Big questions of social learning

BY MARINA BAZHYDAI

Once it's on a pedestal, everyone has to have a go at it", - these words from Dr. Luke Rendell of the University of St Andrews stuck in my head at the end of the day, as in a very simple form they exemplified the genuine, conceptually rich vibe of this workshop. These words referred to culture – the daily-use term we find surprisingly hard to define, the phenomenon that is notoriously hard to study, and the idea inspirational to so many minds for centuries of human intellectual history. As the workshop came to a close, the senior researchers' panel, comprised of Prof Malinda Carpenter, Dr Monica Tamariz, Dr Luke Rendell, and Prof Andrew Whiten, offered a rich dialogue on topics ranging from sharing the tools of the trade and career advice, to nothing less than posing the "big" question. That question was whether socially mediated cumulative culture is in the spotlight as a likely candidate for what makes humans special.

There have been other suitors: language, intelligence, emotions, morality, consciousness, creativity - the list can go on and none of these have been eliminated thus far. For this interdisciplinary group studying social learning, naturally, socio-cultural phenomena are quite appealing. It is the ultimate goal of the field at large to get closer to understanding whether culture is in fact unique to humans, through a multitude of well-formulated questions, suitable methodologies, innovative study designs, and sound theories.

The workshop brought together researchers making their way in various fields, as far apart as ornithology and economics. As a budding developmental psychologist, I asked myself, what can someone in my discipline learn from the interdisciplinary workshop like this, considering the vast differences in underlying theories, methods and interpretations? The answer was - a great deal, actually, starting with psychological benefits: from humbleness and ability to step outside the box where methods and approaches dominant in your subfield are taken for granted (a feeling akin to traveling to another country), to thinking big and broad rather than digging narrow and deep, all the way to having the guts to coin and promote a new term if it uniquely captures the essence of a well-known phenomena. Along with these uplifting realizations, several important considerations are worth mentioning. First, that developmental psychology not only would benefit from, but is rather incomplete without comparative perspectives (e.g., Haun & Tomasello, 2016; Nielsen & Haun, 2016) - a belief not widely held in our field. Secondly, that developmentalists should consider expanding their methodological paradigms to welcome insights from comparative and other fields. As one example, fresh off the press, a review article by Miton and Charbonneau (2018) posed hard questions about methodological and theoretical challenges of studying cumulative culture exclusively experimentally.

This reflective process was double edged, so I asked myself, what can other disciplines learn from developmental science to promote the well-rounded study of social learning? One prominent (yet never mentioned during the two intensive days of the workshop) name that kept coming to my mind was that of Lev Vygotsky, a long lost Soviet psychologist and only much later happily discovered and well-read in the West, the "Mozart of psychology" (Toulmin, 1978), born the same year as a much more well-known and much longer lived father of developmental science Jean Piaget. Vygotsky's work from the 1930s – a sociocultural theory of cognitive development as it came to be known following translations of the major works in the 60s and 70s (e.g., Vygotsky, 1978) – places ultimate importance on social processes in the development of higher order cognition, emphasizes comparative approaches to the study of mental phenomena, and argues against the reductionist behaviourism that was gaining momentum at the time of his writing. These points will sound familiar and dear to the hearts of anyone studying social cognition and learning nowadays.

On the methodological side, I couldn't help but notice that my colleagues from related fields spoke with a sense of awe and excited newness of the prospect of opening up the "black box" – studying

the processes in the brain rather than behaviour to fully and truly understand the cognitive mechanisms behind cultural transmission (e.g., Heyes, 2016). However, it must be noted that developmental psychologists have been studying the neural correlates of social cognition for decades now, in subfields like cognitive and social-affective neuroscience, with studies highly relevant to many questions posed in social learning literature. Just to name a few, far from fully representative or exhaustive, but rather mosaic examples, neuroscience has attempted to study the theory of mind in children and what is called the "social brain" (Meltzoff & Kuhl, 2006; Richardson, Lisandrelli, Riobueno-Naylor, & Saxe, 2018; Saxe, Carey, & Kanwisher, 2004), core knowledge systems, including early social knowledge (Dehaene-Lambertz & Spelke, 2015), brain synchronization during social interaction (Dumas, Lachat, Martinerie, Nadel, & George, 2011; Wass et al., 2018), joint attention in socially guided learning (Lachat & George, 2012; Pauen, Birgit, Hoehl, & Bechtel, 2015; Pauen & Hoehl, 2015), selective social learning (Begus, Gliga, & Southgate, 2016; Mangardich & Sabbagh, 2018), and much more, including the very term "cultural neuroscience" (Chiao, & Ambady, 2007; Chiao, 2018; Kim & Sasaki, 2004).

Furthermore, neuroscientific techniques themselves and their applicability to the research questions posed in the social learning domain warrant important considerations. The most frequently used non-invasive brain scanning methods are fMRI, fNIRs, EEG, and MEG. For instance, EEG has excellent temporal resolution to answer the question "when", while fMRI and fNIRs are suitable to answer the question "where" in the brain a certain (social) process elicits a neural response. Naturally, combining both techniques would be a desirable advancement, but the challenges of obtaining noise-free, interpretable data are then doubled, especially in infant population. The major point is that it is not the neuroscience per se that can give us all the answers we long for, but the ability to ask the right question, appropriate for the technology at hand. The neuroscientific techniques are limited in scope and can provide only partial, and often quite limited to interpretation, answers to the big questions. Nevertheless, there are very exciting developments that social learning researchers should undoubtedly take into account.

Whether using neuroscience techniques, laboratory experiments, or observation in the field, many research ideas can never come to fruition because the methodology that is rigorous enough is deemed unsuitable for some crucial comparative populations. For instance, neural systems implicated in social learning of fear conditioning cannot be studied with young children (Olsson & Phelps, 2007). Similarly, studies with newborn chicks deprived of any perceptual stimulation before hatching provide interesting insights to the nature-nurture hypothesis of basic social cognition (e.g., Rosa-Salva, Hernik, Broseghini, & Vallortigara, 2018), but are inconceivable with infants as participants.

This leads me to the very last comment made by Prof Whiten during the panel discussion. He posed a rather rhetorical question, pondering over the phenomena of culture as viewed from the human angle, where we have arrived at a profound understanding of culture's importance, authenticity, and need to be preserved and cherished. While admirable, we as humans have not yet reached the point where we have ceased treating cultural phenomena in other species as less precious and fragile and less deserving of appreciation. This raises the need for developing respectful approaches in order to conduct well-intentioned studies, to do no harm, and to not mindlessly alter the cultures, whether human or not, that we come across in our pursuit of knowledge. This, now, is a deeply cultural, and likely uniquely human thought and aim, worthy of placing on a pedestal for 'everyone to have a go at'. □

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