# Cognitive Foundations of Cultural Learning

**Annette Henderson (a.henderson@auckland.ac.nz)**
School of Psychology, The University of Auckland
Private Bag 92019, Auckland 1142, New Zealand

**Ben Kenward (ben.kenward@psyk.uu.se)**
Department of Psychology, Uppsala University
Box 1225, 751 42 Uppsala, Sweden

**Rachel Watson-Jones (watsonjones@austin.utexas.edu)**
**Cristine Legare (legare@austin.utexas.edu)**
Department of Psychology, The University of Texas at Austin
1 University Station #A8000, Austin, Texas 78712, USA

**Harvey Whitehouse (harvey.whitehouse@anthro.ox.ac.uk)**
School of Anthropology and Museum Ethnography, University of Oxford
51 Banbury Road, Oxford OX2 6PE, England

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## Cognitive Foundations of Cultural Learning

The ability to learn from others is integral to sustaining and transmitting human culture. What are the cognitive processes that support imitative and collaborative cultural learning? How does cultural learning contribute to group dynamics, such as cohesion and conflict? Recent research has focused on how children acquire instrumental skills through causal inference (Call, Carpenter, & Tomasello, 2005; Whiten, McGuigan, Marshall-Pescini, & Hopper, 2009). However, children also need to acquire the norms and conventions of their culture, as well as an understanding of cooperative behavior, to become full-fledged members of their community. This acquisition begins early in ontogeny and is likely reliant on a unique mix of causal reasoning and affiliative goals, triggered by the nature of the action sequence itself and a variety of social cues. In this symposium, we consider the emerging experimental literature on the development of imitation and collaboration with the goal of applying this work to broader issues of group dynamics and the transmission of culture. Henderson will consider the understanding of collaborative goals in infancy. Kenward will consider the normative basis of young children's over-imitation. Watson-Jones will examine affiliative motivations underlying children's imitation. Whitehouse will consider how ritualized, normative behavior and cognition impacts group dynamics of coordination and social cohesion.

### Henderson: Infants' Understanding of Cooperative Action

Cooperative activities in which two (or more) individuals coordinate their independent actions to attain a common goal are critical for human survival. Food, shelter, reproduction, protection from threats and knowledge transfer require cooperation (Barkow, Cosmides, & Tooby, 1992; Tomasello, 2009). The ability to cooperate with others emerges early in development (for a review see Brownell, 2011) and plays a critical role in facilitating children's socio-cognitive development (Rogoff, 1990; Sommerville & Hammond, 2007). Despite the growing body of evidence documenting the development of cooperative behaviour across the first few years of life, very little is known about infants' *understanding* of cooperation. In her talk, Annette Henderson will present new findings from a series of studies investigating the age at which infants understand that the actions of cooperating partners are directed towards the attainment of a common goal using an innovative visual habituation paradigm. Identifying when and how infants come to understand cooperation provides valuable information about the age at which infants possess the mental capacity to make sense out of the vast array of cooperative actions that they witness in their everyday lives.

Annette Henderson is a Senior Lecturer in Developmental Psychology and Director of the Early Learning Laboratory at the University of Auckland, New Zealand. Her research interests include the development of children's understanding of activities involving shared intentions, which include linguistic and non-linguistic cooperative activities.

### Kenward: The Mechanisms Behind Imitation of "Unnecessary" Actions

Why do children imitate actions with unclear functions? Copying behavior without understanding the function of the behavior is often beneficial – you don't need to know about the crocodile to benefit from copying avoidance of the river. This argument does not explain the mechanism of such blind copying, however. Various proposals have been put

forward, such as an automatic assumption of causal effect (Lyons, Young, & Keil, 2007), and a motive to socially affiliate (Over & Carpenter, 2012). Evidence will be presented demonstrating that when imitating a simple action sequence with a clear goal but including irrelevant actions, children do not believe that the irrelevant actions are causally necessary for achieving the goal. This evidence speaks against the hypothesis of causal assumption. Secondly, evidence will be presented demonstrating that children have a sufficiently strong belief that such irrelevant actions should be performed that they protest when a third party does not perform them. This shows that children have a normative belief that it is correct to copy actions performed by adults, even when their purpose is unclear. Kenward argues that children's ability to encode actions as normative without any information about what domain determines the normativity implies that children are capable of holding normative beliefs that are not anchored in a specific domain, such as convention, morality, or instrumental rationality.

Ben Kenward is a Researcher in Psychology at Uppsala University, Sweden. He focuses on development but has professional ADHD, having published recently on unconsciously motivated action, moral development, social learning, the development of decision making, and animal tool use.

### Watson-Jones & Legare: Affiliative Motivations and the Development of Imitation

Imitation is used to acquire both instrumental skills (Call, et al. 2005; Lyons et al., 2007; Whiten et al., 2009) as well as cultural conventions, such as ritual. Legare, Whitehouse, Herrmann, and Wen (under review) have proposed that the causal opacity associated with cultural conventions results in high fidelity copying and low levels of innovation. The motivation to engage in imitation may be fundamentally related to implicit affiliation goals (Over & Carpenter, 2012). We propose that affiliative motivations play an important role in the transmission and learning of cultural knowledge. Rachel Watson-Jones will present new research in collaboration with Cristine Legare and Harvey Whitehouse, demonstrating that affiliation goals may differentially affect the imitation of instrumental actions versus actions related to cultural conventions. Using ostracism as a conceptual lens, the findings of this research provide evidence of the affiliative basis of imitation.

Rachel Watson-Jones is a Postdoctoral Fellow at the University of Texas at Austin within the Cognition, Culture, and Development Laboratory. Her interests include the development of social cognition, cultural transmission, and the cognitive science of religion.

### Whitehouse: Ritual, Community, and Conflict

Some of the greatest atrocities have been caused by groups defending or advancing their political aspirations and sacred values. In order to comprehend and address the wanton violence of war, terrorism and genocide, it is necessary to understand the forces that bind and drive human groups. Here I describe a five-year program of research investigating one of the most powerful mechanisms by which groups may be formed, inspired, and coordinated: ritual. The project examines the role of ritual in child development, in social behavior, and in the evolution of political systems. Studying how children learn the rituals of their communities is shedding light on the various ways in which rituals promote social cohesion within the group and distrust of groups with different ritual traditions. Qualitative field research, surveys, and controlled psychological experiments are being conducted in a number of troubled regions (including the Middle East and North Africa) to investigate the role of ritual in group bonding and inter-group competition. New databases are being constructed to explore the relationship between ritual, resource extraction patterns, and group structure and scale over the millennia.

Harvey Whitehouse is professor of social anthropology, director of the Institute of Cognitive and Evolutionary Anthropology, and a fellow of Magdalen College at the University of Oxford. His interests include recurrence and variation in religious thinking and behavior, and he has published many books and articles on this topic.

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