interface of culture and cognition. A variant on the culture/cognition question, the relation of science studies (cultural influences) to our understanding of scientific objectivity and method demonstrates what can happen to the culture/cognition question if it is posed without an adequate orientation to the specifics of its formulation. Science studies reiterate the sway of political investment and social representational practices on the production of scientific knowledge. Their arguments are often compelling and it is indeed a naive view of science that would be blind to political and social forces within its midst. But seldom have science studies adequately demonstrated how such influences are more than correlative, supportive, or contextual. Surely not all human activities are reducible to their socio-political preconditions (Martin, 1994/1998). Predictably, the response to science studies has been that cultural influences may contour the rhetorical frame of the products of cognition or shape the questions one asks (in the context of discovery), but culture is not a constitutive part of scientific cognition. Thus the question of how cultural influences are integral to the process of knowledge making itself, if they are relevant, remain unanswered or answered much differently depending upon whom you ask (see also Longino, 1990).

A more productive path might pursue empirical research into cognition in dialogue with historical practices and cultural contexts. This approach can give us a better picture of how these two interwoven dimensions work together (see also Nersessian, 1996; Nersessian, forthcoming). The emerging field of cognition and culture provides an alternative to this standoff between proponents of a culturalist view and those seeking to formulate objective universal features of thought through experimental research and computational models. Cognitive science has, albeit in embryonic form, begun to articulate how one might approach the very processes (language, social practices, artifacts, community of practice) through which cultural effects and the cognitive demands of our environment conspire to give us something to think about (for a related

argument see Shore, 1996). Despite its promise, this line of research also obviously requires continual theoretical vigilance, as new ideas can be rather easily assimilated to old disciplinary baggage and schisms.

Cognition and Culture

Within cognitive science, it seems that many of the elements that have come to represent cultural context within the field have been articulated within the framework of its particular disciplinary evolution. Traditionally cognition has been understood as a process that can be formalized. The formal properties of cognitive processes represent idealized but nevertheless predictive and universal laws of cognition. The mind, the possession of any given individual, functions more or less well within the criteria implied by these laws and representational practices. Methodologically, hypotheses about cognition can be tested through generating computer programming, in experiments of abstract problem solving or through protocols of reasoning at various levels of proficiency (given certain cohort constraints, e.g. age). One thereby distills the essence of cognition, which can be reduced to a computational form with context per se as a confounding variable. Culture is merely an application of formal operations or is construed as a subordinate variable that will be eventually assimilated to a formalized representational scheme.

In such research, cognition is typically treated as internal to the individual (one brings it with them, BYOC) and amenable to formalization in universal laws (which is why we can study them in artificial conditions or through simulations on a computer). Such assumptions have taken cognitive science far but do not prove particularly helpful for understanding the relationship between culture and cognition. If culture is understood as "practices" or what we do "out there," then we cannot study culture and cognition "in the zoo" abstracted both methodologically and theoretically from its place of inter-articulation. We can no longer countenance an understanding of cognition where culture is either a "confound" or only an instantiation of given (universal) cognitive functions. These points have been forcefully made by Jean Lave (1988), who questions the ecological validity of experimental studies on cognition, where culture is treated solely as a source of "content," secondary to functionalist and formalized categories. Lave writes:

> Warehouse" and toolkit metaphors for the location of culture in memory make it possible to abnegate the investigation of relations between cognition and culture by, in effect, defining culture as "what people have acquired and carry around in their heads," rather than as an immediate relation between individuals and the socio-cultural order within which they live their lives....[Instead one needs to account for] generative relations, between people-in-action and the social world around them (91).

The first and for some primary change required to articulate a more culturally embedded cognition is to conceptualize cognition as it happens in context rather than treating context as secondary. This challenges the internal hypothesis and the formalization bias. One looks at cognition in the wild, as Hutchins would call it. Note here that the implicit idea of culture is that culture is the live action context that transpires in and about every cognition. Lave (1988) refers to culture as every day practices, presumably ones that require some activity identifiable as cognition. Edwin Hutchins, like Lave, has a number of reservations about how culture has been understood within the canon. He writes that cognitive science presumed cognition to be reducible to brain functioning, which is then understood in terms of computational models that are instantiated in machines that run complex programs. This process is then "re-inserted" into the mind as the individual person. According to Hutchins, this view is mistaken. Firstly, the computational model is tagged as representing the brain or individual, as modeling a process that occurs inside the skin. In contrast, Hutchins thinks these symbolic transformations are actually found in the operation of artifacts and various media that carry knowledge in the world. In his view, cognition is created as humans interact with artifacts and other humans- the whole system is cognition. Once one considers the whole system as the source of cognition, culture has joined the fray of cognitive studies, rather than being an add-on for future studies. Hutchins warns that " [m]arginalizing culture by reducing it to some ideational contents hides the many ways in which cognition is part of cultural process" (Hutchins, 1996, p. 354). Thus, one treats culture and cognition, in a sense, as interdependent. Hutchins defines culture as an adaptive process aimed toward problem solving, and to understand the "culture" of cognition we need to see how cognition is lived within social practices. This entails embodiment; social practices need hands and feet. So while Lave moves to see culture as immediate on-going interaction between social actors and their environment (a perspective that leads to changes in how cognition is conceived), Hutchins wants also to see how doing with others creates and manipulates symbolic representations in order to solve problems.

Obviously, as one chooses to make context or "real life" the touchstone of one's studies in cognition, there is still a wide diversity of ways in which cognition can be conceptualized. Each different way provides a particular avenue wherein the effects of culture can be considered. Perspectives such as situated cognition and formulations of distributed cognition (distributed cognition entails a number of possible views itself) both include a broader understanding of the role of instrumentation, environmental scaffolding, and communication in cognition. Both are forms of thinking about cognition that afford entry points for the constitutive effects of culture.

Like Hutchins and Lave, one may emphasize action and embodiment in the production of knowledge. The body-in-action – a sort of North American variant of Heidegger's

Being-In-The-World – is treated as central to cognizing. By central, I mean that actions and interactions (between machines and persons) are theorized as lying within the heart of cognition rather than serving as an application of more formalized (perhaps universal) computational processes. As is evident in the conceptions of both Hutchins and Lave, when we treat culture as being "embedded real life," there are changes in the formulation of cognition that are implied in this shift of perspectives. Cognition as "real life" activity, becomes more contingent, opportunistic, less idealized, and more fallible (Nercessian, et.al., 2002). Accidents can happen. New parameters of what defines cognition come into focus. Issues of history and of instrumentation are seen as essential to understanding current cognitive practices. Once cognition is seen in less formalized terms, alternative views of thinking itself, e.g. model-based reasoning and cross-domain analogies begin to show their resilience for these more situated and immersed forms of cognition. Mixed media models seem to serve as better vehicles to explicate humans' eclectic use of artifacts, images, devices, representations and each other in on-going real life forms of cognition. These are important advances in that they allow us to interrogate how cognition and culture are mutually constitutive, but we have just begun to outline the sorts of questions that we should be asking, finding the places that we should be looking. There is much more work to be done.

Despite the indispensability of these new ways of conceiving the relationship between cognition and culture or location of places (or moments) to begin the interrogation of culture, the conception of culture itself remains a bit constricted. Culture is predominantly seen as the fact of this embeddedness in the context of particular forms of instrumental behavior. Of course, cognitive science must parse the world in some way. Tracking a Valentine's Day seduction may not produce recognizable data for cognitive science. But there is a eerie diminution of the meaning of culture. Culture – whatever that category may come to signify ultimately – appears to whirl around rather pre-defined notions of cognition and its independent effects are assumed to be taken care of by the recognition of this fact of embeddedness. Like rock and roll, cognition has a particular (sub)culture that we can historically and contextually examine. Cognitive science no longer employs a BYOC model (internal) but a fairly predictable slice of the "real" world is treated as the default model of culture. We begin to have ways of conceptualizing cognition that are now open to a cultural inflection but these formulations (action, distribution, situatedness, embodiment) do not give us a sufficient definition of culture as they are too tied to disciplinary pre-suppositions that emerged when culture was of secondary concern. The effort to illuminate culture and cognition is incomplete.

Although the project of theorizing culture and cognition is incomplete, the direction of research taken by thinkers such as Hutchins and Lave is both promising and invigorating. But one must realize that some implicit as well as explicit theoretical presuppositions of cognitive science may come under question, opening up new areas of research. Already this paper has suggested that the turn to culture may widen how we view the contextual elements that infuse "situated" cognitive processes. Not only may cognitive science move away from abstract computational models, cognitive science may be required to entertain the inflection of the less instrumental, less goal oriented aspects of those social practices that sustain cognitive activity. The issue then becomes a question of how one goes about approaching these seemingly foreign "social" elements in cognitive science.

Put differently, as cognition and culture are better elaborated and theorized, foundational philosophical changes that under gird cognitive science are in the making. For example, as is recognized, the move to distributed cognition involves a blurring between what is in the "head" or internal and the external environment. Re-framing this boundary undoubtedly carries implications for the notion of the person in cognitive science (as evoked say by Hutchins, 1996). Cognitive science traditionally put cognition and agency "inside" the person. When cognition goes "outdoors" what happens to the "shell" that previously contained or produced cognition, i.e., the person. Perhaps in the changes surrounding the move to distributed cognition, cognitive science also begins to re-conceive what it must mean to be a cognitive agent (see also Kurz-Milcke in press). In other words, there is reason to consider the epistemic/cognitive subject as also distributed within different forms of knowledge making (Knorr-Cetina, 1999).

One way to understand the inflection of culture within cognition is to examine more precisely the constraints and forces that define the newly emerging notions of the subject of cognition. Clearly, the inside/outside boundary of this subject has been challenged. It has been also noted that this subject has been thrown outdoors, the effects of culture being seen in the embedded, opportunistic, participatory, and less formalized nature of cognition. But this paper has asserted that, even with this shift in emphasis, the understanding of culture within cognitive science has been limited by an overemphasis on the instrumental aims of cognition. Sometimes cultural constraints are important for cognition, nay even intrinsic to it, without being necessarily assimilated into explicit problem-solving goals.

Language is an important example of an intermixing of culture and cognition that may exceed instrumentality, even though language is sometimes associated with the sorts of symbolic manipulations that represent more traditional computational models. If one does not equate language with computational models of representation and symbolic manipulation (and thus set it in opposition to more embodied or multi-media models), one can see language as a matter of a social practice that reveals and constitutes cognition in particular ways (Vygotsky, 1978). For example, in Vygotsky's model, language traverses the inner/outer divide. More to the point of this paper, it also adds a subjective dimension to cognitive processes. This is

especially evident when looking at more distributed and embedded models of cognitions. Once we understand that cognition is based in interactions and is participatory (see Greeno, 1998), we realize that its modalities (often involving speech) enlist participants at more than one level. We must talk about language as "an address" to an "other" as well as language as a "tool." Language as an address may have a "yet to be articulated" place in the study of culture and cognition. The following specifies this general assertion through examining the work of Michael Tomasello. The next section aims to suggest how language offers an opportunity to render a broader notion of culture within an examination of cognitive processes themselves.

Intersubjectivity, Language and Cognition

Michael Tomasello's (1999) well-argued book, *The Cultural Origins of Human Cognition,* guides the reader from research on joint attentional scenes to what the author calls linguistic cognition. The latter moves the aim of agency from the goal of operant effects on the environment to an intentionality that is directed at the attention and cognition of another mental agent. This special sort of intentionality emerges out of linguistic capacities although its task is to elaborate and bridge the problem of different perspectives. Through the dialogic engagement of another's intentionality and attention, we extend a non-linguistic capacity, con-specific recognition and goal directed activity, to a level of recognition and interchangeability between interlocutors. This additional level of cognition feeds back into the process of cognition itself, the other (perspective) becomes a perspective that monitors our own, as the linguistic situation elaborates and bridges differing perspectives. From these gaps, meta-cognitive representational abilities are formed. Through this specification of linguistic effects , Tomasello attempts to make good Vygotsky's claim that our cognition is the internalization of another's speech--a proposition that is naively imputed to refer to a Whorfian type hypothesis, but is really, according to Tomasello, to be understood structurally.

Tomasello's elegant writing leads one to believe that this is a straightforward idea that describes a straightforward process, but both are quite complex. Tomasello's graphs show the exchanges of perspective between dialoguing stick figures (in chapters three and four) and seem to indicate a notion of perspective that is grounded in a perceptual location. But as Tomasello talks about the materiality of the signifier and its intersubjective resistance to individual meanings, one begins to see that the stick figures are moved and stationed through speech. It is undoubtedly both a location within a perceived world and a placement by speech, but the distinction is important. In one, there is a body in space securing a position, an aim, and linguistic expression emerges from that (agentic) locus. In the linguistically founded idea of perspective, (and Tomasello's own meditations on the gaps, traversals, and metonymic chaining in language point in this direction), the perspective is not locatable through spatial coordinates.

Just as there are two ways of construing Tomasello's idea of perspective, there are two ways of viewing intention. In one take, intention is teleologically defined through a goal; the goal is constrained by a social qua pragmatic situation. The goal is some operant effect on the environment or some other jointly undertaken problem-solving activity. But as with perspective, intention can be re-framed from a pragmatic "worldly" referent to a situation in which intention refers itself to another intention. Intention is an extrapolation from one's position within a dialogical situation and is not secured by a common object (it is not the same as a joint attentional scene) or presupposed goal. In this second scenario, intention is secured only by the presumption that there must be some reason to the other's speech. Paraphrasing a quotation cited in Tomasello, if I am saying X rather than Y, there must be a reason for it. But does that reason refer to a goal or must it be based in an extrapolation from a position determined primarily by the fact of speaking? *Are speaking and intersubjectivity structural constraints on cognition?* This is the question that is posed by Tomasello's careful argument.

One way to look at the creation of new cognitive possibilities and certain cognitive difficulties that emerge from intersubjectivity and language is to consider the linguistic difference between the subject of enunciation versus the subject of the utterance (Dör, 1997). The subject of the enunciation is that set of attributes fleetingly expressed in the sentence, e.g. I am going to the store. The subject of the utterance, by contrast, is the implied position of an intention, the position of any subject who speaks. It is, in a sense, empty. Another path of understanding the meaning of intention, one that is concordant with this idea of an empty set, couches the idea of an intention toward another's attention in terms of the question of an other's desire. Just as we cannot assure another's desire by commanding our beloved to tell us that he or she loves us, the solicitation implied in our address to another's attention awaits an uncertain fate. The question of specifically human desire as the desire of another, articulated by Hegel, is apparently a completely different matter than what might interest a researcher into culture and cognition. But I believe that the long-standing instrumental bias in cognitive research will fail to produce a sufficiently complex notion of what culture can do *for* cognition because it will not entertain what culture does that creates additional issues for cognition. The structural constraint of speaking may be one such condition. Issues regarding impasses and possibilities of culture can be bracketed, but such reticence is less desirable when one begins to understand cognitive development as gaining membership in a community of social practices (Greeno, 1998), a community that in order to generate perspective, gaps, and meta-cognition will inevitably jangle the chain of mutual recognition, intention, and the dialectics of human desire. If Tomasello can be used

in this instance, such issues emerge hand in hand with human thinking.

The impasses of the Other and of human desire fomented by inter-subjectivity and the impasses of language are not Tomasello's focus although he gives them a better hearing than most. But one must note that these impasses and questions do appear at the borders of his argument. Their first appearance entails his allusions to the voice as moral conscience. The voice is a non-specularizable object of desire that we solicit from another, but in fact cannot be given. It arouses desire and but provides no object. But what has it given us? The nothing and everything that the voice carries entails certain implications for what Tomasello notes as moral conscience in relationship to norms of communication. We might say that the voice carries the "imperative" quality of another's communication. Secondly, Tomasello wisely notes that his view of language, as metonymically multitudinous and dependent on attention and intersubjectivity as guarantor, implies a significant role for the question of authority. The issue of authority is important, of course, in interpersonal and social relationships, but also in relationship to how one generates perspectives and knowledge and how one stabilizes and uses representations (Kurz-Milcke, forthcoming). Finally, as Tomasello notes, the delicate balance between alterity and sameness that founds the very possibility of the contribution of linguistic intersubjectivity to cognition (by multiplying perspectives) can backfire as we see what is different as the same, as in the case of anthropomorphization and other (mis)identifications to which human knowledge is prone.

Tomasello repeatedly invokes the insight that we need to examine the structural constraints of culture. He notes that it is the fact that we speak, not what we say that serves to generate new forms of cognition. Usually culture is seen primarily in terms of its historicity (which is primarily content). Tomasello directs his focus to the structuration that language as a form of intersubjectivity must give to cognition. Given this turn from culture as content to culture as structure, Tomasello can begin to spell out how culture is intrinsic to cognition rather than its filler. But buyers beware; for the triad of language, intersubjectivity, and cognition may nudge cognition off of its instrumental goal-directed aims and dislodge implicit notions of cognitive agency. Consider for a moment how often the word, "other" appears in Tomasello's text. Agency seems to be located in "inter-subjectivity". Other parameters that are emerging from the interface of culture and cognition, the place of embodiment, knowledge as situated, distributed cognition, the way that modeling may work as embedded cognition rather than secondary to abstract symbol manipulation, are similarly springboards to develop the idea of culture as an analytic category. Once these dimensions are drawn out and others inevitably added, we may gain a much better sense of how culture is intrinsic to cognition and informs some its possibilities as well as being a condition of perhaps inevitable cognitive failures.

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