

**WHAT CAME FIRST?**

The primacy of  
secularization

**OPEN QUESTIONS**

Where is social learning  
research heading?

**AGONY AUNT**

How to master scientific  
publishing

**UNIVERSITIES ON STRIKE**

Expected pension cut  
rallies staff to picket line

# Cultured Scene

THE MAGAZINE OF THE ASSOCIATION OF EARLY-CAREER SOCIAL LEARNING RESEARCHERS /// [ESLRSOCIETY.ORG](http://ESLRSOCIETY.ORG)



## BARCODES FOR BIRDS

A new method to study fine-scale  
behaviour in groups of birds



No. 3, July 2018  
ISSN 2517-6234



Welcome

# HELLO AGAIN!

If you want to track it you should put a barcode on it. Maybe it was this famous lyric that made behavioural researchers think about adding barcodes to animals they wanted to keep track of. In our interview, Damien Farine talks about how he and his colleagues came up with this idea and how the small tags help to analyse bird behaviour.

Another great idea is the Color App that Thomas Müller presents. In this smartphone game participants engage in defining and deciphering colours using a set of symbols. At the end of this project, Müller's lab hopes to gain a better understanding of language evolution.

In his Pitch to Publication story, Damian Ruck talks about his recent work on disentangling economic growth from secularization. Which one comes first, and what is needed for sustained economic growth?

In this issue, we also have our first long-form interview on the recent strikes by UK university staff. What was so outrageous that almost brought British universities to a stand-still, and what made it end? A fascinating story that has special relevance to early-career researchers.

Of course, we also report on



An old mill near Hepburn Gardens in St Andrews, Scotland.

ESLR's summer workshop back in June. Two of the workshop's participants summarise their insights from the meeting. Marina Bazhydai reflects on the question in social learning research that, so far, remain unanswered. Dominik Deffner discusses the value of new technologies, such as machine learning, but also gives a shout-out to more dated methods that are still valuable.

Once more I am stunned by the variety of articles in this issue and hope you enjoy reading it. Keep the articles coming! □



Marco Smolla, Chair





Early-career Social Learning Researchers

HAVE AN ARTICLE IDEA?

For details contact the Editors

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[www.eslrsociety.org](http://www.eslrsociety.org)

Chair

Marco Smolla, PhD, [chair@eslrsociety.org](mailto:chair@eslrsociety.org)

Vice Chair and Treasurer

Edith Invernizzi, [treasurer@eslrsociety.org](mailto:treasurer@eslrsociety.org)

Secretary and Social Secretary

Eva Reindl, PhD, [socialsec@eslrsociety.org](mailto:socialsec@eslrsociety.org)

Journal Secretaries

Stephen Heap, PhD, [journalsec1@eslrsociety.org](mailto:journalsec1@eslrsociety.org)

Rachel Harrison PhD, [journalsec2@eslrsociety.org](mailto:journalsec2@eslrsociety.org)

Web Secretary

Olli Loukola, PhD, [websec@eslrsociety.org](mailto:websec@eslrsociety.org)

Cover image: Zebra finch by achris, Pixabay.

Editors: Rachel Harrison and Stephen Heap.

Design and Production: Marco Smolla.

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# Contents

Number 3, July 2018



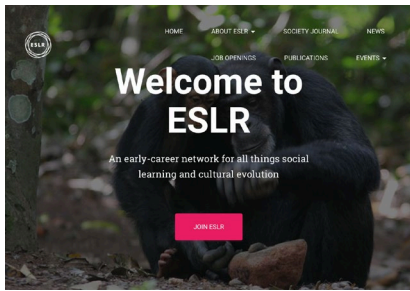
## LECTURERS ON STRIKE

Early 2018, staff at 64 UK universities participated in strike one of the longest strikes in UK higher education history. It was a protest against proposed changes to the Universities Superannuation Scheme.

Society news	4	How to master publishing	16
2 <sup>nd</sup> Annual ESLR Summer Workshop	5	Barcodes for birds	18
Big question in social learning	6	Communicating in colors	22
Machine learning and the value of old souls	8	UK Higher Education Strikes	24
4 <sup>th</sup> Culture Conference at University of Stirling	10	We need your help	30
The primacy of secularization human development	12		

# What's new?

Society news



## Website update

Following the change of the Society's name to ESLR, we are happy to announce our updated website: [ESLRsociety.org](http://ESLRsociety.org).



## WIKIPEDIA The Free Encyclopedia

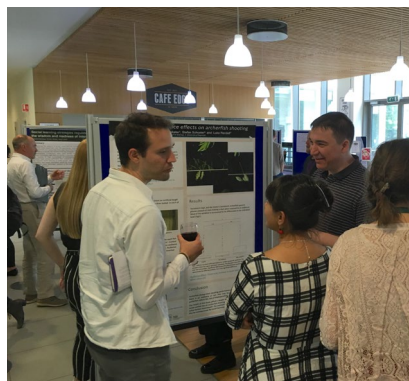
### Social Learning WTF

Scientific knowledge often is a privilege to those that have access to academic journals and conferences. Therefore, one of the workshop activities aimed at engaging with the most popular public online encyclopedia, Wikipedia. The goal was to improve existing articles or create new ones for common themes and methods in social learning. The activity was more demanding than initially anticipated, mainly because important pages inadequately represent the current state of social learning research, for example, the page

on social learning theory, and thus require much more work. Several participants expressed interest in coordinating future efforts to improve the quality of social learning pages. We call this effort the *Social Learning Wikipedia Task Force*. If you would like to take part in this effort, reach out to us!

### Poster Prize Winners

At this year's workshop participants exhibited posters with a broad range of questions and model organisms, including fruit flies, bats, capuchin monkeys, and chimpanzees, as well as humans. The posters were judged by Dr Ellen Garland and Prof Andrew Whiten. Dr Sabine Nöbel's (Toulouse) finding of high conformity in the mate-copying behaviour of fruit flies, together with Murillo Pagnotta's (St Andrews) analysis of gaze coordination in a human social learning task, were awarded a prize for Best Poster, while a special mention was given to Julia Penndorf (Max Planck Institute for Ornithology) for her meta-analysis challenging the theory of age-dependent social learning.



## First Annual General Meeting

At the end of our two-day workshop, we held our first AGM, one of the most important meetings of a society. Aside from the general agenda points (annual report by the Chair, and annual report by the Treasurer), we also discussed and voted on the Society's constitution, as well as the new name of the society.



## 2019 ESLR Workshop

We are very happy to announce that ESLR's 3rd workshop will be in June 2019 in Leipzig, Germany. The workshop will be hosted by the Max-Planck Institute for Evolutionary Anthropology. For the latest news have a look at [ESLRsociety.org](http://ESLRsociety.org) as well as the society's Twitter and Facebook pages.





## 2<sup>nd</sup> Annual ESLR Summer Workshop

The Early-Career Social Learning Researchers Society (ESLR) held its second workshop on the 21st and 22nd June 2018 at the University of St Andrews, Scotland.

The workshop hosted 24 early-career researchers from 16 institutions.

Attendees took part in interactive sessions covering techniques and methods in the study of social learning, issues in early-career research, working across disciplines, and science communication.

Keynote talks were given by Dr Eoin O'Sullivan (University of Stirling) and Alexis Breen (University of St Andrews). Participants also heard from a senior panel of researchers with an interest in social learning; Prof Malinda Carpenter, Dr Luke Rendell, and Prof Andrew Whiten (University of St Andrews), and Dr Monica Tamariz (Heriot-Watt University). This senior panel discussed how the

study of social learning has changed during their careers, and how other areas of research have informed their work on social learning.

Attendees also had the opportunity to share their own work during a poster session. Special congratulations to Sabine Nöbel and Murillo Pagnotta who won the poster prizes, and to Julia Penndorf, who received an honourable mention from our judges, Prof Andrew Whiten and Dr Ellen Garland.

The following two articles are written by Marina Bazhydai and Dominik Deffner, two workshop attendees. They reflect on the individual workshop sessions and explore ideas raised at the workshop.



Attendees of the second annual ESLR workshop at St Andrews University, June 2018.



# 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 (Bergus, 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 research-

ers 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’.

□



Marina Bazhydai, MA, EdM, is a Leverhulme Trust Doctoral Scholar, pursuing a PhD in developmental psychology at Lancaster University, UK. Her research focuses on social cognition, communication, and knowl-

edge transmission. She studied human development and psychology at the Harvard Graduate School of Education and communications at Belarus State University and did research at the Yale Center for Emotional Intelligence and the Harvard Lab for Developmental Studies.



# Machine learning culture and the value of old souls

BY DOMINIK DEFFNER

Technology evolves. While most periods of human (pre-)history were characterised by remarkable technological stasis, with both the Oldowan and Acheulian stone tool technologies spanning over a million years, recent decades have witnessed an explosion in technological innovations and ever-accelerating rates of technological change. Science itself is both a driver and consequence of technology. Current innovations not only determine which scientific questions we ask and deem answerable, they also inspire our collective thinking in a way that shapes conceptual frameworks and the direction of entire fields. In line with this, one leading theme of the second annual Early-career Social Learning Researchers (ESLR) workshop in St Andrews was the potential use of machine learning techniques, AI and “big data” for social learning research. In this short piece, I will sketch how social learning research already benefits from these recent technological advances, what the potential avenues are for the future, and what could be shortcomings of jumping on the technological bandwagon.

Firstly, and unsurprisingly, there are existing scientific questions that suddenly become answerable as soon as new technology arrives. Bayesian inference, for example, had long been regarded as philosophically sound but practically useless for scientific purposes, until dramatically increasing computational power and new Markov Chain Monte Carlo algorithms revitalized the interest in Bayesian methods in the early 90s and lead to the boom we see today. As discussed at the workshop,

social learning research has already greatly benefited from new statistical modelling techniques, such as experience-weighted attraction models (EWA) and network-based diffusion analysis (NBDA), that allow researchers to study the transmission pathways and strategic learning choices underlying cultural evolution. Social learning research deals with phenomena that require integrated and dynamic explanations at different levels of analysis, ranging from (intra-)individual cognitive processes (strategic learning) to large-scale population patterns. As such, our field is also particularly likely to benefit from future advances in machine learning and statistics.

Modern technology can not only improve the methods we use to study social learning; it can also provide us with novel phenomena and new data sources. In a recent study, Miu, Gulley, Laland and Rendell (2018) used data from 14 years of online programming competitions to explore the dynamics of cumulative culture in a system exhibiting real-world complexity. They report that, within each contest population, performance increased over time through a combination of many gradual modifications and rarer innovations. Such longitudinal online data sources and data from social networks provide the opportunity to study cultural transmission on a much larger scale and with higher resolution than was previously possible. Combining these new data sources with novel modelling techniques will most likely advance our field in the future. However, it remains to be explored whether these potentially unrepresentative study systems really tap into the same cognitive machinery that underpins cultural learning in other domains.

Probably most profoundly, technological advances can influence how researchers model and, therefore, conceptualize social learning processes. Traditionally, social and individual learning have been regarded as separate processes that compete for explanatory power in any given situation.



Exemplifying this is the ever-lasting debate about associative learning accounts of social learning. New computational methods will allow researchers to model learning in cognitively more realistic ways that are grounded in both modern neuroscience and evolutionary theory. Karl Friston and others, for instance, have proposed a free energy principle (FEP) as a unified brain theory that accounts for action, perception and learning. According to this view, which draws on thermodynamics, information theory, and machine learning, brains (and other models of the world) function to minimize their free energy or surprise. Learning, therefore, is the process that optimises the connection strengths in hierarchical models of the sensory input the brain receives; organisms actively generate predictions of the variables that cause their sensory input and learn by minimizing the error between their predictions and the data they receive. Using the FEP or other Bayesian views of the brain, researchers can start to model social and individual learning as stemming from the same inferential process instead of being two separate mechanisms. That way, one can start to investigate which mechanistic factors really make social learning social and which brain systems might be involved in learning from specifically social sources.

Even though social learning research can be expected to profit immensely by implementing modern AI technology, such computational approaches cannot be our one and only way of theorizing about the evolution of social learning. But why bother with algebra if we could also just simulate? First, algebraic equations talk in a way that simulations do not; they can actually be understood. Mathematical models provide direct expressions for the dynamics of a system and can provide proofs for why a system behaves the way it does, whereas simulations provide a number of examples, which we then use to infer what algebraic expressions can directly tell. Second, the typically few recursions in mathematical models

are more transparent and easier to verify and communicate compared to the numerous lines of code in simulation models. Probably most importantly, the flexibility of computational approaches often tempts modelers to include every variable of interest leading to a complicated and virtually uninterpretable model of an already baffling world (see McElreath & Boyd, 2008, for more details). At the end of the day, analytical and computational approaches complement each other and can be used for slightly different purposes. While simple analytical models serve as proof of concepts and can test the soundness of our verbal reasoning (Roger's famous and not so paradoxical model is a great example), computational approaches can extend analytical findings to more complex and realistic scenarios and, therefore, make them more amenable to empirical investigations.

To sum up, keeping up with the zeitgeist and implementing modern machine learning techniques will greatly benefit social learning research in the years to come. However, it is not always necessary nor advisable to jump from pencil to paper or chalk to board straight to the keyboard. □

## REFERENCES

- Miu, E., Gulley, N., Laland, K. N., & Rendell, L. (2018). Innovation and cumulative culture through tweaks and leaps in online programming contests. *Nature communications*, 9.
- McElreath, R., & Boyd, R. (2008). *Mathematical models of social evolution: A guide for the perplexed*. University of Chicago Press.



Dominik Deffner is a first-year PhD student with Richard McElreath and Anne Kandler at the Max-Planck Institute for Evolutionary Anthropology in Leipzig, Germany. After receiving a BSc in Psychology and a BA

in Cultural Anthropology from Marburg University, he moved to Scotland and worked with Kevin Laland for his Masters degree. His current research focusses on the integrated role of culture and life history in human adaptation.





# 4<sup>th</sup> Culture Conference held in July at the University of Stirling

From 12<sup>th</sup> to 13<sup>th</sup> of July, social learning researchers of different disciplines and levels of career gathered again for the annual Culture Conference.

BY EVA REINDL

For the first time in its young history, this year's Culture Conference was not held in Birmingham, but in Stirling, organised and hosted by Christine Caldwell's research group (many thanks to PhD students Charlotte Wilks and Donna Kean, who were mainly in charge of organising and who can be very proud of having organised another very successful Culture Conference!)

This year's conference topic encouraged attendees to think about 'the role of complexity in culture'. For example, how is complexity defined and measured in the different disciplines researching cultural evolution? Is an increase in complexity of a cultural trait a fundamental criterion for the definition of cumulative cultural evolution – and if not, which other measures should be used? As became evident from pre-conference tweets and comments of some of the presenters, thinking about these and other questions was perceived as a challenging but rewarding task for the presenters.

Other debates that came up repeatedly and that

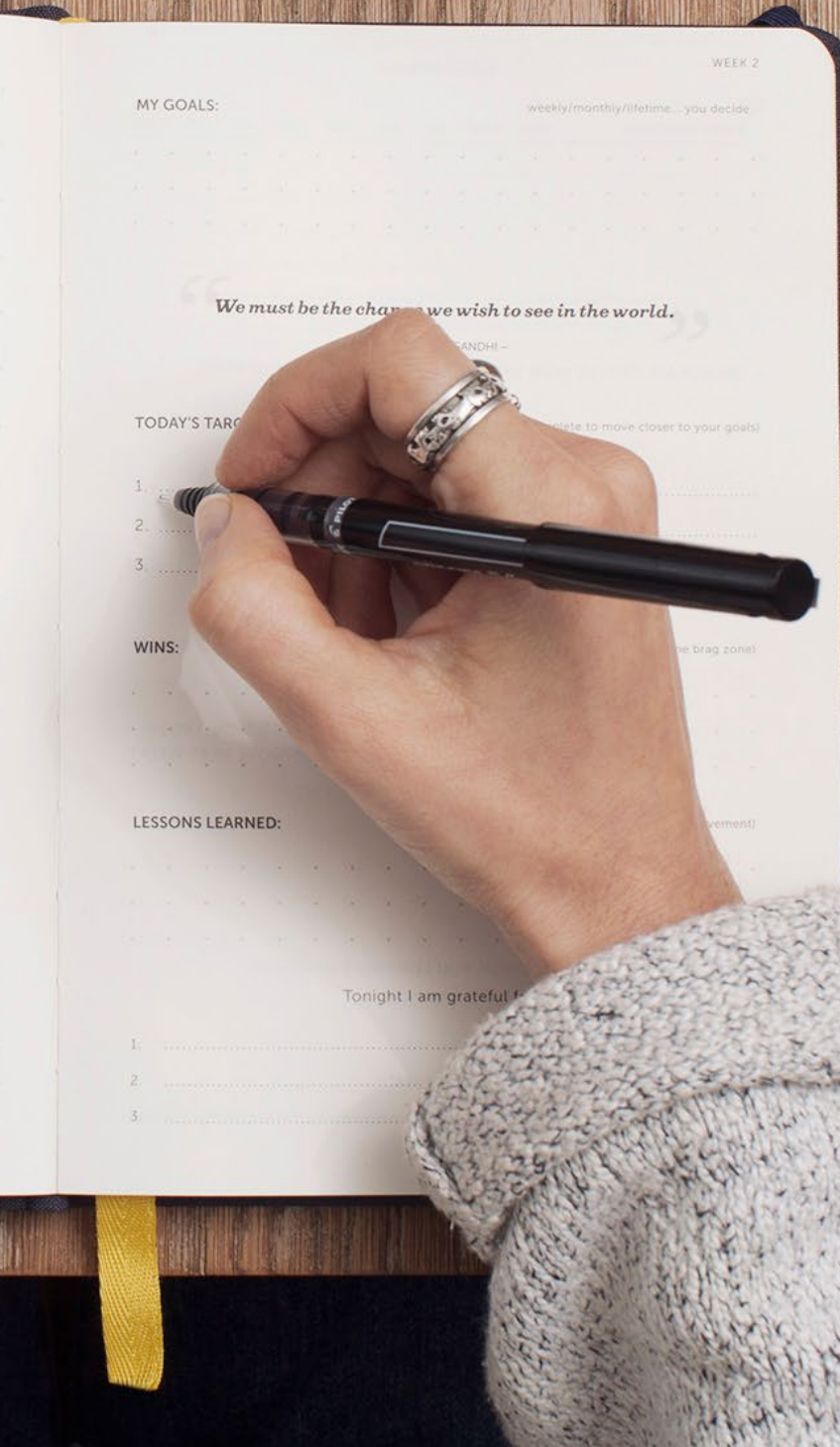
reflected current discussions in the literature included questions on the definition of cumulative cultural evolution (see the recent article by Mesoudi & Thornton, 2018) as well as on the design of appropriate asocial control conditions in experimental studies on cumulative cultural evolution (several speakers referred to the recent paper by Miton & Charbonneau, 2018).

The conference included 4 keynote talks and 7 talks, which consisted of both theoretical and empirical work, as well as a poster session and a concluding panel discussion. The atmosphere was positive and constructive and surely most people took home quite some food for thought and some new connections. Plans for the next Culture Conference are already underway.

And of course, there was also another pre-conference meet-up of our Society on the evening before the conference. Around 10 people came together to enjoy some nice pub food, catch up, network, and watch football together. □



# Write with us



**What is it like being  
an early-career researcher?  
What do you enjoy?  
What do you struggle with?  
We want to hear your story.**

**Get in touch!**







# What came first, the secular chicken or the economic egg?

The Primacy of Secularization in Human Development

BY DAMIAN RUCK

Why is it that secular countries tend to be rich and religious ones poor? Answering such a question involves unpicking a complex knot of social and cognitive factors, and requires the help of researchers from numerous disparate disciplines. So we answer a humbler question: what came first, the secular chicken or the economic egg?

Showing that secularization happens before economic development does not prove that secularization causes a prosperous society. However it does rule out of the reverse because of basic physics. The arrow of time runs only forwards, so current economic performance cannot be in response to future secularization.

## Max Weber vs Emile Durkheim

Gallup are the Rolls-Royce of international opinion surveyors. They showed us that people living in richer countries place less importance on religion than those living in poorer countries<sup>1</sup>. Although

beliefs, the steam-powered scholars of yesteryear have already noted that industrialized nations tend to be more secular than their pre-industrial counterparts. However, two giants of early 20<sup>th</sup> century social science, Emile Durkheim and Max Weber, had opposing interpretations of this fact.

Durkheim proposed the ‘functionalist’ model of secularization. He thought religion existed to provide a series of practical functions to society. Religion brought people together every Sunday, and it also provisioned education and welfare for the community. However, he also saw that the material security and rising living standards brought by economic progress was filling these functions, pushing religion to the margins of society<sup>2</sup>. Max Weber, on the other hand, argued that the Protestant Reformation was the religious phase-shift at the root of economic development. He proposed a ‘protestant work ethic’ that, once infused into a society, would unleash a stampede of productivity and economic improvement<sup>3</sup>.

Weber and Durkheim’s views are incompatible. Durkheim proposes that economic prosperity leads to future religious change, whereas Weber proposes that a religious change leads to future economic prosperity. We want to help settle this debate. Was Durkheim correct in saying that the economic egg hatched into a secular chicken? Or was Weber right, when he argued that the chicken of religious reform laid an economic egg.

## Two Out of Three Ain’t Good

Unsurprisingly, we are not the first to lay siege to

this particular castle. Others have done so using the modern arsenal of advanced statistics and powerful computers (something of which Weber and Durkheim could not have conceived). Yet the castle has proven harder to overrun than we'd hoped. Some studies have shown Durkheim to be correct<sup>4</sup>, some Weber<sup>5</sup> and some both<sup>6</sup>. We think these contradictions arise because it's just so damn hard to measure how secular the world is. For the best results, we need data that has three qualities: it should cover as many different countries as possible, it should stretch as deep into historical time as possible, and should take into account the inherent complexity of a concept like 'secularization'. Many of the cited studies have two of these data qualities, but none have all three.

Population surveys have been a fixture in the West for a long time. So if we ignore the rest of the world, and focus only on western countries, we can get a multi-dimensional measure of secularization that stretches back into history. There is just one big problem. People in western countries are not typical, they are WEIRD, as Joe Henrich puts it (an acronym for Western, Educated, Industrialized, Rich and Democratic<sup>7</sup>). For those tempted to generalize their WEIRD observations to the rest of the world, the story of Easterlin's happiness-income paradox should act as a cautionary tale.

In the 1970's, economist Richard Easterlin noticed that, within a particular country, the richer a person is the happier they are. A fact that won't surprise many. The paradox arose when he compared *average* income and happiness across *many* countries and found that there was no relationship<sup>8</sup>. A lot of ink was spilled trying to explain how it could be that income affects the happiness of individuals, yet has no effect at the level of whole societies. But, as the data accumulated over the next 40 years, it turned out there was no paradox to explain.

Back when Easterlin was writing, only a few countries bothered to ask their populations how happy they were, and these were always rich western countries. Since then poorer countries have started asking about happiness, which is bad news for

the Easterlin paradox. In these poorer parts of the world, where extra income could mean escaping subsistence level poverty, richer countries are quite a lot happier than poorer ones<sup>9</sup>. Easterlin's sample of WEIRD countries were all from the high end of the income scale where, as he showed, there wasn't a strong relationship (it turns out money can't buy you much happiness when you're already rich).

To avoid falling into the Easterlin trap, we need to make sure we include non-western countries in our sample. One way of measuring secularization on a global scale is by looking at church attendance, because it is more readily available than expensive survey data. But this is actually quite a coarse and impoverished measure of secularization. It is perfectly possible for a sincerely religious person to never set foot in a church, while the most tepid of religionists might regularly show up every Sunday (perhaps to fulfill some Durkheimian social function). Secularization is a complex multi-dimensional concept and so should be measured using a clutch of related survey questions asking things like: "How important is God in your life?" and "Do you think it's important to teach your child to be religious?"

Using the World Values Survey, we constructed a rich multilayered measure of secularization using questions like the ones mentioned. What's more, these questions were asked in 109 different countries representing all five inhabited continents. This truly global sample traverses the full income range, which should keep us out of the Easterlin trap. But for all its geographic and conceptual richness, the World Values Survey is lacking one important quality: historical depth.

### Diving Deeper into Historical Secularization

The World Values Survey goes back as far as the early 1980's, but countries from the Middle East, Africa and South East Asia only show up in the record during the last 15 to 20 years. Trying to detect the secularization trajectories of countries using such a stunted time series is impossible. It's



## Pitch to Publication

Secularization and economic growth

like trying to guess the future movement of the stock market by looking at the frenetic zig-zags comprising just a day's worth of trading.

Unfortunately, there is no getting around the fact that systematic surveying is only a few decades old in many parts of the world. So it appears there is no way we can reach the historical depth required to discover whether economic development or secularization came first.

But we have found a way to dive deeper. We have snuck a view of secularization from the earliest decades of the 20<sup>th</sup> century. This temporal periscope presents itself if we acknowledge a simple fact: that peoples beliefs and opinions tend to form and harden during the first few decades of their lives<sup>10</sup>. Despite a lifetime of ups and downs (often in response to economic booms and busts<sup>11</sup>), people unwittingly carry a fossilized representation of past secularization from their youth right into the modern day. This means we are able to use birth date as a proxy for historical time period, because if you want to know how secular the world was in the 1940's, then you should ask someone who came of age in the 1940's.

This new historical depth accompanies the global scope and conceptual richness already offered by the World Values Survey. So, unlike previous studies, our data has all three qualities required to definitely test whether it was the secular chicken or the economic egg that came first.

### The Secular Chicken lays an Economic Egg

The data are clear: secularization precedes economic development and not the other way around. We can declare a partial victory for the Weberians in the battle of the classical sociologists; Durkheim's functionalist model does not square with the way societies have evolved in the 20<sup>th</sup> century. Weber's victory is partial because we cannot say that he was correct in all of the detail, or even that secularization directly causes economic development.

In reality, society is a cacophony of interacting causes, effects and dynamic emergent properties. Trying to isolate a single cause for economic development is a mug's game. But we can check if some other, more salient, factor accounts for the explanatory potency of secularization, such as cultural history or a respect for individual rights.

Taking cultural history into account is unfashionable in many of the social sciences. But in anthropology they are acutely aware that the historical relationships between different tribes must be considered lest they run into 'Galtons problem'<sup>12</sup>. For example, when two neighboring tribes hunt with the same type of spear, they need to know if both groups invented that spear independently, or if they both inherited the same design because they are culturally related. And asking this question is no less important when comparing modern states consisting of millions of people, where political and economic shocks spread more readily between countries that have a shared cultural history<sup>13</sup>.

Sure enough, a country is far more likely to adopt the secular beliefs of a neighbor if they share a language or religion. Although cultural history compliments secularization, it does not displace it as an explanation for economic development. Both shared culture and secularization cut through the cacophony and proclaim their importance for promoting economic development.



## Secularization (Usually) Begets Respect for Individual Rights

A respect for the rights of individuals is the moral triumph of the humanitarian revolution<sup>4</sup> and is the key cultural value that unlocks economic development<sup>14</sup>. This individualism is the 'leg up' secular societies need to reach economic prosperity. We already know that declining adherence to religious doctrines leads to greater tolerance of homosexuality, abortion and divorce. But we show secular societies become prosperous only when they have a greater respect for these individual rights.

Zooming in on different regions of the world, we see poor secular societies alongside rich religious ones. Take those former communist countries like Russia and Ukraine, where violent repression during the 20<sup>th</sup> century left religion marginalized. Despite the religious bounce-back they've seen since the fall of the Berlin Wall, these countries remain highly secular yet show middling economic performance. In fact they are poorer than the fairly religious countries of Catholic Europe, such as Italy and Ireland. The cultural value that really distinguishes East from West Europe is a greater respect for individual rights.

Although this isn't to say that secularization is merely incidental. Religious institutions are inherently conservative and often drag their heels

on moral issues. Many have explicit doctrines that prohibit homosexuality, divorce and abortion. This transforms what could be a simple respect for individual rights into a five-year theology PhD. So it is easy to understand why individual rights normally only flower once religious influence withers.

That said, it is individual rights that are needed for sustained economic growth, and these don't require a secular world. If religious institutions can embrace modern cultural values and become less of a conservative force, then they could provide moral guidance in the economically prosperous societies of the future. □

### This article is a summary of the paper in Science Advances published in July:

**Ruck, D, Bentley, RA, Lawson D (2018), *Religious change preceded economic change in the 20th century*, Science Advances (July)**



Damian Ruck is about to complete his PhD at the University of Bristol, UK. He is interested in the role cultural values play in human development, such as, health, wealth, education, and democracy. He will soon start a post-doc at the University of Tennessee, Knoxville, working with cultural evolutionist Alex Bentley.

## REFERENCES

1. Crabtree, S (2010) Religiosity Highest in World's Poorest Populations <https://news.gallup.com/poll/142727/religiosity-highest-world-poorest-nations.aspx>
2. Durkheim, É, 1912 (1995). The Elementary Forms of the Religious Life.
3. Weber, M, 1930 (2001). The Protestant Ethic and the Spirit of Capitalism
4. Becker, SO, Nagler, M, Woessmann, L, (2017) Education and religious participation: city-level evidence from Germany's secularization period 1890-1930
5. Campante, F, Yanagizawa-Drot, D, (2014) Does religion affect economic growth and happiness? Evidence from Ramadan.
6. Herzer, D, Strulik, H, (2017) Religiosity and income: A panel cointegration and causality analysis
7. Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world?
8. Easterlin, RA (1974) Does economic growth improve the human lot? Some empirical evidence
9. Deaton, A. (2013). The Great Escape: health, wealth, and the origins of inequality.
10. Inglehart, RF. (2018). Cultural Evolution: People's Motivations are Changing, and Reshaping the World
11. Bentley RA, Acerbi A, Ormerod P, Lamos V (2014) Correction: Books Average Previous Decade of Economic Misery.
12. Mesoudi A (2011) Cultural evolution: How Darwinian theory can explain human culture and synthesize the social sciences
13. Matthews LJ, Passmore S, Richard PM, Gray RD, Atkinson QD (2016) Shared Cultural History as a Predictor of Political and Economic Changes among Nation States.
14. Pinker, S. (2018). Enlightenment Now: The Case for Reason, Science, Humanism, and Progress



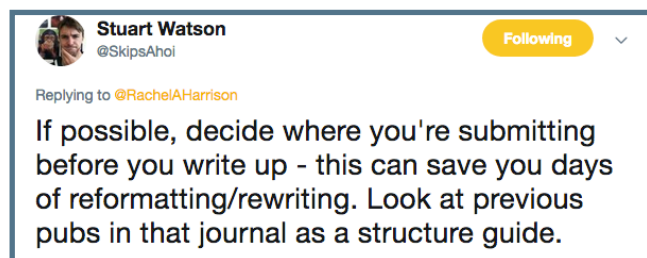
## Wisdom of the Crowd

Our resident Agony Aunt offers guidance on the key questions bothering early-career researchers, with additional advice crowd-sourced from Twitter. In this edition: Publishing!

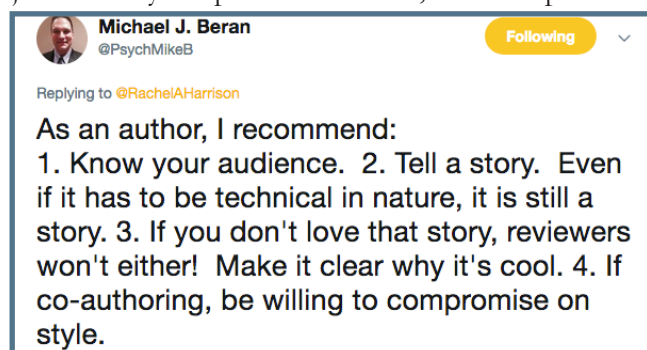
BY RACHEL HARRISON

Arguably, aside from teaching the next generation of researchers, publishing is **the** defining feature of a career in academia. It's how we share our results, engage in debate, and develop new theory. It's also terrifying. But never fear! Cultured Scene is here to give you the tips you need to succeed.

Before you can even begin to worry about those pesky editors and reviewers, you've got to actually write the manuscript. Now, the research is your own problem, but we can give you some tips for a (relatively) stress-free writing experience.

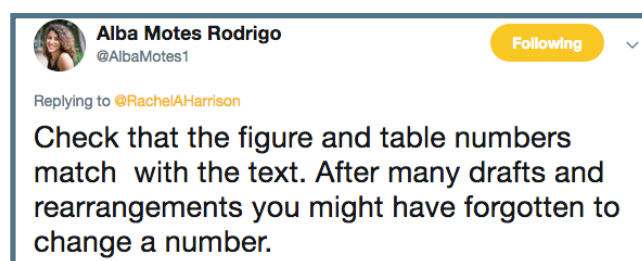


@skipsahoi suggests you pick a journal before you even start writing. You can use previous publications as a guide, and also make sure you follow the journal's style guide – it will be available on their website. This also means you can tailor the paper to the journal somewhat – if it's a journal for publications about all non-human animals, you may want to reference a broader literature than if it's a journal only for primate research, for example.

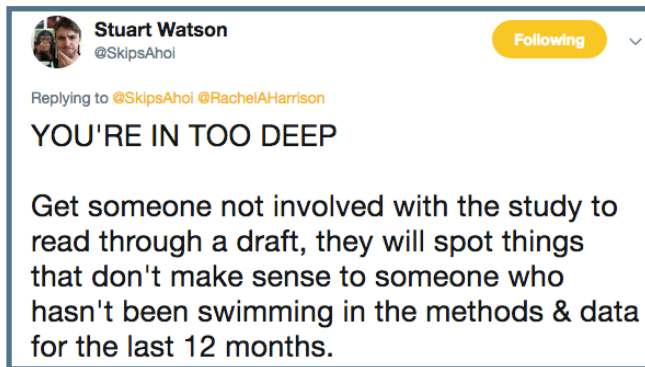


A wealth of advice from @PsychMikeB! Know your audience – like fitting your manuscript to the journal, you also need to fit it to your audience. Figure out the 'story' your research is telling, and then tell that story in a compelling way – make the reviewers love the story as much as you do. Writing with co-authors can be tricky – you may not get everything your own way in terms of style (my own love of em dashes rarely makes it into the final manuscript! Luckily I can use as many as I like in Cultured Scene).

So you have your manuscript. Time to edit! @AlbaMotes1 suggests checking the basics. Do your figure and table numbers match the text? Have you got multiple "Figure 3"s floating around, lying in wait to confuse and annoy a reviewer?



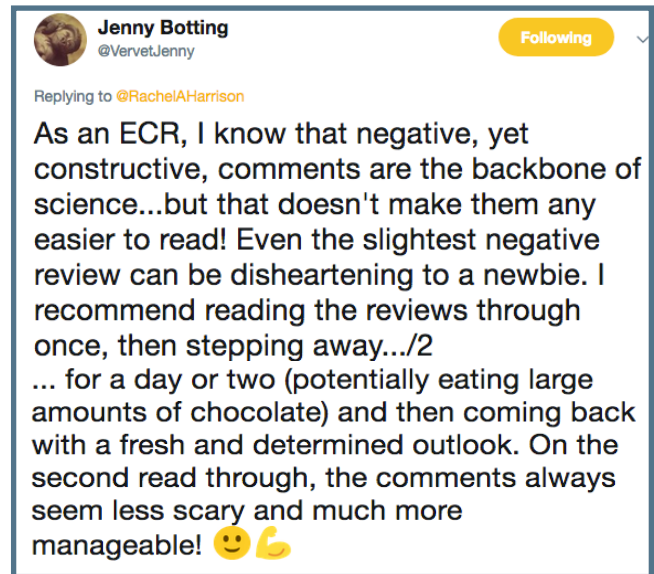
With a little help from Sum 41, @skipsahoi reminds us that academic success may indeed be "closer than it is too far" – if you take a step back and hand your precious manuscript over to someone dispassionate for a final check. A fresh pair of eyes will pick up any remaining errors you missed in your edit, and someone new to the paper will ask you to clarify all those things that seem obvious to you, the world's only expert on your paper, but are completely incomprehensible to someone who wasn't in the room while you collected your data.



@PsychMikeB concurs – get some outside feedback before you subject your manuscript to peer review. As an editor, Michael also highlights the importance of the cover letter. Don't make an editor root through your entire paper to work out what your key findings are and why they matter, tell them! Give them the information they need to find great reviewers who will help you improve your manuscript and get your research out there.



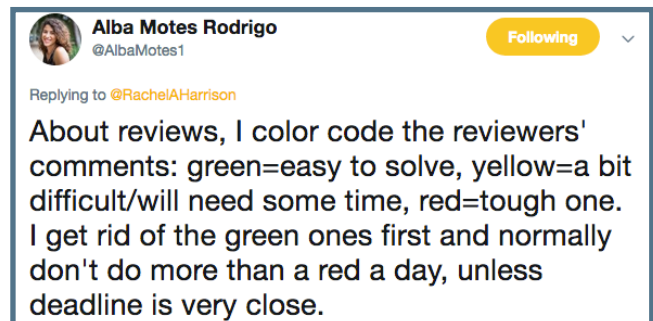
Now, on to those reviews. The scariest thing about publishing is receiving that first batch of reviews back. Of course, getting others to read your paper and comment *before* you submit it for peer review will help to catch any major issues before the dreaded reviewers get their hands on it. But nothing is ever perfect, and your reviewers may well request significant changes. @VervetJenny suggests putting the reviews aside for a few days, and coming back with a fresh outlook. Don't revise in anger! Negative comments, even about minor issues, can feel really upsetting – after all, you've been perfecting this manuscript for months! Take a step back, follow Jenny's advice and eat some



chocolate, and then make your edits. You'll end up feeling the paper is that much stronger.

@AlbaMotes1 has some pragmatic advice for managing your revisions. Colour code away, and deal with the easy stuff first. Once the ball gets rolling on making edits, you'll find you fly through them.

So that's our crowd-source wisdom on publishing. Safe travels, my early-career friends, and may the gods of publishing smile upon you and your manuscript.



One final piece of crucial advice though – once your paper is published, don't forget to do one of our Pitch of Publication interviews or write an article on it for Cultured Scene! ☐

Do you have a question for our Agony Aunt? Email Rachel at [journalsec2@eslr.co.uk](mailto:journalsec2@eslr.co.uk) and tap into the wisdom of the crowd.





Zebra finches perching in a tree.

# Barcodes for Birds

Cultured Scene spoke to Damien Farine about his recent paper on “An automated barcode tracking system for behavioural studies in birds”.

**CS: In your paper, you describe a new method for tracking individual birds using barcodes on backpacks. Could you describe for our readers (in simple terms) how this works?**

DF: The system is based on a relatively simple series of steps. The first step requires that each individual has a printed barcode attached that is visible from above. In our case this required finding a safe and robust way to attach the barcode to a bird. After many trials, we found that the best solution was a small harness printed out of paper and attached with fine elastic string. The advantage of this approach is that the whole construction weighs only 0.2 grams!

The second step involves collecting the data. Data collection involves recording images (can be either photos or videos) from above the birds. In our work, we focus on recording data from targeted areas, such as perches and feeders, and use a combination of video (when we require

fine temporal data of less than 1 second between observations) and photos (anything where observations spaced by 1 second or more are sufficient).

The third step is to extract the barcode data from the images. To do this, we use a published library that was designed for this purpose. The way it works is that the computer looks for and identifies anything that is a white square with a black border (which is what the barcodes look like). Once these are identified, the software then compares each one to a library of known codes. There is a bit of tricky geometry done here that means that codes can be detected in any orientation and even if they are tilted quite a lot. If that square is found to match a known code from the library, then the software records the coordinates of that square, along with its orientation.

The result is that for each image we get the location of all of the barcodes (and hence all of the individuals) in that image. By taking repeated images in time (e.g. using video), we can also get a movement track for each individual — much like collecting GPS data. Of course, there is a lot more analysis to be done from that point, and the next steps should then be driven by the research question(s). Although we don’t yet have many examples using these specific types of data, a few years ago collaborators and I published a study on baboons



where we used simultaneous data collected on GPS collars every second to determine how groups made movement decisions.

**Our readers may be somewhat familiar with tracking methods such as PIT (Passive Integrated Transponder) tags, as used by Aplin and colleagues to study social learning in wild great tits - in what ways is your new method an improvement upon previous ways of tracking and identifying birds?**

There are clear ways in which our new method can hugely increase the power of automated data collection. First, our method can record the location of multiple individuals at the same time. There is (theoretically) no limit as to how many individuals can be recorded in one photo. By contrast, only a single PIT tag can be detected at once, and the presence of multiple PIT tags or multiple antennas causes interference (and nothing is recorded). Being able to record multiple individuals might seem an obvious advantage in being able to increase data quantity, but importantly it also really helps with data quality by making inference much simpler. That is, we can collect precise measurements of the distance and time spent together by two individuals, rather than having to deduce this from a temporal stream of sequential data.

Another advantage is that images can be used to capture data from a reasonably large area (this is actually only limited by the resolution of the camera). PIT tag readers, by contrast, can only detect individuals when they come into contact with a reader. Thus, while PIT tag readers are useful for recording data from a focal spot, such as a puzzle-box, they cannot capture the individuals that are around that spot at the same time. Finally, the more traditional way of collecting data is to use visually observe colour-bands on individuals. This can be done either live (watch and record) or using video. However, these approaches are prone to error by observers (either incorrectly reading a colour, incorrectly reading the order of the colours, or writing down the wrong letters) or take an extremely long time (extracting data of identities from a single video can take hours). Our system does not suffer from fatigue or transcription errors, and we can precisely quantify error rates.

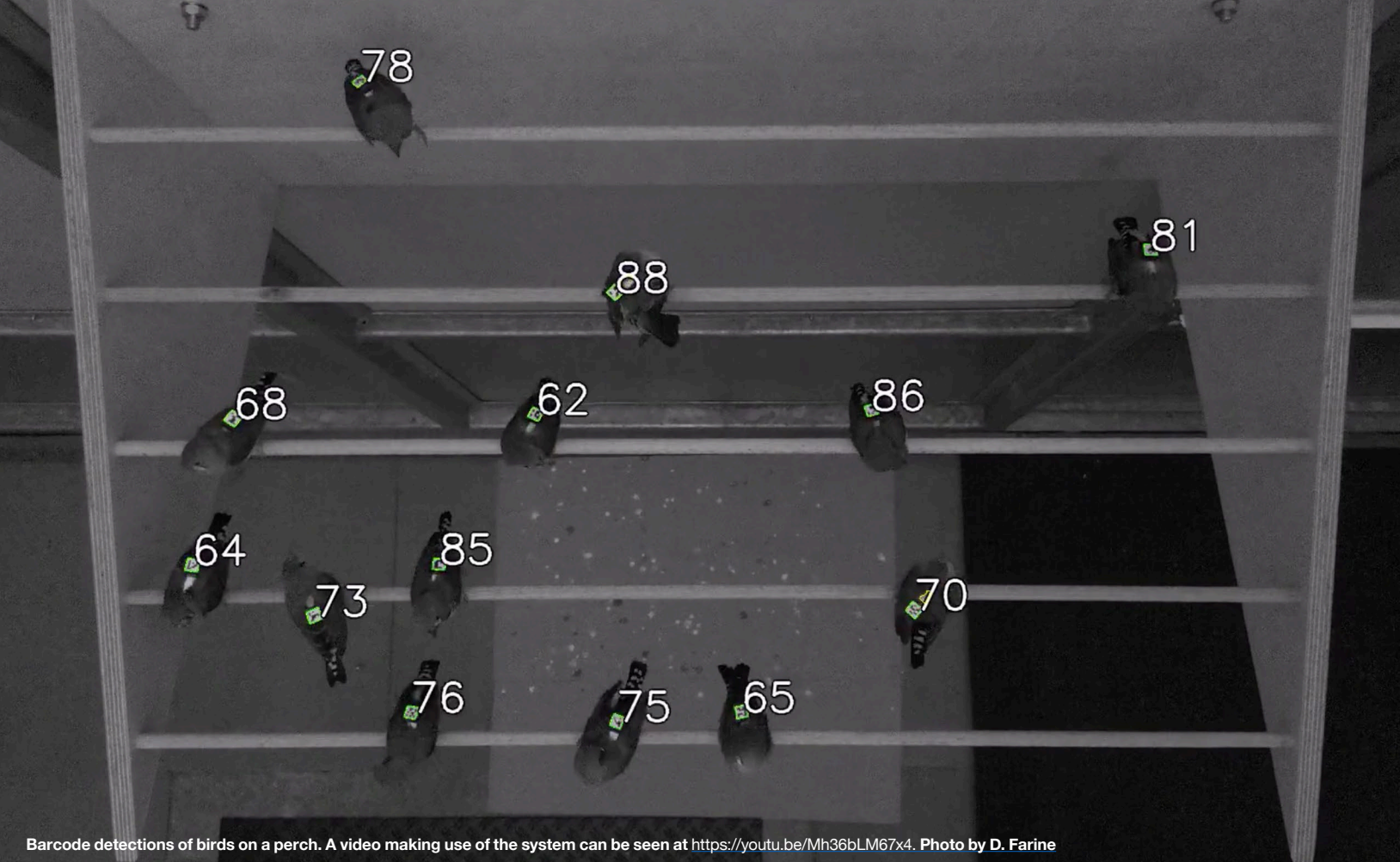
**Where did the initial idea for this method come from?**

In following studies (Biology Letters, 2014), we also showed that stressed juveniles used different social learning strategies and differences in their social behaviour also affected their song learning. The data for these studies were collected using



Two zebra finches at a feeder.





Barcode detections of birds on a perch. A video making use of the system can be seen at <https://youtu.be/Mh36bLM67x4>. Photo by D. Farine

visits to PIT' tag feeders, and in the process of analysing these data I realised that one major limitation we had is that we could not assign directionality. Here we had a nice experiment, but unfortunately we could not tease apart whether the manipulated juveniles behaved differently or whether everyone else behaved differently towards them. As a result, I started thinking about and planning for new ways to collect data at finer-scale spatial and temporal resolutions. Having done my postdoc on a dataset where we simultaneously tracked individuals in a group of baboons at fine-scale resolution, I realised the power of capturing simultaneous observations. I first thought about using QR code technology, and while looking into this I luckily discovered work that was being done on insects using these barcodes.

### **Were there any big challenges or setbacks during data collection?**

I was very lucky to be working with two excellent Masters students from the University of Konstanz in developing the project. I wouldn't say there were any major setbacks, but progress on designing a suitable attachment was definitely incremental at

times. The students tried a number of different methods before settling down on the final design, which took about one year from start to finish. The main part of this challenge was to design something that would be durable and robust, while at the same time safe for birds to wear for at least months. Because I am interested in studying social groups and the development of social bonds, it made our requirements quite distinctly different from previous studies that have used barcodes for very short periods of data collection.

### **You tested the system in captivity – could it be applied in wild birds?**

Theoretically the system could be used absolutely anywhere. However, I would really urge anyone thinking of deploying a system like this in the wild to extensively test the deployment methods. For example, the process of developing PIT tags that were safe for birds in the wild took a number of years, had many setbacks, and ideally researchers should go through the same verification process for their own study population. Here we have something even more challenging because much more can go wrong when fitting a backpack. In

zebra finches, we found that we had to monitor birds for several days before we could be sure the fit was good – a hard ask for a wild animal!

**In the paper, you mention that barcode tracking has also been used with insects; do you think there is scope for using this type of tracking system with other taxa?**

Again, the only limitation here is being able to fit the barcode in a way that remains visible. For birds this is a very important system because we can't use some of the techniques that have been developed for mammals, such as identification using unique markings. I know that the system is currently being used for fish.

**What sort of research questions do you think could be investigated using this barcode tracking technique?**

This system opens up many new opportunities. We developed the system because of my interest in studying social behaviour, where having many individuals marked at once is both technically challenging and/or expensive. The system could easily be used to in studies ranging from physiology through to mechanics. For example we found that we can use high-speed images to collect data of zebra finches in flight. Any study that requires recording the location of individuals will benefit from such a system.

**Although the idea of tracking barcodes on video sounds very high-tech, the equipment you describe in the paper is actually fairly affordable (GoPro cameras and Raspberry Pi computers) – do you think the emergence of this type of affordable technology has changed or will change the way researchers collect data more broadly?**

We have run several experiments now where we have collected over 100 million observations of birds over just a few months, all for almost no cost. What I found most remarkable is that we could do this without any human interference — I automated the entire data collection process so that the images were recorded and transferred to servers

automatically, and then processed overnight so that by midday the next day I had a complete record of every bird's behaviour from the day before. I think this system will revolutionise the study of behaviour in captive birds (at least) by allowing us to collect highly-precise data from dawn until dusk, every single day. In doing so, I hope it will set new standards for what is expected from studies of behaviour.

**What would your advice be for early-career researchers considering investing their time in developing novel methods like this?**

The single most useful thing you will ever do in your career is learning computer programming. And I mean learning programming properly — a major problem with our field at present is that students only learn how to programme while doing statistics, and the two are confounded despite being completely unique. Instead, I recommend doing a first-year computer science programming course, or come to Konstanz to take my undergraduate class in computer programming for biologists. □

## REFERENCES

- Alarcón-Nieto, G., Graving, J. M., Klarevas-Irby, J. A., Maldonado-Chaparro, A. A., Mueller, I., & Farine, D. R. (2018). An automated barcode tracking system for behavioural studies in birds. *Methods in Ecology and Evolution*, 9(6), 1536-1547.
- Boogert, N. J., Farine, D. R., & Spencer, K. A. (2014). Developmental stress predicts social network position. *Biology letters*, 10(10), 20140561.



Damien Farine is a Principal Investigator at the [Max Planck Institute for Ornithology](#) Department of [Collective Behaviour](#) based in the Department of Biology at the University of Konstanz, and a research associate at

the [Edward Grey Institute of Field Ornithology](#) (Department of Zoology, University of Oxford). His research focuses on animal groups, with the central aim of understanding the interplay between natural selection and social behaviour by studying animal groups in the wild.



# Communicating in colors

Cultured Scene interviewed Thomas Müller about his recently launched phone app.

**CS: How does the Color Game app work – how do users play the Color Game, and what is the ‘aim of the game’ from the user’s point of view?**

TM: In essence, it is a standard referential communication task – the goal for one of the players, the sender, is to describe a target color (here, the darker shade of blue) to the second player, the receiver. However, players are limited to black-and-white symbols provided by us to do so. These symbols have been chosen to be somewhat ambiguous, so to succeed the players have to establish a common “language” over time. Also, we do not provide specific feedback to players on the receiving end. Overall, it would probably take the receiver some effort and learning to understand the sender’s intended color in the example.

The main aim for users thus is simply that: to communicate successfully on both sides of the interaction. For this, they are rewarded with points and can climb the leader board that is public to everyone. Furthermore, points unlock new symbols and game modes, which potentially allow for further progress in the game. An important feature of the game is that players are free to choose who they interact with (see an example of the home screen below), and in which way – “puzzles”, as we call the interactions, can be played interactively or sent off asynchronously to anyone they like.

**What research questions are you hoping to investigate using the Color Game app?**

Generally speaking, we want to study how language evolves: The specific design of the app has been deliberately constructed to test several hypotheses concerning a range of questions in the field of



language evolution. These hypotheses have been pre-registered as part of our six projects on the Open Science Framework, which are not public yet, since we want the players to be unaware of our predictions while the game is running. However, without going into detail I can reveal that we will cover various different topics such as pragmatic effects, the formation of meaning and categories, and phylogenetic trees.

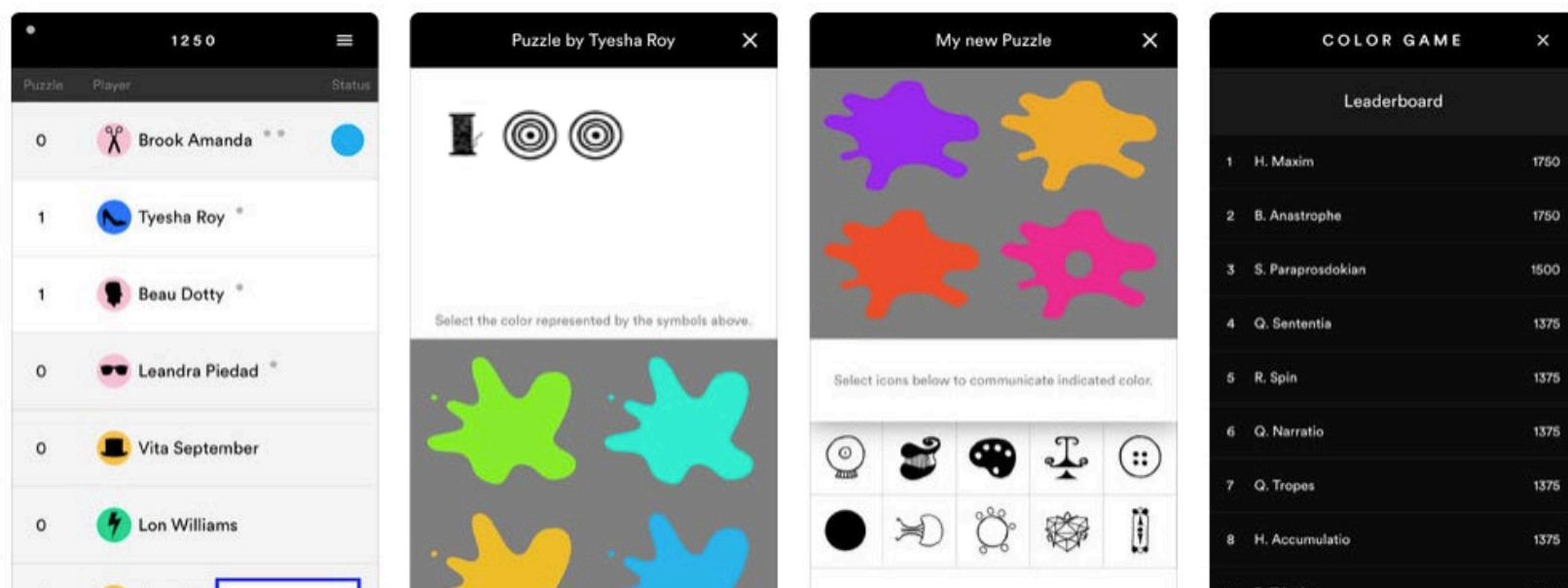
**Where did the initial idea to use an app to study this come from?**

We normally run laboratory experiments on artificial language evolution, so the idea was to possibly overcome some of the limitations that these exhibit. From there, the idea to make it a mobile game seemed rather appealing, a game that anyone could play at home, in the train, on the way to work... We then started to think about how our latest experiment could be translated into a mobile app.

**Were there any challenges or delays in developing the app?**

Yes, many challenges and a lot of delays. Translating the standard experiments we usually run into a mobile game people would play without payment and for fun proved challenging but doable. Second, we also had to try to combine the scientific side with the specifics and manipulations that were actually doable in the app; and not just once, but for all six pre-registered studies. However, overcoming the technical challenges was hardest; of course, it took a lot more effort, several rounds of testing and fine-tuning to create a project in such a scale, compared to lab studies. Overall we worked on the project for almost two years until the app finally launched.

**Why use an app rather than having participants come into the lab? In what ways are you hoping that this approach will improve upon previous studies?**



Interface of the Color Game app. Participants are ranked by their achievements. The goal is to identify a color based on a series of symbols, or to describe a color with these symbols.

First, this is of course a matter of scale – a smartphone app can reach a number of players and gather data that would take us years to collect in the laboratory environment. But this is not the only improvement we gain, and for scale alone we could have used a standard online experiment. Through the use of a mobile application that players stay logged into and use repeatedly, we think that more realistic conditions arise regarding real-life linguistic interactions: In our case, players can freely choose the partners they want to interact (and succeed) with from the pool of users, and the direction and amount of transmitted information is completely unguided by us as experimenters. We also discuss these advantages, amongst other things, in the short paper recently published and accompanying the app (Morin et al., 2018).

### **You have pre-registered hypotheses regarding the results from the Color Game – why was it important to you to pre-register your studies?**

The pre-registration clearly marks the related analyses as predictive and shows that the app was developed specifically for the purpose of testing these ideas. In contrast, it prevents us from making big claims about unexpected or accidental results, although we are still able to perform exploratory analyses (as anyone will be once our data is released to the public). Also, pre-registering all six projects in advance meant we had to think all of them through and make sure they do not interfere with one another, which was extremely helpful in

deciding how the app should be designed.

### **Having reached the point where you have a working app and are using it to collect data, what would your advice be to early career researchers considering this type of approach to data collection?**

If the project is supposed to be of similar scale and the app the central means of data collection, then the obvious advice is to start very early and plan for generous amounts of time, since there will be unexpected obstacles on the way. Once the app is working and can go live to the app stores, an important point not to neglect is that the game has to be promoted to actually reach users, because you cannot rely on the usual channels for participant recruitment at this scale. □

### **THE COLOR GAME APP IS AVAILABLE AT [HTTPS://COLORGAME.NET/EN/](https://colorgame.net/en/)**

Morin, O., Winters, J., Müller, T. F., Morisseau, T., Etter, C., & Greenhill, S. J. (2018). What smartphone apps may contribute to language evolution research. *Journal of Language Evolution*.



Thomas Müller is a PhD student at the Max Planck Institute for the Science of Human History in Jena. He has a M.Sc. in Cognitive Psychology and is studying language evolution experimentally in the Minds and

Traditions Research Group, but is also investigating large-scale online data to study cultural evolution.





# UK Higher Education Strikes

Expecting a major cut to their pensions got thousands of UK university staff on the street

INTERVIEW BY RACHEL HARRISON

In February and March 2018, staff at 64 UK universities participated in strike action in protest against proposed changes to the Universities Superannuation Scheme. The strike was the longest-ever in UK higher education history, and an estimated 42,000 staff participated. Over one million students are estimated to have been affected by the strike. Cultured Scene has put together a brief guide to the strikes, and spoke to two staff members who participated in the strike action (Paul, a Senior Lecturer, and Kirsty, a Research Associate, both of whom work at top 20 universities) about their experiences. While not definitive, we hope this article will give our readers a fuller understanding of the strike, and we hope our interviews with Paul and Kirsty will provide a snapshot of some of the varied views about the strike.

Why did the strike take place?

The strike action was motivated by proposed changes to the Universities Superannuation Scheme (the pension scheme used by 68 UK universities founded before 1992). Due to reports of a deficit in the scheme (a gap between the fund's assets and its liabilities), UUK (the organisation representing 136 UK universities and higher education colleges – note that UUK represents universities as employers) recommended that the USS pension scheme changed from being a defined benefit scheme (a pension scheme in which the eventual payment amount is predetermined) to being a defined contribution scheme (a pension scheme in which future payments fluctuate depending upon how the investment performs). UUK argued that this





Image: By Stinglehammer [CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>)], from Wikimedia Commons

change was the only way to deal with the deficit in the pension scheme, with the only alternative being to increase the contributions paid in by both employers and staff – and that making higher contributions would result in member universities making ‘serious cuts to teaching, research and jobs’.

The University and College Union (UCU) is a trade union representing casualised researchers, teaching staff, and permanent lecturers (postgraduates intending to follow a career in any of these sectors are also eligible to join). UCU were strongly critical of UUK’s proposed changes to the pension scheme. They argued that the proposal would leave a typical lecturer £10,000 a year worse off in retirement, and that younger staff (those who would spend the longest amount of their working life under the new scheme) could lose up to half of their anticipated pension. This

**The proposal would leave a typical lecturer £10,000 a year worse off in retirement, and younger staff would lose up to half of their anticipated pension.**

was a major concern for many academics. Paul told *Cultured Scene* “Salaries are relatively low compared to other professional groups, hours are long and demands are high. I am 55 so the evaluation of my pension would be detrimental but nowhere near as significant as for those starting

out twenty or even ten years after me.” Kirsty said “I chose to take part because as someone who is just starting my academic career, I didn’t want to wait and say “I’ll strike when I have a permanent job.” I thought that if I didn’t go on strike, this might not be a system in which I want to get a permanent job.”

UCU also argued that the original valuation of the scheme, which appeared to demonstrate a deficit, was flawed, and that UUK’s negotiating position had been unduly influenced by the views of Oxford and Cambridge Universities, whose



## Commentary

### UK Higher Education Strikes

member colleges had been allowed to make individual submissions in response to consultations. UCU balloted their members, a majority of whom voted for both strike action and action short of a strike. This meant that UCU members at institutions whose local UCU branches had received the required turn-out of 50% and voted for strike action did not attend work on the days in February and March specified by the UCU. They also took part in action short of a strike – this meant that on days on which no full strike action was occurring, members worked to contract (sticking strictly to the work duties and hours outlined in their contracts), and did not take on any additional work, such as covering for absent colleagues, rescheduling lectures cancelled due to the strike, or undertaking any additional voluntary activities. Some members also resigned from their roles as external examiners.

During this strike action, members formed picket lines outside their workplaces, holding up placards to put forward their view and handing out leaflets to inform passers-by about the strike. Many members also organised ‘teach-outs’ during the strike, public events where striking staff shared their knowledge on everything from trade unionism to hypnosis to juggling. Kirsty had a very positive experience of the strike itself, telling Cultured Scene “It was like this rallying force had pulled everyone together from across departments that otherwise never communicated with one another. The snow days were the best days. People brought hot drinks, snacks, music; the snow could have kept people in but instead more people came out!”. Paul’s experience was more mixed, and he told us “My experience of industrial action is a little different to some others as I used to be a coal miner and was on strike for a year 1984/85. This isn’t meant as a badge of honour but my emotional interpretation is different. The camaraderie in any strike is special and the recent action created many great bonds with colleagues - to be fair, the people I was closest

to before are the same people who were on strike .... The most negative aspects were two-fold - (a) the position of my own and other Universities (and UUK) senior management treating this like it was a bun-fight and we are just kids in the park throwing our toys out of the pram, and (b) the incredibly negative affect on the mental health of some of my colleagues; they were bitter, spiteful, and hurt by the disingenuousness on both sides of the strike.”

As might be expected in 2018, social media played a strong role during the strike. Those on the picket lines shared photos and stories of their strike

experience, and in depth analyses of the proposed changes to the USS scheme were posted on Twitter. Kirsty found that “Twitter was one of the best ways to keep informed. UCU branches around the country were sharing updates from their picket lines and meetings. And the threads unpacking the proposed USS

scheme were fantastic. From what I saw, striking academics were able to mobilise online much more effectively than UUK and I think that also helped with getting students on board.” Paul found that “Twitter was a fantastic source of information and support but it did get to a point where there was too much going on and too many people expressing their despair and I had to stop following them. I am pragmatic, it is an economic issue and there is no point in turning it into any personal heart-breaking attack on one’s self or worth.”

Despite the potential disruption to their education, students tended to support the strike action. The National Union of Students officially supported the strike, and a YouGov poll conducted just before the strike began found that 61% of student respondents supported the strike.

How did it all end?

After 14 days of strikes, UUK and UCU talks resulted in a new proposal from UUK, offering a

**Despite the potential disruption to their education, students tended to support the strike action.**

joint expert panel to review the valuation of the pension scheme, to make recommendations if, in light of a new valuation, either contributions or benefits need to be adjusted, and to discuss the USS's comparability with the Teacher's Pension Scheme (the pension scheme used by most post-1992 higher education institutions) and alternative scheme designs. On the 13th of April UCU members voted by 64% to accept the UUK offer, and the industrial action ended. However, the issue is not yet resolved, although Paul thinks "the strike succeeded in precisely what it set out to do - there was never going to be a triple-lock agreement on protected pensions. I think it will be resolved as the affordability of pensions has improved so much since our salaries have fared so poorly and University incomes are large and protected." At the end of June, UCU announced that it will ballot its members this autumn for support of industrial action in order to achieve pay increases for higher education staff.

What does this all mean for early-career researchers?

While retirement and pensions may seem to be far-off for many of us, pension provision is a key benefit offered by employers, and is something that we should all be taking into consideration when making career decisions. The way that academia works means that early-career researchers and teaching staff may not start making pension contributions until after they've completed their PhD and started their first full-time job – this puts us at a disadvantage in comparison with workers in other sectors who start paying in much earlier. For this reason, whether or not one agrees with either the UCU or UUK's arguments, pensions are a key issue that affects us all.

But these strikes can be seen as being about more than just pensions. The industrial action this year took place in a higher education landscape in the UK in which wages for lecturers have fallen in real terms for the last 8 years (with any pay increases failing to keep up with an increasing cost of living),

in which one-third of all academic staff and two-thirds of research-only staff are employed on fixed-term contracts, many of which only last 12 months, in which students are paying the highest tuition fees in fifty years, and in which the sector is seeing increasing commercialisation, with the current universities minister arguing for a university comparison website which would base the 'value' of a degree upon the salaries of its graduates.

So what should early-career researchers do?

Kirsty suggests they consider joining their union, especially during their PhD studies because "PhD students don't pay UCU membership fees! I did not realise that until the strike. If I'd known when I was a PhD student, it would have been great to join sooner so that I'd have a better grasp of what the union is and what it does. Since the strike, the UCU branches are maintaining more activity than before, and the communities of university employees that met on the picket lines will hopefully last for a long time to come!" Paul points out that effecting change in higher education working conditions isn't just about union membership or industrial action, but about working to improve the culture of your department year in year out - "We are told to collaborate but be independent, to be first author and to compete for funding against colleagues with whom we are friends. Early-career researchers in a department should agree it isn't a competition and only work 40 hours a week, never evenings or weekends, unless that is their preferred 'pattern'. If senior staff say you should be working longer or even if you perceive that to be the case, take a deep breath, consult any major non-totalitarian guide (religious or otherwise) and join the union and tell them to f\*\*\* off. Alternatively look at any work on human physiology or psychology that explains the damage that long hours do to your cognitive ability, physical health, and mental health." □

Did you take part in the strike action? Perhaps you have a different view on the issues raised in this article – or a view on issues regarding the work environment in academia outside the UK. We'd love to hear from you - contact Rachel Harrison at [journalsec2@eslrsociety.org](mailto:journalsec2@eslrsociety.org)



# Thanks to our funders

ESLR is grateful to the following organisations for supporting our workshop: the European Society for Evolutionary Biology (ESEB), the European Human Behaviour and Evolution Association (EHBEA), the Galton Institute, the Institute of Behavioural and Neural Sciences (IBANS), University of St Andrews, the Student Association, University of St Andrews, and finally the School of Biology, University of St Andrews.

The European Society for Evolutionary Biology brings together evolutionary biologists from Europe and across the world, including researchers, academic teachers, students, and journalists as well as others interested in evolution. ESEB holds a biennial Congress which is one of the largest meetings in evolutionary biology. The next meeting is in Turku, Finland, from 19th-24th August 2019.

The European Human Behaviour and Evolution Association is an interdisciplinary society for researchers with interests in evolutionary accounts of human behaviour, cognition, and society. EHBEA holds annual conferences, with the next meeting occurring in Toulouse, France, in 2019. EHBEA also offer student research grants, and the next deadline for applications is the 1st of August 2018.

The Galton Institute is a learned society with a focus on the scientific study of all aspects of human heredity, from molecular genetics to population dynamics, demographics, and human evolution. It aims to promote the scientific exploration of these subjects, and to stimulate and inform public debate. The institute's 2018 conference on Genome Editing will take place on the 31st of October 2018 at the Royal Society, London, UK.

The Institute of Behavioural and Neural Sciences at the University of St Andrews is an interdisciplinary community of researchers who study the behaviour of both human and non-human animals from cellular, neural, cognitive and evolutionary perspectives. IBANS brings together faculty and students from the Schools of Biology, Psychology and Neuroscience, Medicine, and Chemistry. Most members of the institute are available to supervise doctoral students. The institute holds both annual symposia and research forums.







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SOCIETY WEBSITE  
[ESLRSOCIETY.ORG](http://ESLRSOCIETY.ORG)

SOCIETY CONTACT  
[INFO@ESLRSOCIETY.ORG](mailto:INFO@ESLRSOCIETY.ORG)