Feelings of Understanding and Dependability: Metacognitive Beliefs about Concepts

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Concepts are tools for thinking. Like tools, concepts may be selected that are more or less suitable for purpose (e.g., learning, reasoning, and categorization), and people may possess metacognitive beliefs about this suitability of their concepts. In four studies, we aimed to investigate whether people can make a metacognitive assessment of the suitability of different concepts, and if the use of a concept is accompanied, either implicitly or explicitly, by some kind of assessment of confidence in the concept.

In these studies, we distinguish between two ways that a concept might be more or less suitable (Shea, in press). First, there is the individual’s own grasp of the concept. Concept-users might make an assessment of how much knowledge they have for a given concept, or a ‘feeling of understanding’ (FoU) of a concept. A second construct of assessment is inherent in the category itself. Some categories are more informative than others, allow for levels of expertise, and support many inductions. Variability on this construct may encourage a feeling in the concept-user of reliability and legitimacy surrounding the concept, or a ‘feeling of dependability’ (FoD) of the concept. Concept users might register these two broad kinds of concept suitability separately.

To begin studying this new area, we wanted first to see whether people do indeed make reliable metacognitive assessments of their concepts, and to explore how these metacognitive beliefs may be structured. In Studies 1 and 2 we explored the structure of the metacognitive assessments that people may make about their concepts, drawing inspiration from the method used by Haslam, Rothschild, and Ernst (2000) to study how essentialist beliefs are structured. We hypothesized that FoU and FoD would emerge as reliable metacognitive beliefs that people hold about concepts.

In our first study participants (N = 399) rated 40 category items from each of four different category domains (‘people’, ‘recreational activities’, ‘health conditions’, and ‘plants and animals’) on one of eight dimensions, selected to operationalise the elements associated with the metacognitive constructs of FoU and FoD. A Principal Components Analysis (PCA), with a varimax rotation, largely confirmed our predictions, revealing the existence of two underlying components representing the two distinct but related metacognitive constructs we predicted. Whilst the structure of FoU was consistent across domains, the structure of FoD was less clear across the four domains. In social domains (i.e., ‘people’ and ‘recreational activities’), there emerged a clear two factor solution which did not emerge in more biological domains (i.e., ‘health conditions’ and ‘plants and animals’). These results provide some evidence that FoD is less about an individual concept-user, but exists inherently in the concept itself. For Study 1 we selected categories that seemed likely to vary in dependability (e.g., Irritable Bowel syndrome vs. Sneezing) or understanding (e.g., Headache vs. Glaucoma) As such, we decided to explore whether the factorial structure in Study 1 would be replicated amongst familiar and high-frequency concepts. Accordingly, Study 2 (N =
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404) was conducted using categories used in previous work on concepts (Hampton & Gardiner, 1983). We drew concepts from four different category domains (‘sports’, ‘fruits and vegetables’, ‘clothing’ and ‘furniture’). Again, the structure of FoU was consistent across domains but FoD exhibited a much less clear pattern, with substantial differences in structure across domains. The factorial structure of social (i.e., ‘sports’) and biological categories (i.e., ‘fruits and vegetables’) replicated that of Study 1, supporting our conclusion that FoD arises from the category domain and is structured distinctly depending on the nature of the concept.

In the final two studies we explore how these metacognitive constructs are used in inductive reasoning when using singular (Study 3) and multiple categories (Study 4). As FoD picks up on the abilities of the concept to support induction, it should be related to people’s inductive judgements. In these two studies we extended our understanding of these metacognitive constructs about concepts and tested the hypothesis that the degree of FoD of a category influences the extent to which one category will be used over another in property inference. Study 3 (N = 123) demonstrated that when presented with a proposition that three members of a category were found to have a particular characteristic, people are more likely to predict that another category member has the same characteristic when the concept is rated as high in FoD (b = 1.14, p = .03). Category domain was also found to significantly predict inductive judgements (b = 10.63, p <.001), providing further evidence for FoD’s position as inherent in the category itself. Study 4 (N = 121) demonstrated that when concepts high and low in FoD are pitted against each other, high FoD categories (M = 66%) are selected and used as the basis of inference more often than low FoD categories (t (51) = 7.85, p <.001). Participants also indicated a higher level of confidence when they chose the category higher in FoD (t (50) = 3.60, p = .001). We conclude that both FoU and FoD are meaningful metacognitive constructs that apply to the use of concepts. These results have implications for the ways in which concepts are used, understood, and communicated in different domains. The role of FoU and FoD as metacognitive constructs about concepts will be discussed.