

Vygotsky, Brandom and Psychology

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Tetsuro Matsuzawa's (2006) research on chimpanzee intelligence and the 'concept' of number established in a female chimpanzee named Ai and her male offspring Ayumu has demonstrated the ability of chimps to succeed in tasks which humans find difficult. The ability of Ayumu to demonstrate a recall of number order is taken as evidence that Ayumu has a concept of number, but this raises questions about the distinctive nature of human thought and of the human concept of number. What processes are involved when humans, attempting the same task as chimpanzees, achieve poorly? Our cognitive powers clearly distinguish us from animals and machines yet many accounts of our relation to the world fail to recognize this or if they do, fail to give it sufficient importance. According to Moll and Tomasello (2007) while non-human primates demonstrate a limited form of intentionality, they lack the shared intentionality that characterises the uniquely human aspects of cognition. Almost all primates display social behaviour, however, humans demonstrate a distinctive form of cooperative activity and unlike other primates they can cooperate without the prospect of immediate self gain. Human cooperative activities are characterized by the inclusion of shared goals, shared attention and coordinated roles. One of the defining characteristics of humans as thinking animals is the ability to abstract from context and to see it from a different perspective from one's own (i.e. to 'decenter' or to 'disembed' from an immediate situation, Piaget, 1967, Donaldson, 1986). Tomasello highlights the importance of cooperative activity in supporting the ability to take a different perspective. He argues that a 'difference in perspective can occur only when two people see the same thing, but differently' (Tomasello, 2007, p. 645). He goes as far as to argue that human cognition is not merely supported by, but is constituted by social cooperation; 'participation in interactions involving shared intentionality transforms human cognition in fundamental ways. Moll and Tomasello endorse Vygotsky's work on the social formation of mind when they argue that it is through cultural interactions during ontogeny that children develop their cognitive capacities. Relevant points of Vygotsky's (1987) research on the sociogenesis of mind are: firstly, higher mental functions cannot be understood as originating solely in lower ones since they arise inter-mentally before they arise intra-mentally and secondly, language structures and constitutes thought rather than merely expressing it so that when words are first learnt or used, the development of their meaning has only just begun.

The social nature of the human mind has generally been approached in education studies in terms of a multiplicity of forms of thought tied to context rather than in terms of an examination of what is distinctively and universally human about its character, however recent developments in philosophy, emphasising the normativity underlying our contact with the world, suggest a

different approach. It is our responsiveness to reasons that distinguishes us from animals. The philosopher Robert Brandom provides a powerful illustration of this point when he contrasts the response of a human being to a fire with that of a machine. For Brandom the distinguishing feature of a thinking being is its responsiveness to reasons rather than simply to causes. Responsiveness to causes is characteristic of a machine or a parrot capable of responding differentially to a stimulus, but not of thinking beings. A mechanical alarm may be far more effective than human beings in *perceiving* the dangers of a fire and sounding the alert. But when a human being shouts 'fire!' he or she is always doing more than simply making a warning noise. When a child of five (as opposed to a much younger child whose uttered sounds are only just beginning to operate as language) shouts 'fire!' he or she knows its implications. He or she appreciates the consequences of the exclamation 'fire!' and what follows from such an utterance. Brandom uses this example to illustrate his claim that human beings act and communicate *inferentially*. His point is that what distinguishes the human form of knowing from the type of 'knowing' we might ascribe to a machine is the point made by Wilfred Sellars that knowing for a human being, consists not merely in expressing a response but in knowing what follows from it—knowing the implications, or what Brandom calls the 'giving and asking of reasons'. As Brandom puts it 'even non-inferential reports must be inferentially articulated' and this point is crucial to any understanding of human intellect.

To return to an alarm 'perceiving' a fire, this is already an anthropomorphism which Brandom takes care to avoid. He talks of machines 'responding differentially to stimuli' by which he means they respond mechanically to a stimulus. The use of the phrase 'responding differentially' in place of 'perceiving' or 'knowing' is of crucial importance for it introduces a distinction that is hidden by anthropomorphic language. The stimulus in this case—the fire—is the cause of their response; in the case of the human being who sounds the alarm, the fire is the reason for their response. *The human perceives the fire as fire; that is to say that unlike a machine it has a concept of fire as part of a system of concepts.* For Brandom making a *report* as a human being is not 'responding differentially' but inferring rather than merely representing.

According to another contemporary philosopher and colleague of Brandom, John McDowell, a normative context is necessary for humans to be in touch with the world at all and, it can be argued, this relies upon the specific form of cooperation outlined by Moll and Tomasello. Without shared goals, a shared attentional framework and coordinated roles, perspective taking in relation to an object would not be possible. This observation is already anticipated in Wittgenstein's consideration of the possibility of a private language. Wittgenstein is at pains to show that the argument that words map onto representations in a person's mind thereby admitting the possibility of a private language understandable by only a single individual, is incoherent. Any individual use of terms is dependent upon their shared use. Reference depends on sociality, hence Wittgenstein is able to argue that meanings are constituted via social practices rather than direct unmediated relations to the world.

The account of what is entailed in a social conception of mind is at odds with the dominant representational paradigm where thought is conceived in terms of individual mental states. Within the dominant paradigm language meaning is understood as a matter of referential relationships between signs and objects and it is all too often assumed that humans learn in ways not very different from other forms of life. The account of mind found in Vygotsky's work

places weight on the primacy of the social in the development of cognitive capacities. The human infant responds in an environment where the significance which conditions its response and thereby contact with the world is, in the *first* place, mediated by other human beings. The child responds to reasons. In place of the event or object being the sole source of the response, the parent or other significant actors provide the active conditions which are decisive in giving meaning for the child's early responses. Thus meaning is a *product* of a social process and its significance relies on other actors and their relationships to each other and the world i.e. it is necessarily social. According to McDowell '[h]uman beings . . . are born mere animals, and they are transformed into thinkers and intentional agents in the course of coming to maturity'. Language in this context plays a crucial role since 'in being initiated into a language, a human being is introduced to something that already embodies . . . rational linkages between concepts . . . constitutive of the layout of the space of reasons' (McDowell, 1996, p. 125).

Although far removed from education, these ideas in psychology and philosophy should have implications for how we approach teaching and learning. Although the ability to abstract is privileged in schooling, an appreciation of what it entails is poorly understood and is due in part to the dominant influence of the representational paradigm. For instance poor teaching practices in so far as they rely on understanding meaning in terms of the relation of a sign, word or concept to the object or event which it represents, presuppose the representational paradigm. Brandom's argument that an account of meaning must privilege inference over representation offers a means of addressing questions of pedagogy and curricula in the widest possible context of the development of mind. Brandom approaches the 'contents of conceptually explicit propositions or principles from the direction of what is implicit in practices of using expressions and acquiring or deploying beliefs' (Brandom, 1996, p. 4). This approach reverses the representational order of understanding. As Brandom states;

. . . to have conceptual content is just for it [a concept] to play a role in the inferential game of making claims and giving and asking for reasons. To grasp or understand such a concept is to have practical mastery over the inferences it is involved in—to know, in the practical sense of being able to distinguish, what follows from the applicability of a concept, and what it follows from (Brandom, 1994).

The absence of any appreciation of an alternative to the approach to the representational approach to meaning can lead to a damaging relativism where the need to articulate the nature of a knowledge domain is ignored. The renowned physicist Richard Feynman (1981) provides an illustration of this misunderstanding of meaning when he recounts his experience of learning as a child. He tells how he was challenged by a fellow boy to demonstrate whether he knew a bird. When Feynman is unable to say the bird's name he is accused of ignorance by the child. However, Feynman ends his account of his early experience by reeling off a list of names for the bird in a variety of languages and then exclaims that it show nothing at all of his knowledge of the bird since knowledge is not familiarity with the name of the bird but full awareness of the inferential domain in which the name is located. Effective pedagogy entails providing access to the inferential domain which constitutes the meaning of a concept, as a prerequisite for its acquisition i.e. taking account of the distinctively social nature of the human mind.

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