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A discursive approach to the analysis of epistemic cognition

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ABSTRACT

A core concern in learning is coming to understand the ways in which claims of knowledge are made. The epistemic cognition literature typically characterises this learning in terms of how learners cognitively conceptualise the source and nature of knowledge. Recent work has offered alternative accounts of epistemic cognition that recognise the discursive nature of the construct. These accounts are derived from analysis of the ways that learners talk about knowledge in tasks such as evaluating scientific claims from sources of varying qualities. In this paper we draw on this recent work to advance a novel approach to the analysis of discourse data in epistemic contexts. This approach is exemplified through its application to an existing dataset, demonstrating both the application of the approach and the particular kinds of discourse that learners engaged in. This discursive approach has the potential for broad application in the learning sciences' treatment of epistemic cognition.

1. Introduction

A core concern in learning is coming to understand the ways in which claims of knowledge are made. In developing their understanding of the social and cultural practices through which knowledge claims are made, people become members of particular discourse communities, able to take on board and critique the claims that they encounter. Accounting for the developmental and cognitive processes through which students come to understand knowledge claims has been focal for the area of 'epistemic cognition' within the learning sciences. Building on our recent socialised account of epistemic cognition (Knight & Littleton, 2017), in this paper we foreground the discursive features of epistemic cognition. In so doing our aim is to exemplify features of our socialised account, in order to develop a generalised approach to understanding particularly epistemic types of dialogue. We do this by drawing on empirical work drawn from two rather different datasets, exemplifying the potential of the analytic approach taken to understand this data in light of epistemic cognition.

Our recent paper (Knight & Littleton, 2017) advanced an account of epistemic cognition that builds on social epistemology, to re-specify epistemic cognition in sociocultural terms focusing on the ways that knowledge claims are:

1. Embedded in situated, occasioned communicative practice; i.e., that knowledge claims communicate meaning, and are co-constructed in, social interaction.
2. Pragmatic; i.e., that the communicated meaning is oriented towards some ends, we make claims in doing things.
3. Normative; i.e., that the ways in which we make and interact around claims are defined by sets of normative practices.

Discursive psychology (Edwards, 2005; Potter & Edwards, 1999) has often 're-specified' psychological constructs through

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considering the constructs with respect to language-in-use. In this way, epistemic cognition can be conceived in terms of the ways that its characteristics are implicated in the dialogue evoked within epistemically salient contexts. In developing our account we follow, for example, Greeno, Collins, and Resnick (1992) in highlighting the common history shared by sociocultural and discursive approaches in learning, and emerging pragmatic and social epistemological perspectives in philosophy. A socialised account of epistemic cognition, drawing from social epistemology, thus aligns with sociocultural perspectives on learning, bringing both the individual and collective into view. This shift motivates a refocusing on the ways in which epistemic cognition emerges from, and is co-constructed in, the dialogue implicated in epistemically salient work. Commensurately, this shift re-emphasises language-in-action, alongside or in place of self-report methods (for example, interview, talk aloud, surveys) that have been the focus of much epistemic cognition research to date. Epistemic cognition should thus be understood with respect to language-in-action in the context of collective (such as, but not limited to, small group, class) activities.

The theoretical stance we outline is not intended to replace, but rather to – using the discursive psychology term – re-specify cognitive constructs in terms of dialogue. It thus draws on the broad agreement across a set of models of epistemic cognition, on two core features of the construct: What knowledge is, and how one comes to know:

There are two dimensions within the first area (knowledge):

- Certainty of knowledge: the degree to which knowledge is conceived as stable or changing, ranging from absolute to tentative and evolving knowledge;
- Simplicity of knowledge: the degree to which knowledge is conceived as compartmentalized or interrelated, ranging from knowledge as made up of discrete and simple facts to knowledge as complex and comprising interrelated concepts.

There are also two dimensions which can be identified within the second area (knowing):

- Source of knowledge: the relationship between knower and known, ranging from the belief that knowledge resides outside the self and is transmitted, to the belief that it is constructed by the self;
- The justification for knowing: what makes a sufficient knowledge claim, ranging from the belief in observation or authority as sources, to the belief in the use of rules of inquiry and evaluation of expertise.

(Mason, Boldrin, & Ariasi, 2010, p. 69)

In this paper, we outline the communicative and pragmatic nature of the *epistemic* form of dialogue we have observed in a particular set of information seeking tasks in which questions of certainty, simplicity, sourcing, and justification of claims are salient. We do this through presenting a new, secondary analysis of dialogue in a small-group secondary school classroom activity (reported in Knight, Arastoopour, Williamson Shaffer, Buckingham Shum, & Littleton, 2014; Knight & Mercer, 2015, 2016), and dyadic chat data from a university-level task facilitated by a browser add-on and chat tool (reported in Knight, 2016). This analysis:

1. Exemplifies the application of the account.
2. Describes the application of a method for such analysis.
3. Exemplifies that method, drawing attention to the insights provided.

In the following sections we: (1) provide an overview of our social account of epistemic cognition, highlighting its distinctively socio-cultural nature; (2) provide a description of the discursive features of this account; (3) use this account to motivate a novel approach to the development of a typology for the analysis of epistemic dialogue, that we exemplify through its application to the two sample datasets; (4) conclude, highlighting the key contribution of a theoretically motivated approach to the analysis of epistemic cognition as a discursive feature of learning.

2. A discursive account of epistemic cognition

Language-in-action offers a particular lens onto human epistemic behaviour in contexts that are both constituted in, and by, that language. This view differs from a typical cognitive perspective in that, “stance in discourse is not the transparent linguistic packaging of ‘internal states’ of knowledge, but rather emerges from dialogic interaction” (Kärkkäinen, 2006, p. 699). Moreover, these stances are normatively situated, that it is taken that “[t]o ‘know’ is to operate discursively within such a community [of practice]” (Mercer & Howe, 2012, p. 19). In contexts in which there is an epistemic aim to learn or build knowledge, commonality – driven by language – is key; as Edwards and Mercer term it, ‘common knowledge’ (Edwards & Mercer, 1987). Fundamentally, the social epistemological position motivates a greater attention to understanding knowledge as communicative, recognising that epistemic stance emerges in the interaction between speakers (Kärkkäinen, 2006). Given the particular context of learning, it is important to note van Dijk’s (2014) point that text and talk provide resources for that learning, both representing, and constituted through discourse. The development of ‘common knowledge’ – a shared perspective – is key for the claims that one makes to be understood within the social context.

In Kärkkäinen’s work the notion of ‘epistemic stance’ denotes: “marking the degree of commitment to what one is saying, or marking attitudes toward knowledge. This definition also includes evidential distinctions, or how knowledge was obtained and what kind of evidence the speaker provides for it” (Kärkkäinen, 2006, p. 705); such markers include ‘I think’, ‘he’ or ‘she’ said, ‘I don’t know’ ‘I guess’, ‘I thought’, epistemic adverbs such as ‘maybe’, ‘probably’, ‘apparently’, ‘of course’, and epistemic modal auxiliaries such as ‘would’, ‘must’, ‘might’, ‘could’, ‘will’, ‘may’. Stance, then, is seen as an emergent, dynamic, and intersubjective property of

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