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Doctoral Times

Research Methodologies

Spring 2022 - Issue 22

Welcome!

Welcome to the **Spring 2022** edition of the Doctoral Times.

In this issue we will explore the wonderful world of research methodologies, with a comprehensive range of insights, top tips and advice from PhD students and members of staff.

The foundation of any great piece of research is a strong methodology. It will ensure that your PhD meets its aims and objectives, and allow you to examine data with fairness and accuracy.

Our contributors have generously given their time to help shed light on this important topic. We would like to say a big THANK YOU to everyone who has taken the time to contribute and share their experiences with us, we couldn't have done this without you!

If you are interested in writing an article for a future edition of the Doctoral Times, then we would love to hear from you at doctoraltimes@sheffield.ac.uk.

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Exploring Methodology & Research Methods

Becoming 'Untrained' in Methodology

By **Dr. Martina Smith** - EdD Graduate, School of Education

When I initially started thinking about and planning my EdD thesis I had a clear idea about what I understood qualitative research methodologies to be: systematic, formalised and pre-defined. I had a few weighty – and costly - handbooks on qualitative methodology that I assumed I would be able to use to guide me through a clear-cut process from formulating research questions, conducting interviews through to 'how-to-do' analysis and write up results. I would, so I thought, parachute the most suitable method into my research and follow its instructions from start to finish throughout the research process. As my research grappled with 'undoing' and 'reimagining' in the context of parenting, early education and disabled childhoods, it began to jar that as I was trying to 'un-do' some very taken for granted discourses, I was trying to do this with taken for granted research methodologies and practices. This became increasingly uncomfortable in the context of research that was seeking other ways of knowing and thinking.

Despite initially trying to ignore this discomfort, I eventually paid explicit attention to it and quickly realised I was far from alone in my growing frustration with methodological traditions that rely on the humanist discourses I was trying to unsettle. Unbeknown to me at the time, this was the start of what I later understood as the 'doing' of methodology; my reading, thinking, planning and re-planning with different theories were all an important – yet messy and indeterminate – part of my research inquiry. I was falling down a rabbit hole and quickly found reassurance from the considerable and growing body of research that embraces the uncomfortable, the uncertain and provokes doing research otherwise and in other ways that actively resist the pre-determined and systematic. Examples of this kind of research fall under labels of post-qualitative, posthuman, new materialist and post-structuralist. Far from being less rigorous, for these modes of inquiry to be set to work they demand a depth and breadth of understanding of theories, epistemology, ontology and ethics to push inquiry and thinking beyond traditions and habits that might inhibit creativity. Untrainable ways of researching and inquiring ultimately provoke the ongoing innovation of approaches to social research that recreate dynamic spaces for thinking and knowing differently.

My experience of doing research that resists traditional methodological definition and refuses to fit neatly into a pre-defined methodological framework during a doctoral research project did prompt a few moments of panic! I had a few false starts during the 'doing' of my research as I kept falling back into habitual ways of planning and thinking about my project. It was in this state of grappling with my research that I was becoming 'untrained' and 'untraining' was hard as it meant breaking these deep habits of thinking and doing. I was always aware that I would have a viva to pass at the end and institutional expectations to meet but with the deep dive into theories and trusting in various theories whilst taking inspiration from other researchers using untrainable – or perhaps more appropriately 'untameable' - methodologies, the process ultimately produced a successful creative and theoretically dense research project. I would urge doctoral researchers to not assume pre-given limitations on what 'counts' as research methodology and inquiry. Breaking methodological habits is undoubtedly challenging but the possibilities for innovating social research inquiry and generating new ideas, perspectives and knowledge makes it a discomfort worth embracing.

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Why Methodology Matters: Infusing Research with Real-life Choices

By **Dr. David Yates and Professor Bill Lee** - Sheffield University Management School

Designing, executing and writing up methodology may sometimes feel like a tick box exercise that involves selecting research methods that are familiar, carrying out said methods, and writing up the findings. This 'wash, rinse, repeat' approach has the potential to be exacerbated by 'publish or perish' cultures that frequently raise their ugly heads in contemporary universities. Even when conducting research for a PhD thesis, there may be an inclination to rush through this part of the process, instead preferring the excitement of collecting evidence and progressing the PhD process. Any tendency to overlook detailed methodological considerations is made more attractive by the possibility of ignoring the contradictory aspects of universities' regulations of research. For example, many universities now encourage students to act ethically and not cause harm to anyone. At the same time, they also claim adherence to postcolonial research concerns that challenge practices and theories that produce vested interests. Similarly, universities now encourage researchers to conduct impactful research while not stating for whom the impact should be and why impact should be considered universally beneficial and not detrimental to some parties.

The time when considering methodology offers the researcher opportunities for self-reflection and the means to make their research 'come to life'. The choices that researchers are forced to make in designing and applying a methodological approach often allow for notions of axiological stances to come into view and become part of the research process. What is included in the scope of the research and methodological approach becomes extremely important in terms of the potential findings and other outcomes of the project in question. This stage of the research provides the researcher with an opportunity to align their investigation and identity of a researcher with other identities and aspirations such as being a good partner, parent, member of the community, etc.

So how to give methodology credit and design methodological approaches that can produce quality research? De Loo and Lowe (2011) consider the pitfalls of neglecting these choices and assumptions, in terms of both research philosophy and paradigm selection. In particular, they emphasise an integrated approach, considering the ontological implications of utilising certain methods. For example, a choice between realism and constructivism requires different questions to be asked and possibly different ways of collecting evidence. Lee and Aslam (2018) discuss axiological choices and research sites. They encourage researchers to consider not only the interaction with respondents or research participants, but also the wider power relationships of superordination and subordination within the society in which research takes place and how the researcher wants the investigation to affect those relationships. Potential clashes and reconciliation strategies are something that the PhD student should certainly discuss with their supervisor(s)/co-authors.

We hope that in this brief account we have been able to sound the case for a detailed and reflective consideration of methodological approaches. We hope that in raising these issues, we have assisted in enhancing your research.

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Exploring Methodologies is Time Well Spent

By **Dr. Besiana Sinanaj** - Research Associate, School of Biosciences

At the beginning of a research project, a myriad of ideas are likely racing through your mind. After your first supervision meeting, thoughts such as, "I need data as soon as possible" and "I need to publish a lot of research papers," may emerge and may be reinforced when you happen to hear the academic aphorism: publish or perish. This is a completely normal reaction. Relax and take a deep breath. Without a doubt, the data and research papers you accumulate during your degree are a way of measuring your progress. However, it is important not to get caught up on quantity but to focus on quality. So how can you ensure you get high quality data from the start? One way is to invest time in exploring and evaluating the methodologies in your field before carrying out the bulk of your research.

I should start by saying that this approach is not relevant to all PGR projects and largely depends on two limiting factors, time and available funds. For projects that are relatively short (i.e. ≤1 year), it may be wiser to jump into the field or lab as early as possible to begin data collection using current established methods (unless of course your topic is method development!). Similarly, if your research group is on the verge of a ground-breaking discovery that will be consolidated through your project, time is of the essence. It is probably best to stick to current methods, especially if other competing research groups are working in the same direction. If your research involves equipment, permits or materials that are scarce or very expensive, then exploring several methods may not be feasible.

If none of the above limitations apply to your project, then I would strongly encourage you to take the time to consider and test several methods for addressing your research questions and hypotheses. It really does pay off. In my Biology PhD, I studied a group of soil fungi that form symbiotic relationships with plants. They have only recently been discovered. In many ways, I felt like how I imagine a 19th century naturalist going on a voyage of discovery would have felt. A third of my time was spent evaluating and refining methods for the detection of these fungi and the enrichment of plants with them. Here are some of the benefits of the process:

1.) I identified the limitations of different methods when applied to my research context (i.e. my group of symbiotic fungi) by running small-scale studies. As a result, I was able to select the best tools to carry out my large-scale experiments.

2.) My work on evaluating methods formed a sizeable chapter in my thesis and provided a strong example of my critical thinking ability.

3.) I validated a method that had been published just before I started my PhD. Being able to give the wider research community useful information and paving the way for future PGRs was rewarding.

4.) I published a paper on the challenges of the methods in my field in a high impact journal.

These benefits can be experienced across research degrees in STEM, as well as in the Arts and Social Sciences. While networking at university, I have met other students and academics who chose to evaluate and improve research methods for a significant portion of their PhD, showing that this approach is not uncommon. So, the next time you are planning your research and putting together a Gantt chart, remember that time spent exploring methodologies is time well spent.

Operationalising a Critical Realist Informed Research

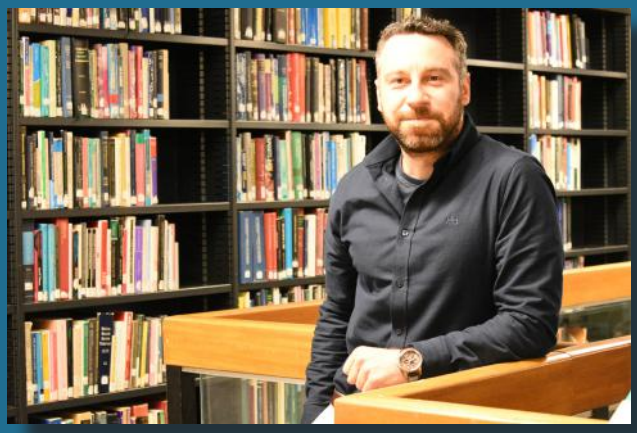
By **Alexis Thouki** - Doctoral Researcher, Sheffield University Management School

The last two decades have seen a substantial growth in interest amongst social scientists in using Critical Realism (CR) as the underpinning philosophy in their research, predominantly in fields of organisation and business research. The main philosophical assumption of CR is its non-deterministic and non-reductionist approach. Considering reality as stratified (real, axial and empirical), CR researchers believe that objective structures and mechanisms exist outside of human conception. Thus, in using retroductive analysis, the aim is to seek in the empirical data (such as interviews) the effect of underlying mechanisms. CR favours a non-deterministic analysis of social reality, arguing that the way underlying mechanisms are triggered is contingent by particular and contextual conditions. Within these conceptual margins, CR is a promising epistemological framework to help social scientists to break down and analyse social phenomena to their constituent parts.

Despite the growing interest, a difficulty has been observed in operationalizing the epistemological and ontological commitments of CR in social research, as well as applying this philosophy in new fields such as cultural studies. This is due to the lack of a discrete methodology in the application of CR, its epistemological complexity, as well as the difficulty of CR to address issues of 'self', instead placing the emphasis on macro level (class, structure, inequality). However, this methodological ambiguity has encouraged researchers to adopt various methods and analysis procedures.

The lack of methodological developments in the application of CR has led researchers to adopt various methods and analysis procedures. This includes the deployment of case study design, privileging the investigation of discourses and meanings in context. Regarding research approaches, although qualitative research is privileged within an explanatory framework seeking to understand why certain phenomena exist, quantitative methods, such as surveys within a mixed method approach, could also capture relevant data which through qualitative approaches could lead to underlying mechanisms. Regarding data analysis procedures, different methods have been suggested including grounded theory, as the CR investigation of social stratification (real, actual and empirical) appears congruent with social mapping and conditional matrix of grounded theory (open, axial etc.). Other approaches include 'methodological pluralism', intensive and extensive empirical procedures and flexible deductive approaches drawing on existing theory and literature.

Researchers interested in developing research designs driven by CR should be aware of some of the many tenets of CR. These include retroductive analysis, a background reasoning aiming to unearth causal mechanisms, the basic conditions for the existence of phenomena, and abductive reasoning that helps researchers to reinterpret data in the light of theories moving from the descriptive level to a more abstract theoretical analysis. The central tenet is to identify and distinguish incidental (contingent) from essential (necessary) characteristics, starting from the empirical level seeking demi-regularities empirical patterns caused by underlying mechanisms in the data. Lastly, a CR researcher should also be familiar with analytical dualism, an analytical distinction between (social and cultural) structures and agency that enables social researchers to investigate their dialectic relationship. Thus despite its epistemological complexity, the rich conceptual framework of CR could provide a firm philosophical grounding for providing research with explanatory power to address, challenge and make recommendations about social reality.



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Creating a Mixed Methods Research Design (including Experiment)

By **Dr. Zahra Shah** - Early Career Researcher and Teaching Associate, Management School

Chances are, you had a good idea of your research methodology before you started your PhD journey. However, as you get closer to finishing your literature review, designing your research might feel like an increasingly daunting task, one you keep procrastinating on (probably by reading more literature). In my experience, I found that it sometimes helps to take a step back and approach it from a holistic, systematic, and pragmatic perspective – and no, I am not just referring to the philosophical foundation here! Although you can certainly adopt it if it is suitable for your research. For my PhD, my main objectives pertained to creating and testing a conceptual model and examining how relationships within the model changed under two diverse conditions within and across two cultural markets. To satisfy the tenants of my research, I adopted a mixed methods approach.

To start off, I evaluated which methods were most appropriate for my research by considering the following: which methods are suitable for each of my study objectives? What is it that my selected methods offer that others do not? Is one type of method more important or predominantly used in my study? How can I enhance quality assurance? I found it was important to keep my research philosophy in mind and use it to guide my approach. Using semi-structured interviews and focus groups, I developed a questionnaire survey which formed the main data collection tool for my study. Therefore, my research most closely resembled an exploratory sequential mixed-method research design. If you are using mixed methods, do ensure you consider the design type. Reading the works by John W. Creswell is very useful for this. If you can, draw a diagram of the research design and procedure.

One of my research objectives pertained to examining how consumers from different cultures respond to the inclusion of explicit sex appeals in celebrity/influencer endorsed adverts. To fulfil this objective, I employed a 2x2 within-subject experimental design with the purpose to establish causality by enabling the change in participant response to be attributed to the manipulated variable. Using the results from the qualitative research and carrying out poll surveys to select the celebrity and brand featured in the study, two celebrity endorsed adverts were designed using photoshop. Advert 1 – included in Study 1 – formed the pre-test and did not incorporate any explicit sex appeals in the design. Advert 2 – included in Study 2 – formed the post-test and included explicit sex-appeals. Aside from the manipulation of explicit sex appeals, all other stimuli in the advert were kept consistent. Both Study 1 and Study 2 used the same measures and were administered to each participant. The main data collection took place after validating the advert design and conducting a pilot test.

In my research, the qualitative data was analysed using a combination of thematic and content analysis. To analyse the quantitative data, including the experiment, and test the developed hypothesis, I used multi-group structural equation modelling. I was fortunate to have excellent supervisors who provided me with relevant learning opportunities and directed me to suitable workshops. So, as a final note I would advise you to ensure you either have or can develop the skill set needed to analyse your data, as it will help ensure you are not left paddling up a creek without a paddle!

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The Pavilion as 'Research by Design' Method

Layered concepts of 'design' and 'design research' in architecture

By **Danni Kerr** - University Teacher, School of Architecture

The built environment is a reality for many people in their everyday lives. It is our context which arguably comes into being through, is sustained by, and ultimately dissolved by a complex and ever changing convergence of human agendas and natural process. In simple terms, our built context is 'designed' and as such, design surrounds us. As a species, we humans make our own environment and it seems we will continue to do so. It is therefore rational to want to -and to need to - understand it; to understand its process and how we attach ourselves to it socially, physically, environmentally and in pretty much any way that humans find meaning. This is why research in architecture and urbanism is undertaken, and indeed why I have undertaken PhD studies in architecture and time.

My research interests in the field of 'architecture and time' have a fundamental nature seeking common or universal patterns that may be true throughout architecture and perhaps even throughout all design disciplines. To approach this research I have needed to consider what would constitute a suitable research platform or vehicle. In the following passage I discuss the merits of the architectural pavilion in design research.

Advancing design through Research for Design, Research about Design and Research by Design

In design fields such as architecture, research is often within a specialist area with the aim of advancing better design, for example 'low energy technology'. This can be characterised as 'Research for Design'. Research about Design investigates that which has been designed or the specifics of how the design was achieved, i.e. the design process. Research about Design can also aim to inform 'Research for Design' and therefore advance better design. However, 'design' or 'the act of designing' is in itself an effective research methodology. According to Johan Verbeke (2013), "[in architecture] ...the act of designing is the key process to develop understanding and knowledge." He asserts that "This is 'Research by Design'" (RbD).

Situating the design process for 'Research by Design' in Architecture

In his book The Reflexive Practitioner, Schön (1983) admires the evaluative qualities of the design process. A more contemporary 'design research' proponent Murray Fraser (2013), notes that RbD is still developing notions of evaluation, and thus agrees with Hauberg (2011) that the design process should form the core constituent of RbD. If design thinking is embedded within the act of design, then 'Research by Design' should be situated within the design process. Therefore when 'designing' a programme of 'Research by Design' the relationship with the act or practice of design is paramount.

Design practice may limit the situating of 'Research by Design'

If a working relationship with an architect's practice exists or pre-exists, then research in the form of a longitudinal study, of a 'design project' for example, can produce rich research data in the form of design narratives. For example, those emerging from client meetings and design media such as drawings. Unfortunately, in architectural practice specific research aims often cannot be supported due to project and/or commercial constraints. However, the development and implementation of Research by Design projects can still be instigated by architectural practices, researcher institutes and indeed doctoral researchers undertaking their PhDs.

The Pavilion as a practical 'Research by Design' platform in Architecture

The design and development of the architectural pavilion has found favour as a means to promote the image of a practice. However it can also function as a research platform in architecture for both practitioners and researchers to formally explore attributes such as space, form, materials, spatial programme, assembly and composition and other experiential attributes such as light. A rational

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principle of the pavilion as a research vehicle is that it is a simplified version of a more complex system, i.e. a building, which can be more readily adapted for experimentation.

Writer Christopher Hight (2012) explains how in contemporary design the emphasis has tended towards material experimentation, complex geometry and parametric design innovation, as exemplified by the work of RbD innovators Michael Weinstock and Achim Menges. Neverthe-ess, Verbeke (2011) believes that Research by Design cannot be a strictly defined method but that the development of RbD learns through the engagement in both design and RbD.

Therefore, in order to understand the scope of architectural research aims possible through the design and implementation of a pavilion, consider how a building in context is a crucible capable of linking reason, to material reality, to the experiential and to the complex influences of a dynamic context.

Consider then a pavilion focused by careful design that can in principle support research purposes across these domains of reason, material reality, the experiential and complex contextual influences.

Like a scientific experiment which is not a full model of the world, a pavilion is not a building and may not model the whole richness of the built environment and our relationship to it. Nevertheless, the scientific reduction, if carefully designed, may enable the fundamental process underlying built forms to become apparent. If a pavilion is poorly designed or misconceived then its outcome may serve to inform a better 'design for research'. This is a process of prototyping which often sits at the heart of design development in manufacturing and, as proponents of 'research by design" argue, should also sit at the heart of 'design research'.

And now for something completely different? Gamification and Play in the Context of Research

By **Professor Dawn Watkins** - School of Law

When you saw the words 'gamification' and 'play' in the title of this article, you might have assumed this must be something to do with children. To some extent, you are right. I am leading a research project called FORTITUDE, funded by a €2 million Consolidator Grant from the European Research Council. Its aim is to co-create a range of game-based resources that both measure and improve children's legal capabilities (in other words, their abilities to deal effectively with the law-related issues they encounter in their everyday lives).

Theories of play are central to the project's research aims and this approach represents a generalisation of a successful game-based intervention my team and I created in the Law in Children's Lives project, funded by the Economic and Social Research Council in 2014-2016.

If you are interested in finding out more about this research, then please do get in touch. But even if you are not interested in research involving children and the law, then please keep reading. Because I want to encourage you to think about two things: Firstly, whether gamification might be a useful means to engaging participants in your research; whatever their age, and whatever your discipline. Secondly, and more generally, what might happen if we begin to envision research through a lens of play.

Gamification is a term used to describe the use of game mechanics (e.g. gathering points or badges, moving through levels) in activities not normally associated with play or games. In the Law in Children's Lives project, we created a simple tablet-based digital game called Adventures with Lex where a naïve alien called Lex, and their alien pet

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Rex, accompany the player around four different worlds: a school, a park, a shop, and a friend's house. Players spin a wheel to pick a place to visit. The game is pre-set to randomise the selection and in each world, the player encounters a series of vignettes and questions.

Quantitative data were gathered as players answered these questions in a variety of ways; by pressing a button, using a sliding scale, or by 'drag and drop'. Qualitative data were gathered as players were invited to explain their choice of answer, by speaking into the game using the headset provided. In order to motivate them to complete the game, players were given the opportunity to create their own alien pet as they progressed through the four worlds. Completion of each world unlocks a choice of bodies, heads, legs and arms.

In effect, this was just a vignette-based survey but by adding some simple game mechanics, it became much more exciting and engaging than your average survey. And using this method we successfully gathered quantitative and qualitative data from over 600 children. In the FORTITUDE project, we will be using gamification again as we build our measures, but we are extending our work to include the co-reaction of serious games.

We are also extending our work to think about the role of play in research more generally. As part of creating a play-informed framework for the FORTITUDE project, my former colleague Dr Alex Moseley* and I reviewed the literature relating to theories of play, playfulness, games and fun. We identified seven themes in the literature which resonated with us as being particularly relevant to research: the significance of play, play is voluntary, play challenges, the uncertainty of play, accepting failure, community building and working within constraints.

We have written up this work in an article 'Envisioning research through a lens of play' which is in the final stages of the review process. We wonder what might happen if we begin to envision research through a lens of play. Could this encourage a number of positive changes to research practice and impact? If you are interested in exploring these ideas too, then please do get in touch.

*Alex is an experienced play researcher and practitioner and is now Head of Learning and Teaching at Anglia Ruskin University.

Doing Maths with Stem Cells: More Fun than Chess with an Amoeba

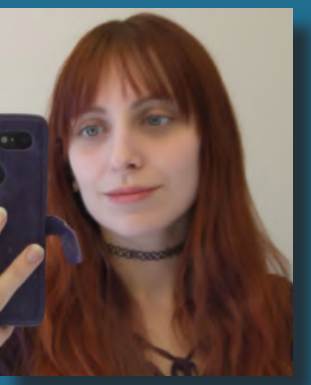
By **Samantha Sargeant** - PhD Student, Department of Automatic Control and Systems Engineering

The world of research is moving away from constraining people to a sole subject area. Interdisciplinary study is at the forefront of modern scientific breakthroughs, such as understanding how a disease spreads through a population – a fusion of mathematics and biology. My research fuses mathematics and biology, but in a different way: I study human embryonic stem cells to model how they 'grow up' into new cell types. If we can fully understand this process, we could create fully personalised medicine to treat all kinds of diseases.

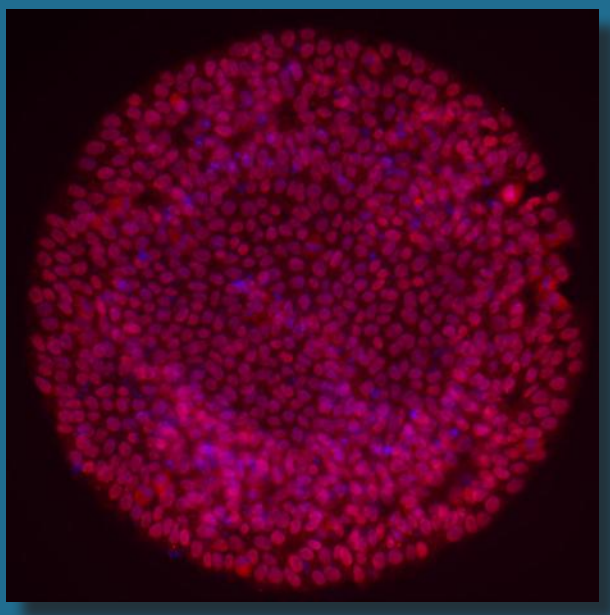
Working with stem cells involves dedicated laboratory work to ensure the cells are at optimal conditions for survival – they're a tricky cell type to keep alive. My experiments typically run over 2-3 days, involving carefully timed additions of chemical concoctions to the cells so that I can guide their journey into becoming new cell types. Each new cell type can be characterised by the cell's expression levels of different genes. When the experiment is completed, I preserve the cells in paraformaldehyde (akin to preserving a cadaver), ready to be stained with antibodies and fluorescent dyes that I choose depending on which genes I want to investigate. The stained cells are then

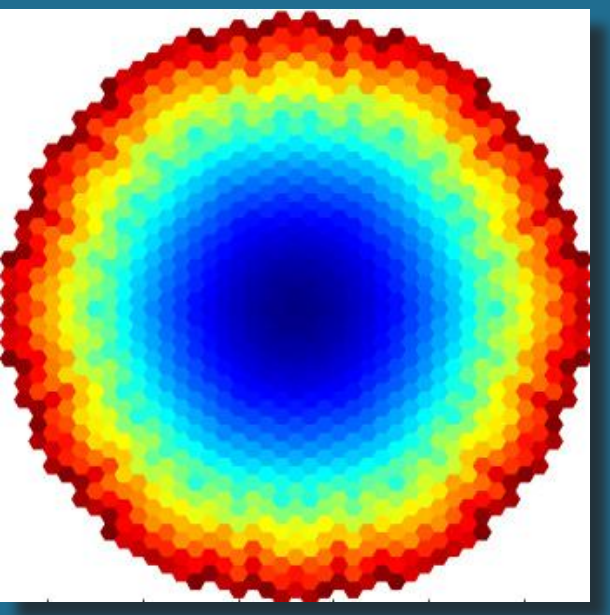
imaged using our lab's InCell Analyser machine, which uses lasers to show the fluorescence of each cell – I can measure a cell's gene expression as directly proportional to fluorescence. The images taken at this stage are then passed to Fiji, an image processing software that begins to draw in some of my mathematical training. If I want to make sure the brightness of each image is standardised, I don't want to spend time doing this for each individual image. Writing a macro allows batch processing of all images – macros for Fiji are written in the programming language Java. I've helped members of my lab to write more efficient macros to save them time with image processing, such as by looping through an alphabetic string in Java to avoid copying, pasting, and editing the same code chunk.

When all images are processed, I pass them to CellProfiler, a software for segmenting cells and generating cell-level statistics. The output is a spreadsheet, containing information for each cell such as its (x,y) coordinates and its fluorescence intensity. For many cell biologists, this is approaching the end of their research methodologies – a software like Prism will be used to compare different cell types and test any differences for statistical significance, but then the story is over. However, for me, I like to take things a few steps further. I build machine learning models that don't just tell us what is happening, but can predict what is going to happen. What if the experiment was simulated for longer? Which variables are the most important for determining the new cell type that stem cells become? I'm answering these questions using computational models such as support vector machines, which learn how to draw a boundary between different cell types to separate them based on their features – then the model can accurately classify new cells. Using recursive feature elimination, I select the top features that are key for telling the difference between cell types. These top features are those that most contribute to the model's success. A really important feature for classifying normal and mutant stem cells is their texture: from a 2D image, how do the pixel values vary across a cell? I use Gabor filters to capture this information, as these filters most accurately represent how the human eye perceives texture. Another important feature is the local cell density – normal stem cells can't handle being within very dense regions of other cells, whereas mutant stem cells are more resilient to this.



But why bother working this out? Finding the most important factors in stem cell decisions gives us a huge amount of control. Laboratory protocols are currently time consuming and expensive – if we could influence cells by controlling just a few key variables, we'd make our experiments cheap and efficient. By choosing the right methodologies for answering my project's questions, I can hopefully make a significant contribution to the vast impact of interdisciplinary research on medicinal science.





From Classifying Supernovae to Classifying Heartbeats

By **Umar F Burhanudin** - PhD Student, Department of Physics and Astronomy

One of the fun things about doing a PhD is stumbling across the unexpected. When you first start you can never know how your research will evolve. My research field is astronomy and I work on identifying rare and interesting transient events in the Universe such as supernovae, which are the catastrophic explosions that occur at the endpoints of stellar evolution. I never expected to be able to use my work in astronomy to categorize heartbeats to help monitor cardiac health.

Transients such as supernovae help us better understand the Universe; they enable us to measure distances on cosmic length scales, probe the history of the Universe and how it has evolved, and determine the nature of dark matter and dark energy. In the past, discovering them mainly relied on chance - they are only visible on timescales ranging from days to months. Nowadays, there are telescopes that can observe the entire night sky in just a few days, allowing astronomers to build a 'moving picture' of the night sky and discover more transients than ever before. This leads to a challenge - these telescopes generate terabytes of data per night. The picture of an astronomer making discoveries by looking at images of the night sky is becoming outdated, and a new approach of automatically identifying and classifying transients using machine learning and deep learning is now becoming standard practice.

In short, machine learning refers to a methodology of 'teaching' a computer program to perform tasks by learning from experience (or in practice, large amounts of data). Deep learning is an approach of machine learning that uses neural networks to learn relationships within a large data set. As part of my PhD, I developed a classifier for the Gravitational-wave Optical Transient Observer (GOTO) using a recurrent neural network. GOTO is a survey that looks for kilonovae, the bright explosions that occur when two neutron stars merge together and emit gravitational waves. A recurrent neural network is a type of neural network that is well-suited to process sequential data, and I used it to look at measurements of how an object's brightness varies over time (its light curve) to identify transients, by classifying the light curves of multiple objects as being either transients or non-transients.

It turned out that the problem of classifying measurements over time also existed in the medical field. With the help of research software engineers from Research Software Engineering (RSE) Sheffield, I adapted my classifier to make it usable for other use cases outside of astronomy. Electrocardiograms (ECGs) are used to monitor the condition of human cardiovascular systems and are widely used to monitor cardiac health. A challenge in analysing ECGs is identifying features in the ECG signals and categorizing them. I used my recurrent neural network classifier on a publicly available dataset of ECG measurements divided into five categories, ranging from 'normal' cardiac health to a number of specific conditions relating to the physical state of the heart. My results showed that the same approach used to look for supernovae using their light curves also worked well when trying to categorize cardiac health using ECG measurements. It was really interesting to be able to use my research in astronomy on something that was completely different from what I am familiar with. I'm excited to see where else I can apply my work, and how I can learn from experts from other fields when dealing with similar problems in my astronomy research.

Data Collection and Management

Improving Research through Open Methods

By **Dr. Jim Uttley** and members of the **Open Research Working Group**

In 2011 a prominent Dutch psychologist, Diederik Stapel, was suspended from his University for fabricating and manipulating data for his research. In the same year Daryl Bem, another well-known psychologist, published a paper in a respected journal claiming evidence in support of extrasensory perception - psychic abilities such as telepathy or clairvoyance. Four years later, a paper in another prominent journal described a project attempting to replicate 100 previously-published psychological studies. The project found that only 39 out of these 100 studies were successfully replicated. What do these three things have in common? They were all signs that psychological science may be broken. A lack of transparency and openness meant that Stapel and others like him could publish unfounded research. Bem's paper that defied all known laws of physics demonstrated that almost anything could be 'proved' through selective treatment and analysis of data. And the hundred study replication project highlighted how a cornerstone of any science - that valid findings can be replicated - was not as present in psychological science as one might hope.

But it wasn't just Psychology that was under the microscope. Many other sciences also began looking at themselves in the mirror, finding they too had questionable results within their midst. A survey of 1,575 researchers from a range of different disciplines found that over 70% had tried and failed to reproduce another scientist's experiment. Replication projects similar to the hundred study project in Psychology have been carried out in other sciences including medicine, economics and the wider social sciences. These have found an alarming lack of replication.

The lack of reliability within large portions of the scientific literature has been labelled a 'reproducibility crisis'. However, this crisis in science has led to an examination of the process of doing research and the methods we use, leading some to believe we are in a 'credibility revolution'. At the forefront of this credibility revolution is the

open research movement. Open research refers to the practice of making processes and outputs of research transparent and freely accessible. It is seen as a way of promoting research rigour and reliability.

One of the causes of the reproducibility crisis has been a focus on publishing positive or significant results. Journals are more likely to publish research that finds something noteworthy. This has led to a bias in what gets published, with the proportion of 'significant' or positive findings - where some kind of effect is found, rather than a 'null' finding - being much higher in the published literature than should be expected. It is unlikely that Daryl Bem's work would have been published if it found no evidence of extrasensory perception. This focus on interesting findings, findings that show some kind of effect, is likely to influence how researchers present their data. Ronald Coase, a 20th century economist, suggested that if you torture your data for long enough it will confess. Researchers may be unwittingly tempted to torture their data through multiple avenues of analysis until it eventually gives them a publishable result. This approach to data analysis has been called 'p-hacking', referring to the desire to obtain a significant result that provides a p-value below that all important threshold of 0.05.

Researchers may feel the need to p-hack their data because the sample of results they obtained was simply not large enough to reveal anything meaningful. Inappropriately small sample sizes have been highlighted as a problem in a range of different scientific disciplines. If our sample of data is too small to reveal an effect through our initial analysis, it can be tempting to try different approaches to the analysis to see if these produce an interesting result.

Open research encourages the researcher to be transparent about what they are doing. One way researchers can do this is through preregistration of their study. A preregistration involves explicitly stating how you plan on collecting and analysing your data before you actually carry out this data collection and analysis. A key benefit to this is that it makes the researcher justify the sample size they plan to collect, which can help ensure the sample size is appropriate. Importantly, the preregistration is made openly available for anyone to view. This transparency makes it clear how the researcher planned on analysing their data, reducing any temptation to p-hack their way to a significant finding once the data has been collected. If a researcher is worried about not being able to publish their results if they don't find something significant, they can use a special form of preregistration called a Registered Report. This is a type of journal submission where a preregistration is submitted for research that will be carried out, and this pre-registration is peer reviewed. If this peer review process is positive, the journal will agree to publish the research regardless of the eventual results. This helps overcome the problem of publication bias, as the result of the research is unknown at the time of publication acceptance. It can also reduce any urge to p-hack, as researchers don't feel under any pressure to present a significant and interesting finding in order to publish their research.

Preregistration is just one tool among many open research practices that aim to improve the transparency and rigour of research. Other key features of open research include:

- Open data, where research data is published openly to enable scrutiny and re-use
- Open publication, where research findings are published openly and accessible to all, not stuck behind a paywall
- Open code and software, where analytical code or software used to undertake research is published openly, again enabling scrutiny and re-use

If you are interested in finding out more about open research methods and how they can improve the quality of your research, get in touch with the Open Research Working Group - orwg@sheffield.ac.uk.

Plan to Manage your Research Data and make it FAIR

By **Helen Foster** - Research Data Management Team, University Library

As you may know, one of the requirements of your confirmation review is to write a data management plan (DMP). This can seem like yet another task eating into your valuable time, but whatever your subject area – and however much or little data your research will involve – a data management plan can be an extremely useful resource throughout your project. Writing a DMP is also a requirement for many funders, so it's a good skill to have if you go on to post-doctoral research projects.

One of the most beneficial aspects of writing a DMP is that it makes you think about what data you will collect and create during your research. Planning how you will look after this data from the start to the end of your project can help you avoid any nasty surprises and take some of the stress out of storing, organising, and where possible sharing your research data.

Writing your first DMP can seem a bit daunting, but it's often much more straightforward than you think, and the Library's Research Data Management Team is always here to help. Here are a few simple tips that you might find helpful:

- Remember that a DMP is there to make your life easier – use it to think through any issues you might have in managing your data
- Use one of the templates in DMPonline - you can keep updating your plan, share it with your supervisor, and ask for feedback from us in the Library
- Keep your DMP relevant to your research data - you don't need to write about participant consent if your research doesn't involve participants!
- Try to write in simple sentences rather than one-word responses - your supervisor will thank you for this!

When you start writing your DMP, the end of your project may seem a long way in the future, but you will need to think about how to store and if possible share your data once the research is complete. Sharing data can have many benefits, including the potential for you and others to further build upon your research. The University and many funders now strongly encourage researchers to make their final data FAIR, as well as openly available where possible. This means making data Findable, Accessible, Interoperable and Reusable, or in other words making them easy to find, understand and use. Here are some simple ways to make your data FAIR:

- Make research data openly available in a repository such as the University's ORDA if you can – remember to observe any terms agreed with participants and other data providers
- Choose a repository that gives your data an identifier such as a DOI
- Include code for any software created to process your data, or give details of software used
- Include details (or 'metadata') that help to explain what your data are about e.g. the units used in an experiment, or the questions asked in a survey
- If it's not possible to make all your data openly available, look at other options, like making them available on request or sharing analysed data
- Include a Data Availability Statement in your thesis and other publications, telling people if and how they can access your data
- Try to share data using open or widely used formats
- Choose an appropriate licence for your data - most repositories offer a choice of Creative Commons and software licences

Having a plan to make your data FAIR not only helps other researchers, it means you will know where your data are and how to access them long after you have finished your PhD. It will also be one less thing to think about in your busy final year!

If you have any questions or concerns about research data management, you are welcome to get in touch with us at rdm@sheffield.ac.uk. There's also lots of information on our webpages, and we offer training sessions throughout the year in person and online.

Ups and Downs in Data Collection

By **Ayu Riana Sari** - PhD student, Department of Psychology

When I first started my PhD, my supervisor once told me that we would never know what lay ahead, and that I should enjoy the ride and learn as much as possible through the journey. Indeed, I find PhD life to be full of surprises.

After months of discussion with the supervisors in my first year, I was ready to collect data for my first study. I was very excited because I learned a lot about designing research properly and could not wait to put it into practice. As I study school-based mental health, I planned to collect data from teachers and students using a paper-based questionnaire. This method is the most common and convenient data collection method in my country. However, the COVID-19 pandemic forced schools to conduct online learning.

The pandemic delayed data collection for my first study and became an important consideration for data collection methods in the subsequent two studies. Under these circumstances, I had no choice but to conduct online data collection for my proposed studies. My second study was qualitative research using a semi-structured interview. While this was not my first time conducting an interview, delivering it online posed another challenge both for me and the teachers as participants. I used a video meeting application to do the interview. Again, two things I found very challenging were the internet connection and how to engage the participants through a limited space. Unlike meeting in person, I had to be satisfied with the limited data from observation. In addition, interference from the external was unavoidable, especially when the interview was conducted at their home. Nevertheless, the most challenging aspect was the internet connection. Sometimes I had trouble with the network, so I had to repeat the same questions twice or ask the participant to repeat their answers because it was not clear.

My third study was a sequential mixed-methods with the quantitative phase as the first phase. For the first phase, I collected data with an online questionnaire. After two years of the pandemic, online questionnaires have become a standard tool for data collection in my country. Moreover, as the participants in my study, teachers have become accustomed to online applications. Therefore, I was more confident than in the previous study. Like earlier studies with human participants, I prepared everything from the information sheet, informed consent, questionnaires to debrief. I thought I had prepared everything until it took me more than two months to collect data, more than I had planned.

I could see that many people responded to the invitation from the application. However, only a few people completed the questionnaire. Later, I discovered that many kinds of research had been conducted online since the pandemic, and they had to fill out many online questionnaires. Even though they were interested in answering the questionnaire, reading lengthy information in the information sheet kept them from filling out the questionnaires. I did not expect that this would hinder data collection.

I learned a lot from these valuable experiences. First, thorough planning in the research methods by considering other variables that may seem indirectly related to the research but related to the participant will help facilitate data collection. Second, no matter how carefully you design the research methods, there will always be holes. Calm down, accept that nothing is perfect, and learn from it when this happens. Lastly, like life, the PhD journey is full of changes. The ability to adapt to these changes helps us to enjoy the ride.

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A Researcher's Toolkit

By **Dr. Andrew D Madden** - Research Associate, Information School

Research is, first and foremost, an information-seeking activity. When I used to give introductory lectures about the basics of information-seeking I would prompt discussion by asking: "What is the best information-seeking tool"? The most common answer was "Google", but more insightful students would challenge me. Information-seeking, they would argue, is such a varied task that it's impossible to identify a single 'best' tool.

My suggestion that the best information-seeking tool is a good question, provoked further debate, this time about the nature of tools. We tend to think of them as "extensions of the limbs" (Gregory, 1981, p.39): objects that can help us to manipulate parts of our environment. But amongst its definitions, the Oxford English Dictionary describes a tool as "a means of effecting something". The idea that a tool should be understood in terms of the outcome it enables rather than as an enabling object is a valuable one for researchers. "Tools of the Mind" (Gregory, 1981, p. 48) can include mnemonics, systems, organising strategies and focusing techniques, many of which are directly relevant to research.

What researchers learn and who we learn it from are heavily influenced by the methodological traditions of our field. There are many reasons why it's useful to identify and mark out our intellectual turf but it can also be helpful to consider what unites members of the research community as well as what divides us. Some problems are shared across disciplines, so it can be revealing to discover the means by which researchers of different backgrounds address those problems.

A good question is a means of effecting focus, and there are questions that all researchers should consider. Some suggestions (expanded on in Madden 2021) are:

- What should I research?
- How do I go about researching it?
- What assumptions have earlier researchers made?
- What assumptions can I make without being challenged?
- How can I indicate what it is that I am studying to researchers who wish to build on my work?
- What can usefully be compared to the phenomenon I am researching?
- When circumstances change, what new research opportunities arise?
- How do I tell my research story so that it will be reliably transmitted?

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Tips on Undertaking a Literature Search

By **Oliver Allchin** & **Katherine E Bishop** - Liaison Librarians

Have you ever struggled to find relevant papers for your literature review? Unsure if you're missing out on key research findings, or overwhelmed with the sheer number of results you get when searching Google Scholar?

Most of us are used to searching for information on Google, but when it comes to undertaking a literature review it can be tricky to know where to start, or how to get the best results.

We've put together some tips to help you search the literature effectively and save time and effort.

Give yourself time to develop a search strategy

It may sound obvious, but the quality of your search results largely depends on what words and phrases you type into the search box, and how you combine them. There are almost infinite ways to do this, so set aside some time to plan your literature search and experiment with different combinations of search terms to see what works for you. Think about different ways to express what you're looking for - what different terms might authors have used to describe your topic?

You can use techniques like phrase searching, truncation, boolean operators and proximity operators to make your search more effective. This guide outlines how to use these techniques.

Use the right tool for the job

Google Scholar will normally find you relevant papers quickly, but it's easy to feel overwhelmed with the number of results you get, and it can be difficult to narrow these down to what you're looking for.

If you want to be precise and organised (for example if you're doing a systematic review), you may get better results with a dedicated literature searching database like Web of Science or Scopus. You also have access to many specialist literature databases, which are packed with features to help you refine, sort and filter your search.

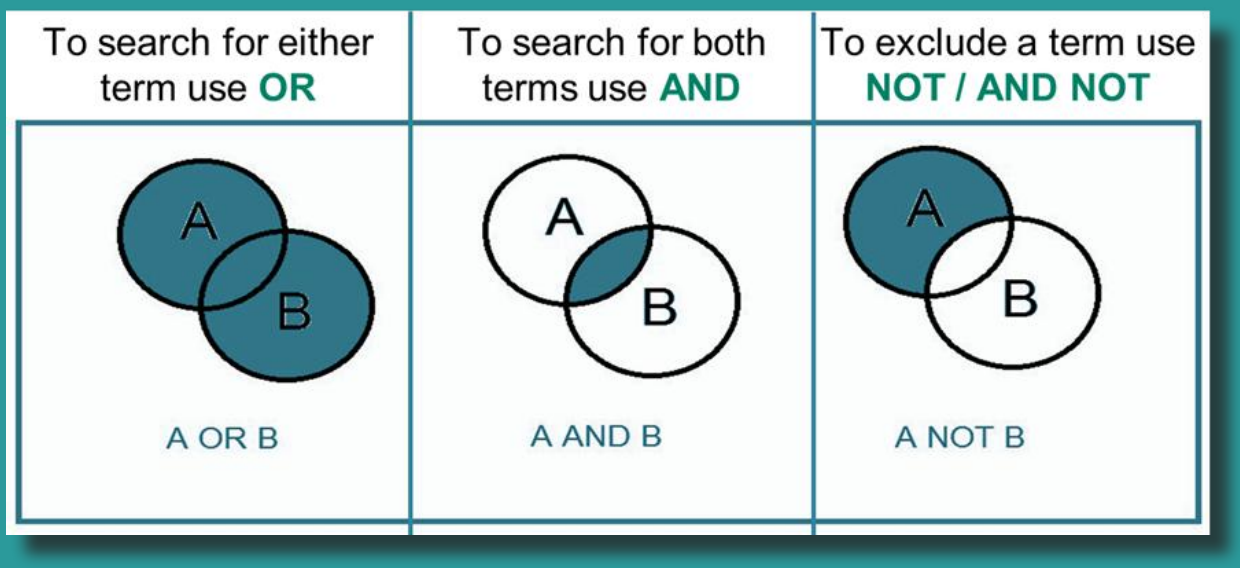
Visit the Library Subject Guides (click on the Discovering page on the guide for your department) or talk to your librarian for guidance on useful databases for your research.

Explore the library's database video guides to find out how to use databases effectively.

Get organised

It's a good idea to have a strategy for keeping track of your search terms and results, this will help you when you come to write up your search.

Most databases allow you to save your searches and set up alerts so you know when new articles are



published that you might be interested in (this often requires you to sign up for a free personal account - check the help page in the database you're using to find out more).

Investing time in learning to use reference management software can help you to save, organise and cite your search results.

Reference managers can also be used to remove duplicate references from your search results, which is especially useful if you need to fill in a PRISMA diagram.

Find out more about reference management software

Ask for help
Our guide to producing a literature review has further advice and guidance.

There's loads of support available when you need it, so if you have questions, please ask!
- Email: library@sheffield.ac.uk
- Tel: 0114 222 7200 (external), 27200 (internal)

Further support and guidance:
- Literature searching for systematic reviews video playlist
- Systematic and literature reviews guidance
- The library runs workshops on literature searching, reference management and more as part of the Doctoral Development programme
- Explore the Library's Research Skills and Critical Thinking guides

Discovering Research Methods

By **Maria Mawson** - Faculty Librarian for Social Sciences, University Library

Are you unsure about which methods to use in your research? Do you need more information about a particular methodology? Do you want to know about the methods used by others in your discipline?

Through the University Library, all researchers have access to specialist resources to help develop and maintain their knowledge of different research methodologies.

SAGE Research Methods Online is a database that provides a range of digital content to help with research methods questions, including case studies, videos, articles and books. The database also contains a number of research tools. These include a Methods Map that provides an overview of methods and helps you to find content relevant to your needs, a Project Planner to help guide you through your research journey, and a Stats Test to help guide you to appropriate statistical tests.

Through the Library you also have access to a range of online research methods journals. These may relate to broad areas of methodology, such as the Journal of Mixed Methods Research, or to specific disciplines, for example Qualitative Research in Psychology, Qualitative Health Research, Political Science Research and Methods.

These are just a few examples, and you can find others by searching StarPlus, the University Library discovery platform. StarPlus will also guide you to books and other literature on research methodology. If you're looking for a particular title that isn't already available in the library, you can ask us to buy it by completing the Resource Recommendation Form.

If you want to know more about Library materials for your research, take a look at the Library Subject Guide for your discipline, and if you have any further questions, please get in touch with the Librarian for your department - they will be happy to hear from you.

Ethics

Re-thinking Research Methodologies: Colonial Histories and more Equitable Futures

By **Ella RC Hubbard,** Geography PhD Student **& Jocelyne Sze**, Grantham Scholar

During a PhD, a lot of time goes into developing our methodology. We generate research questions and figure out how to answer them (our methodology) using the best tools (our methods). We are taught that through rigorous methodology, we can find out the reality of an issue and limit the risk of getting it wrong (Law, 2004). It's easy to follow disciplinary norms without questioning the methodology we have chosen and how it might perpetuate problematic assumptions and inequalities.

In this article, we outline why and how PhD researchers should reflect critically on their methodology. We argue that research has contributed to and benefited from British colonial imperialist ambitions and exploitation, generating unequal dynamics that persist today. We then discuss how PhD researchers can acknowledge and potentially remedy the inequities that have resulted from colonial histories of knowledge production.

Colonial history of research

Currently, there is a focus on research being impactful, either to society as a whole or specific groups of people, and at the University of Sheffield applied research is strongly encouraged. However, this has not always been the case. Knowledge production in universities has a history of benefitting only certain people. Even the pursuit of knowledge for knowledge's sake isn't benign and may overlook colonial histories and their consequences on the people and places that were colonised by Britain.

The UK has a global reputation as a research hub, in part due to the scientific and technological advances made during its industrial revolution. Yet the contributions of scholars from other parts of the world are seldom acknowledged. Islamic scholars such as the physician Ibn Sina and mathematician Ibn al-Haytham played a pivotal role in translating and furthering the early works by ancient and Greek scholars, knowledge that was later transferred to Western Europe forming the basis of their scientific revolution (Faruqi, 2006; Marcinkowski, 2009). Ironically, or perhaps to intentionally reinforce the narrative of Western scientific superiority, a British politician in charge of administering funds for the education of the Indian population in 1835 denounced the Sanskrit and Arabic languages and literature as "useless" and "absurd" (Macaulay, 1835). Across the British empire, censorship of Indigenous languages and knowledges were widespread means of subjugating people and extending colonialism.

Motivations for research were focused on furthering British imperial ambitions. James Watt's steam engine improved the productive capacity of British industries and allowed Britain to win the Opium War with China (Headrick, 1979), forcing them to accept unequal economic trade relations. Research by Patrick Manson and Ronald Ross in identifying the Anopheles mosquito as a vector of the malaria parasite revitalised British imperial

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ambitions to consolidate and expand its rule over the tropics (Hames 2013, Lock and Nguyen, 2018). The botanist Joseph Banks and geologist Roderick Murchison were able to conduct their explorations by utilising colonial networks, transporting their collections and travelling on slave and naval ships, while their work further enabled imperialistic expansion (Stafford, 1999). In social science, ethnographic methods were used to understand how to control Indigenous populations (Denzin and Lincoln, 2014).

Most scientific collection and exploration was possible only through using enslaved and colonised peoples. Knowledge and resources were gathered from them and re-produced in Western scientific language for imperialist interests, to the detriment of colonised people. Enslaved peoples collected specimens for Hans Sloane, whose extensive collection formed the basis of the British Museum and Natural History Museum (Pavid, undated). The Indigenous Guajajara of Brazil discovered the medicinal properties of Pilocarpus jaborandi for the treatment of glaucoma, but pharmaceutical companies patented the plant, profiting while the Guajajara harvest the plant, unable to use it (Mann, 2020). Biological samples were also often taken from these people without their consent and in disrespect of their personhood and culture (Cochran et al., 2008), and medical experiments conducted without consent and potential deleterious health impacts (Schiebinger, 2017).

During the European Enlightenment, scholars provided justifications for slavery and colonialism by proposing human racial hierarchies (Eze, 1997). In more recent times, early contributors to fields of evolution, genetics and statistics, such as Francis Galton and Ronald Fisher, actively promoted eugenic ideas (Rutherford, 2020). These racist ideologies of white European superiority have promoted the claiming and shaping of landscapes in Europe's image, dispossessing Indigenous peoples and altering socio-ecological dynamics, often to the detriment of ecosystems and biodiversity (Fletcher et al., 2021).

Alongside the knowledge gained, much of the British industrial revolution was funded by colonial plunder. The British Raj drained £9.2 trillion from India between 1765 and 1938 (Patnaik, 2017, p.311), while British sugar plantation owners in the Caribbean made huge profits that funded exploration, industry and innovation back in Britain (Darity Jr, 1990). The technological innovations in British (and other industrial European) societies would not have been possible without the blood, sweat and tears of people in the British empire.

Colonial legacies in present research processes

The coloniality of research did not end with the end of colonial rule; many legacies persist to this day. Unequal power dynamics continue to play out in research relationships. The majority of research is conducted by former colonising countries, with the UK alone producing 7% of the world's publications in 2018 (BEIS, 2019). Larger pools of research funding in Global North countries (generally referring to more economically wealthy and industrialised countries, often those that have benefited from colonisation) provides more resources and opportunities, often attracting and retaining the brightest minds from Global South countries (generally countries that were formerly colonised and economically poor). Combined with the lack of adequate equipment and funding in their home countries, Global South researchers are reduced to facilitators for foreign researchers, unable to advance their own research priorities (Reidpath and Allotey, 2019).

While foreign researchers are considered experts and conduct analyses, local researchers tend to be relegated to data collection, managing logistics, translation, or identification. Despite their vital contributions in the research process, local researchers are often not acknowledged or given co-authorship of academic publications (Haelewaters et al., 2021). Further, local researchers are not given access to data they collected, for example in health research (Matenga et al., 2019), and there may be outright theft of materials, specimens, and knowledge from Global South countries, such as fossils from Mexico and Brazil (Cisneros et al., 2022).

A major focus of research agendas for impact

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is in understanding and finding solutions for environmental and social problems. However, the framing of problems, understandings of potential solutions, and examination of implementation pathways are often done without the input of the people who will be impacted by the research, either as direct subjects in interventions or indirectly through the applications of technological innovations (Haelewaters et al., 2021). Research advances and technological innovations are often directed at industries to increase economic growth. Apart from the environmental destruction and harms inflicted on local peoples that often accompanies industrial activities, the pursuit of continuous innovations can impose the ideology of economic growth as progress on peoples with different visions of what a good life entails (Pansera and Owen, 2016).

This unequal power dynamic extends to access to research, including having the "right" passport to easily travel to other countries for fieldwork/attend conferences and access research journals. Citation of published academic papers is the main currency of knowledge production, signifying intellectual legitimacy, yet the dominance of English and the dismissal of work conducted in other languages excludes non-dominant perspectives and maintains knowledge hierarchies (Mott and Cockayne, 2017).

The overrepresentation of Western research outputs and unequal power relations lead to continued colonial dominance and presumption of superiority of Western science and epistemologies. Western research methodologies often have a positivist view that genuine knowledge can only be gained through empirical observation (Moon and Blackman, 2014). In this sense, "understanding is viewed as being akin to measuring" (Smith, 2012, p.92) and other ways of knowing the world are discounted. Nonetheless, what we are calling for is not a discard of all the work that has been done, but rather, approaching it with a critical lens and addressing the potential injustices that our own work might perpetuate.

Moving beyond colonial research methodologies

Although redressing the inequities in the wider structures of academia and global systems of knowledge production may be beyond the influence of PhD students, we still yield power in shaping how the world is perceived. Research ethics have been institutionalised to mitigate some of the direct harms of research, but our research can still cause harm. For example, protected areas for environmental conservation may involve the displacement of people, and Free Prior Informed Consent had been gained for the research, but in reality, to implement the policy, forced dispossession and violence is involved (Dominguez and Luoma, 2020).

We advocate a move from procedural ethics to ethics in practice, which involves considering not just how your research might impact individual participants, but also how your research shapes the world.

There is no set of methods that can rectify injustices alone. We need to approach knowledge production, as a whole, differently. We propose several starting points for PhD researchers:

1.) **Learn the history of your discipline** and understand the ways in which it causes and perpetuates injustices. Recognising harms is the first step that researchers can take, especially when working with communities that have faced these injustices in the past.

2.) Methodology extends beyond the specific methods used, it includes the way we frame problems (Mackenzie and Knipe, 2006). Even research that seems benign can be used in ways we don't expect, like furthering military and industries that actively harm people. **Consider how your research is framed and how it might be used,** and reflect on how your language can discourage violence.

3.) **Involve people affected by the research** from shaping research questions to proposing solutions. If partnering with Global South institutions, consider sharing expertise (bi-directionally) and funding. Haelewaters et al. (2021) has a helpful list of ten rules for Global North researchers to stop perpetuating 'helicopter research' in the Global South.

4.) In research with human participants, consider the **use of research methods that minimise the power imbalance** between you as a researcher and research subjects. Keikelame and Swartz (2019) discuss how power, trust, cultural competence and respect feature in a decolonising research process. Some research methods that aim to reduce power asymmetries include participatory action research and Indigenous research paradigms (Pidgeon, 2020).

5.) **Cite research done by a diversity of scholars,** regardless of the prestige of their home institutions

6.) Consider **sharing your research findings in local languages** (where your research was conducted), or in ways that are accessible to the community.

7.) **Examine the supply chain your research is embedded in,** the products or materials used in your lab, where they might be from, how they were procured, and the potential harms that your research might be implicated in.

Designing a Research Study involving Vulnerable Participants

By **Amnah Alluqmani** - PhD student, Information School

If your research includes participants who are vulnerable, such as those with disabilities, then there are many important ethical considerations.

• Provide adequate information regarding your research

When you invite people to take part in your study, you are essentially asking them to give you some of their valuable time. They must understand what they need to do, what type of information you are aiming to collect, why it is important to collect this information and the potential outcome of your study.

For example, if you are aiming to observe the potential challenges blind individuals face when performing shopping activities, these participants may be concerned that they will be judged based on the choices they make. It is necessary to specify that their behaviour will be observed and the challenges they experience will be investigated. Additionally, you must explain the ways in which the collected data will be useful.

Remember to collect only the data you need for your research.

• Consider participants' disabilities when collecting their consent

There are a variety of options you can use to obtain consent from your participants. For example, you may have the participants sign a permission form or fill out an online form in which they simply check off a box to express their consent. Another useful method is to gain their verbal approval before initialising the study. If verbal consent is chosen, make sure to record their consent for integrity reasons.

• Consider the possible challenges and reactions

Various ethical factors could potentially arise during the study . It is essential to examine these and consider the possible solutions. Capturing conversations that are being held in the background is an example of an ethical issue that may arise while recording participants during a study. One possible solution to this is to pause the recording and continue it once the conversation has ended. Make sure you eliminate the section with the background distraction after the interview. Another ethical consideration is protecting the participants' privacy. In the aforementioned case, an example of this would include ensuring that the participants do not log in to their personal accounts while their online shopping is being analysed.

If the study involves discussing participants' limitations or obstacles, participants are likely to show indications of discomfort' and 'distress'. During observational research, they may also exhibit indications of frustration or melancholy while performing particular activities. Always remember to give the participants a figurative 'emergency exit' by allowing them to end the interview if something is upsetting them.

To minimise the impact on the participants' emotions throughout an observational study, consider their disabilities in order to ensure that the planned tasks are achievable for them. It is a good idea to consult with people who have direct contact with the research population, such as relevant charities or organisations, regarding your study design.

Keep in mind any assistance that your participants may need while participating in the study. For example, blind participants may require assistance utilising unfamiliar conferencing apps when conducting an online interview or completing online tasks such as screen sharing. There are several types of assistance that may be provided. For example, before performing the research, offer instructions on how to use the tool, provide a descriptive document of the required actions, or cooperate with an organisation and ask participants to participate in this study through the organization's site.

If you would like further information about University ethics policy and guidance, please visit the University Ethics Integrity Policy webpage and the Research Involving Vulnerable People policy.

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Working with Vulnerable People and its Effect on the Researcher

By **Dr. Adanna Achinanya** - Research Associate, Clinical and Applied Psychology Unit

Trigger warning: This article discusses suicide and domestic abuse. Reader discression is recommended.

From the first research ethics module, PhD students are taught that as researchers, we have a responsibility to ensure that our research participants' physical, social, and psychological well-being is not negatively affected by our research. However, when the research involves sensitive, challenging or emotionally demanding issues such as abuse, death/dying, violence, mental health, stigma or self-harm, the onus of care can inadvertently be placed directly on the researcher. No doubt, some ethics committees recognise this, but others do not.

My doctoral research adopted a qualitative method which involved interviewing infertile women in the UK and Nigeria. At the beginning of the fieldwork, I felt that my understanding of the interview process would be limited without grasping the fundamental concepts, such as building rapport or probing, being relatively new to qualitative research. I took up self-directed learning and completed various taught modules on qualitative research offered by the University. We were taught that researchers need to be rational, impartial, and detached observers during the module. Researchers need to be free from the engagement of emotions and if interviews get too emotional, shut it down.

While undertaking fieldwork at a fertility clinic in Nigeria, although my role as a researcher in this project was presented to the participants from the start, blurring of roles occurred. The open-ended nature of the questions allowed them to share the raw accounts of their emotional and, sometimes, physical abuse in a safe environment, as occurs in a therapy session. As the interviews progressed and depending on the duration, some were more emotionally charged than others. Undisputedly, these traumatic accounts described by these women evoked very distressing images for me, which did not disappear when the interview ended. I soon realised that I had begun to experience secondary trauma from emotional labour.

I remember one incident of a woman sharing her suicidal ideations with me. She told me about her social isolation from friends, her emotional and physical abuse from her husband and in-laws, how she had spent her life savings on IVF (In vitro fertilisation) treatment and how she might end her life if the treatment did not work. This interview not only required my emotional labour but involved task-oriented labour too. I had to speak with the nurse-in-charge to relay my concerns for the woman's safety. However, we both had our hands tied, as she had not stated that she was attempting suicide; instead, 'she might', depending on the outcome of her treatment. In cases like these, even though my involvement with the participant was not extensive, it left me with a feeling of "unfinished business" and an ongoing concern/worry for the woman's fate if her treatment had indeed failed. It soon became

apparent that being a detached observer, as the qualitative module suggested, was not realistically possible when working with vulnerable women. On the contrary, interviewing these women required much personal interaction and emotional effort to establish rapport and trust.

Reflecting on my research methodology, I acknowledge that the experience was emotionally demanding and, at times, distressing. Often, I was overcome by what I heard during the interviews, especially when some women shared how they were enduring emotional, verbal and physical abuse from their husbands. This realisation that these women's 'trusted' and 'loved' partners were equally their abusers- affirming the 'stranger is not the danger' trope, made alarm bells go off in my head. I started to doubt marriage as a safe and mutually loving union and instead started to perceive it as something to be avoided. I began to second-guess my relationship and formed an almost reflexive distrust for my soon-to-be husband. I would focus intently on his tone of voice, and body language, when he would discuss matters relating to our marriage or future. It was saddening, and I periodically felt guilty about not trusting this man I had spent almost eight years dating.

In several interviews, the women got very passionate and started crying, and fortunately for some, there was support available to them. However, my study had no specific local emotional support system built in for me. I honestly had not anticipated the poignant effect of the methodology on me. I was equally unprepared for spill-overs into other areas of my life, such as family and personal relationships, which do not need to be unnecessarily burdened. Although I had taken modules on conducting interviews at the University, which were all supposed to prepare me for the fieldwork of being a rational and impartial academic, I honestly could not foresee or control how the interview process evolved. These were accounts of real women being hurt, sharing experiences of profound trauma and pain. How could I shut them down?

Reviewing my experiences during fieldwork, I elect that research methods crucially need to be risk-managed, as it is rather difficult to predict or eliminate the emotional challenges experienced by the researcher. Ultimately, many more academics would continue to research this field, knowing that the work may harm them. However, for some, we choose to continue to work in this area because we want to create social change for vulnerable people. As such, we negotiate a balance between the promise and potential perils that this work might have on us. We believe that, although the work is difficult, it offers the reward of making a difference and giving a voice to those often stigmatised or marginalised.

If you are encountering similar issues with your research, we would encourage you to speak to your supervisor or personal tutor. You may also be interested to engage with the Emotionally Demanding Research Network at Sheffield - they are always happy to welcome new members to share experiences and mutual support.

For further support during your studies, the Student Wellbeing Service and Student Access to Mental Health Support (SAMHS) offer services to PGRs and will be happy to help you to navigate your support options.

Emotionally Demanding Research Network

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Overcoming COVID-19

Conducting Cross-Cultural Interviews Online during the Pandemic

By **Yingying He** - PhD Student, Sheffield University Management School

My research is about workplace conflict management in a cross-cultural context with social identity theory. It explores Chinese multinational companies' (MNCs) conflict management in their UK subsidiaries, and how Chinese and British individuals' perceptions and behaviours to conflicts in a cross-cultural workplace can be influenced by their own national cultures. To conduct this research, I planned to adopt a case study approach, and conduct in-person interviews and observations in the workplace. However, this plan was significantly interrupted by COVID. I had to change my research methods to conduct online interviews only and faced many challenges in this process. These challenges included: building trust, technological problems, and ethical considerations.

Building trust

For my research, it was challenging to build a rapport with participants, particularly with those who were British. In cross-cultural interviewing, participants usually see the researcher as an outsider, but not a researcher (Ryen, 2002), especially when researching sensitive topics (Fenge et al. 2019). This is caused by their perceived social location differences with the researcher, such as race, gender, classes, age and so on. Usually, the bigger the social identity differences, the harder to build trust and mutual understanding, and the more likely interviewees feel uncertainty and discomfort (Reinharz and Chase, 2002). Given my social identity as a Chinese student, I would likely be seen as an outsider by British participants due to gender and cultural identity differences. Online interviewing made the situation potentially worse. Typically, the place where interviews are conducted is known as the 'field', but the 'field' does not exist in online interviews. This meant that I could not use common practices to build trust, such as offering drinks to the participants, or talking about my journey to the 'field' (Irvine, 2011). As a result, I had to be more mindful in building relations with British participants.

Technological challenges

Technological problems are a typical drawback especially related to online interviewing (Bryman, 2016). These problems occurred in all the interviews I conducted. The biggest problem was equipment breakdown, especially internet and device problems. For example, the internet was often down, so both I and the interviewee had to repeat themselves. Poor internet connection also led to poor audio-recording quality (Bryman, 2016). The instability of the internet connection affected visual cues, with ansychronities due to freezing and time-lags. This prevented me from interpreting silence correctly and affected the flow of the interview. As a result, parts of recordings were missing because of audio fading out and overlapping. Another result of poor internet connection was the missing of non-verbal cues. Non-verbal cues are critical for qualitative interviewing to construct knowledge and monitor participants' reactions (Mason, 2002). However, in online interviews, only a 'head shot' was provided (Cater, 2011, cited in Janghorban et al, 2014), and some participants did not even turn their camera on. This greatly limited the depth of data collected, and the quality of this research.

Ethical challenges

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One of the most important ethical considerations was to protect participants' safety. Given the nature of my research topic which is about workplace conflict experiences, participants (especially women) (Reinharz and Chase, 2002) might have negative emotions after interviews. Especially during COVID, I had to find ways to avoid talking to participants adversely affected by COVID in a coercive or re-traumatising manner, and instead, use language which empowered them. (Santana et al, 2021). Moreover, to protect participants emotional safety, monitoring non-verbal cues was critical. I needed to carefully monitor interviewees' reactions like facial expressions and body language to assess if they were happy about the questions asked, and if their participation should continue or not. Nonetheless, this was hard to achieve with only a 'headshot' (Cater, 2011, cited in Janghorban et al, 2014), and sometimes even just with audio.

To conclude, although online interviewing was best suited to the pandemic situation, there were many drawbacks too. These drawbacks included aspects like building rapport, technological uncertainties, and ethical considerations, and they are likely to significantly influence the quality of data collected and research. To minimise their impact, I had to come up with additional plans and mitigation practices. Nonetheless, it is still questionable as to what extent this impact can be managed.

Fancy a Brew? The Challenges of Converting the World Café to Online

By **Louisa Hill** - EdD student in Higher Education, School of Education

The world café is a qualitative research method that was established in 1995 by Brown and Issacs (2005) and entails small group, in-person discussions. By drawing on the participants' expert knowledge in a relaxed, café-like atmosphere, diverse discussions and rich data is generated.

As the name suggests, it emulates a café-like format whereby participants sit in groups around different tables. Each table of participants, facilitated by a table host, focuses on answering a specific sub-question. After one round, participants disperse to other tables, whilst the table host stays to facilitate the next round. Subsequent rounds follow and the world café concludes with a town hall meeting involving a summary of discussions from each table host.

With the move to online, to recreate a café-like atmosphere, presentation slides and handouts incorporated symbols such as cups, cake and vases of flowers. Background music was initially played and participants were encouraged to have a drink or snack with them during the online café. To promote interaction, the chat and poll functions were used during the introduction and town hall discussions component of the world café. Rather than being sat around tables, in the online version participants were placed in breakout rooms and moved using a few button-clicks into another room at the end of each round.

One of the most complex adjustments that needed to be made was the recording of breakout rooms and the only online meeting software that offered this function was Zoom. As the use of Zoom was not University-endorsed, special dispensation had to be sought through the School of Education, IT Services and the Research Ethics Committee. Moreover, this special recording feature was only available through a paid subscription with Zoom. Information and technical support from Zoom was vague, so numerous pilots had to be undertaken. A set of instructions had to be written and training provided, to enable the breakout room hosts to use the recording function.

Despite the significant amount of time and effort involved in transferring this data collection method to online, there were various benefits. These included the development of advanced Zoom techniques, communication, resilience and problem-solving skills. The most significant benefit was that it added an additional element of originality to my thesis, as an online world café had never been undertaken for research purposes before.

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Designing an Ethical Methodology during COVID Times: Research on Homeless Migrants in Rome

By **Will Haynes** - PhD Student, Department of Geography

My project focuses on the visibility of homeless migrants in Rome – how they see themselves and how people see them – particularly at Termini train station, a place associated with homelessness and urban marginality. This is set to a backdrop of forced migration to Italy, a general lack of support for migrants and existing housing shortages in the capital city. I believe it's an important study into the unexplored and neglected spaces that we have in our cities, and the people who live in them.

My methodology was always going to be ethically driven – I was planning on working with homeless migrants in Rome who are some of the most marginalised people in the city. I wanted to avoid an overly extractive approach – taking something from these people or speaking 'for' them. Most of all, I wanted an opportunity to use my PhD to tell stories that we would have very little chance of hearing otherwise. As a research design, ethnography was the best way forward. I planned on staying in Italy for 8-9 months, meeting charity organisations and NGOs and spending time with homeless migrants in Rome conducting interviews and participant observation.

The pandemic affected my research plans (like it did almost everybody's). I was unable to go to Rome to carry out my research and needed to go back to the drawing board to design a new methodology that would work in COVID times. Despite my inability to carry out in-person fieldwork, the situation in Rome for homeless migrants had transformed and I wanted to write about it. Around the world, the onset of a pandemic and the controls that followed exacerbated social inequalities of all varieties. Things in Rome had changed, and the lives of homeless people in the city became more difficult. There is now even less institutional support, while controls on movement in public space (social distancing, COVID passes, vaccinations) made the city more inaccessible in some ways for the homeless and other marginalised people.

With the help of my supervisors and some serendipity, I created a new methodological plan to reflect this, enabling me to stay in the spirit of an ethically driven ethnography but conduct the research online, from my desk in Sheffield. Despite this, I wanted to be engaged with what was going on right at that moment on the streets of Rome.

On the subject of homeless migrants in Rome, I found two fantastic resources that have become my main data sources. The first is called TerminiTV – a film channel based on social media that gives voice to people at Termini train station in Rome, many of them homeless or migrants. I have collected hours of footage from the station which provides a unique vantage point on people's lives there. The

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second is Shaker, a street newspaper written by homeless people, featuring short stories, poems and other illuminating pieces of writing. I have been analysing poetry written by homeless people in Rome, illustrating the everyday experience Both TerminiTV and Shaker have allowed me to access stories and experiences that we would not normally hear. It has taken my PhD research in an extremely interesting direction.

Things are easier in 2022. I have now collected a large amount of data and am able to travel to Rome (where I am writing) to do some final work in the field. It's an exciting time. I'm meeting interesting new people and reforging ties with people I have met here on past visits. But the situation is always changing and we'll see what comes next.

On "Resilience", and Researching Japanese Popular Music during the COVID-19 Pandemic

By **Dorothy Finan** - PhD student, School of East Asian Studies

In January 2020, I accompanied my supervisor and an MA student on an academic trip to northern Japan. Out of the corner of my eye, I noticed a sign in the airport that mentioned a new respiratory virus, and thought nothing more of it- why would I? My head was full of thoughts of my return to Japan in a few months' time for my PhD fieldwork, during which I was to visit national libraries and media archives and interview lyricists for my research on adolescence in Japanese popular music. I had everything planned out. I was going to eat piping hot ramen and spend my days exploring the National Broadcast Library, before jumping on the shinkansen to attend conferences with scholars whom I had admired for years. As people told me at the outset of my PhD, the project you submit is never the one you plan on doing, but the impact COVID-19 pandemic was one thing I definitely didn't plan for.

It's now 2022, with my thesis close to completion, and I still haven't made it to Japan for my fieldwork. My physical trips to archives became internet ones, my in-person interviews conducted via email, with my ethics application resubmitted accordingly. My one saving grace was that I had a corpus of lyrics, scraped from the internet pre-pandemic, to work with. The lyricists I interviewed about my research questions mused on the circumstances under which they were now working, and the value of lyrics to those who listen to them in difficult times, including to themselves. As housing issues, a shielding partner, and pregnancy meant that even the research I loved sometimes felt like a struggle, I began to see the songs I was researching in a new light.

The lyrics I've been studying frame adolescence as a time when effort is pure and good. It is implied that this pure, idealised effort is something we need to take inspiration from when we are struggling as adults. But understanding the historical context of these lyrics helps us to see how the positioning of effort, what we might understand as "resilience", as a national, or even nationalistic quality embodied by teenagers, is not as neutral as it may first seem. Studying these lyrics in a time of crisis unprecedented in our own lifetimes has taught me that "resilience" is not everything; we need to rest. Unfortunately rest is (but shouldn't be) a privilege. I am proud to have made it this far with the help of so many people, but as my daughter is about to turn one, I want her to know that I did it whilst resting as much as I could. And I hope I can take her to Japan someday soon.

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Research Methodology under the COVID-19 Pandemic

By **Hiba MA Alessa** - PhD Student, Department of Oncology and Metabolism

Research methodology under the COVID-19 pandemic:
As a clinical researcher, I faced many struggles during the pandemic, and I had to overcome them to get back into research. The effect of COVID was inevitable, and many methodological stages have been affected.

Delays in clinical recruitment: My area of research requires me to deal with patients, so when the pandemic started, we were not able to commence. It was very unfortunate that we were unable to start, especially when I had just finished my literature review. So as an alternative, my supervisor advised me to change the project subject and work on a different methodology plan. Through adaptation, I came up with another area that was still relevant and related to my research. A shift from stoppage of clinical recruitment and working out different methodologies on retrospective data eventually helped me to be more confident with the methods I have learned.

Participants were reluctant to be included in the research subject: Once the recruitment process began, COVID was on the rise. It was imperative when dealing with participants that they were not put at risk of catching the virus. I took precautions, for example, standing at a distance while speaking with them and making sure to sanitize. However, we cannot deny the fact that there was still a fear of contracting the infection.

Cancellation of appointments
On the day of their appointment some participants did not show up for many reasons related to COVID, like waiting for their PCR test, being or caring about someone who was sick.

COVID-infected pregnant women were eager to join the research, as they wanted to make sure that their babies' health was okay. So, this was part of the last-minute amendments we created to adapt to the change.

The Positive and Negative implications. We were able to include more patients. Some of our clients were more interested to be included in our research when they had a history of COVID infection, as the side effects of COVID were still being researched.

Research under COVID restrictions has had both positives and negatives. Although sometimes we cannot reach the goals that we have planned, a shift in plans can also lead to impressive project results.

My advice to Ph.D. students: Keep yourselves focused on the light at the end of the tunnel. Quite often there are times when you cannot keep your plans under control, and the only thing you can do is to keep yourself motivated and resilient. I would also recommend keeping yourself and your Ph.D. as the top priority.

1.) Stay away from distractions, use productivity apps that will help you to stay focused.

2.) Always have plans ahead of the week and document your daily goals to achieve them

3.) Following mini goals is much more helpful than looking at the whole project. For example, setting up a daily writing routine. Sometimes it's overwhelming to think about the whole project and how many things you have to achieve. When you make a very good plan to work on a daily basis, this reduces the amount of anxiety when thinking about your project and the bigger picture.

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Changes to Fieldwork during the Pandemic

By **Maira Klyshbekova** - PhD Student, School of Education

Fieldwork is probably the most exciting and at the same time stressful part of your whole PhD journey. As a PhD student, you spend your first year meticulously writing every detail starting from selecting the right methods, putting together the fieldwork plan, and contacting the selected participants. You replay the whole research process in your mind over and over again and cannot help but anticipate the moment when you sail off to collect your data. But sometimes, no matter how perfectly you plan the whole fieldwork activity there are certain things that happen and bring serious changes to your plan.

When the pandemic first struck, no one even imagined how severely it would affect not only our daily lives but also the academic world. Most international fieldwork had to be put on hold while others had to think of alternative solutions. The pandemic and travel restrictions brought an additional layer of uncertainty, frustration, and difficulty in conducting the most anticipated step of the research process. But no matter how challenging things can get, humans always innovate in times of adversity. We become creative, flexible and learn to work with what we have. As someone who has been affected by the restrictions to conduct face-to-face fieldwork, here I outline some of the steps that may help someone who is going through the same situation:

Accept the situation - sometimes you just need to accept the situation and keep on working.
There are certain things that you can not control and predict. The most efficient thing that you can do is to look past those minor nuisances and accept that certain situations are inevitable when it comes to conducting your fieldwork.

Ask for support - do not suffer alone. Let your research supervisor know about the circumstances and work together to find a better solution. Inform your scholarship providers and ask for additional support or extension of your fieldwork period. Asking for support and letting people know about your situation gives you energy and motivation to keep moving forward.

Try online mode - in technologically advanced times you can always move your whole fieldwork into online mode. Some studies have even found the advantages of conducting interviews and observations online. The participants tend to be more at ease and feel more open when they participate in the interviews from the comfort of their own homes. Thus, do not rush to be sceptical about the online mode, and instead see it as a worthwhile alternative.

Learn about the context of your fieldwork from a distance - if your research project requires a deep understanding of your fieldwork context you can do it remotely. Follow local media, local news, and other social networking platforms like Twitter and Facebook. Take yourself on a tour through Google Maps, Google Earth etc. Immerse yourself into your research context with the help of digital tools.

Do not waste time - work on other things while you wait for your fieldwork to be resumed. Keep growing your thesis and continue working on other chapters. Do not let certain situations stop your productivity.

Always remember why you are doing it- don't forget to remind yourself why you are doing this research. And lastly, **Keep calm and carry on.**

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When the Going gets Tough, the Tough get Going

By **Xiaoyu Gan** - PhD Student, Sheffield University Management School

I am a third-year PhD candidate at the Institute of Work Psychology (IWP), Sheffield University Management School. My research investigates how leaders' daily behaviours spill over to affect followers' well-being and work-life balance. My study uses a unique daily diary quantitative method and collects data from multiple sources. That is, measurements are taken once a day from followers, leaders and followers' spouses over a period of ten working days. This method covers the research problems that occur within an individual. Since the research question aims at capturing and predicting followers' and leaders' real-time daily behaviours, perceptions and emotions, it is appropriate to implement this unique method.

However, the COVID-19 pandemic and the subsequent public lockdown policy has impacted my data collection for quite a long time. First, the proposed research involved me travelling from the UK to China for data collection. There was a risk (physical and mental) and time-lost (self-isolation period) for me to travel from Sheffield to Beijing. Secondly, all the direct flights were cancelled and restricted from Jan 2021; only transfer flights were available at a limited and extremely high price. Thus, I had to stay at home because of the constraints and uncertainty created by COVID-19, which meant I needed to negotiate and distribute all my research information to my potential organisations online. My supervisors and I both agreed that face-to-face communication would be more effective as it could be controllable and generate higher response rates. So, I have been concerned about the completion and quality of my data collection process for a long time. I spent considerable time discussing and adjusting my data collection plan with my supervisors due to the complexity of my study.

Despite some of the problems and challenges I thought about before collecting data, implementing the plan into real organisations can be a real struggle during a pandemic. I had a challenging time as I thought I would not be able to collect valid data. Even so, I still didn't give up. "When the going gets tough, the tough get going."

I have always been passionate about my research. I find it extremely therapeutic in the act of facing difficulties to meet them, rather than to choose to escape. Thus, I managed to seek information and suggestions along the way from good journal papers but most of all through my supervisors and my peers. I developed and set up a small peer group to discuss how to face our challenges during data collection. Additionally, I have adjusted my data collection plan. I tried to negotiate with some potential organisations online and have finally found an appropriate time to go back to China and start my data collection. I have adjusted my aims from time to time in order to move forward. I have now collected some good data. Some tips would be:

· When you encounter problems and challenges, don't panic
· Analyse the problem
· Break down the tasks first by yourself
· Communicate effectively with your supervisors and peers
· Adjust plans
· Trust yourself!

No matter what you do in life, research, teaching, work, music, doing what you love will be meaningful.

I am continuing to work on multi-level data analysis during my PhD; I would welcome anyone interested in the daily diary method or data analysis to contact me at xgan2@sheffield.ac.uk.

Navigating Fieldwork in a Pandemic

By **Mucahit Aydemir** - PhD Student, Department of Sociological Studies

The global COVID-19 pandemic negatively influenced research methodologies as with nearly all other domains of our lives. I, as an international PhD student who is studying an emotive research topic, got caught in the global pandemic in the middle of my fieldwork. I was conducting life story interviews with migrant academics on how they maintain their family and kinship relationships across distances. After getting ethical approval and taking the necessary steps, I commenced the fieldwork, reached my contacts. Then, I started to read the news of the COVID-19 crisis, but never thought that it could reach the United Kingdom. Not long after, however, I also received the email from the University suspending all face-to-face data collection considering the health of the researchers. At the time, although my aim was to reach forty interviews, I conducted five face-to-face interviews and scheduled eleven interviews which I had to cancel.

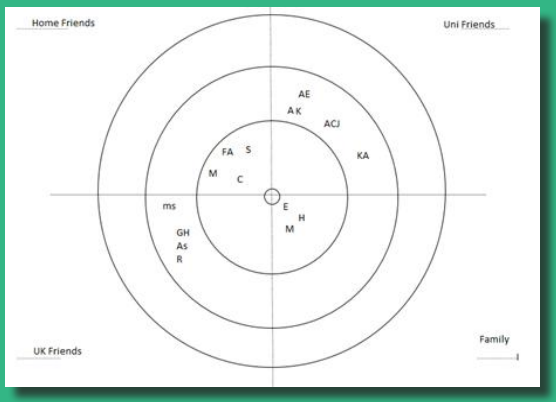
During the lockdown, I was not able to think about my research. Reflexivity wise, I was an international student whose family was living four thousand kilometres away. The initial periods were nerve-racking, awaiting updates from my chronic asthmatic mom, and sister who was working as a nurse in a hospital. In this period, my supervisors kept in frequent contact with me, often asking after my and my family's health, even checking whether I had enough money. After a long while, receiving further updates from the University, we decided to move the research online.

However, nearly all research procedures had been designed according to the assumption that data would be collected face-to-face. The pandemic was like a huge wave destroying sandcastles; that is, the research procedure we had been building for more than a year. My first step was to renew the documentation e.g. information sheet and consent form. Then, since I was looking at the transnational family relationships of migrant academics, I thought that this COVID-19 crisis added up a novel research context, which resulted in me updating my research questions and interview guide.

I soon realised that moving interviews to an online space is easier said than done. In order to choose the best platform, my supervisors and I quickly set up some criteria which were eligibility, accessibility, costs, functionality and appropriateness. Then, Skype and Google Meet were selected as the platforms for online interviews. At this stage, the University's research updates also helped me to exclude some other tools due to ethical considerations. To record the interviews, I made use of neither third-party apps nor in-app functions, and instead I just went with my conventional audio recorder. This actually constituted a limitation, considering how hard it was for me to transcribe the online interviews afterwards due to high-pitch fan sound coming from my laptop.

Moving research to online space necessitates thinking on your feet, especially if you are in the middle of a pandemic. Before the pandemic, at the stage of research design, I had contended that understanding the wider social networked relationships of migrant academics via sociograms is critical in exploring their transnational family ties. The challenge that I then had to deal with was conducting the sociograms online. A sociogram is a map consisting of three or four concentric

circles and generally used for understanding the social networks of individuals (see the image below). However, it was technically difficult to use sociograms as embedded online life story interviews. There were various options. The first



one was using the whiteboard functions available on some platforms such as Zoom. However, asking participants to draw and then fill the map would be impractical and time consuming. The second option was using a web application to draw sociograms. My supervisors provided me with access to an application. However, it was a bit old, having been used in research a long time ago, and the software needed a thorough revision. Above all, it was practical since each participant needed to download an individual software file and set up the program. Although one option was completely removing the sociogram from my research, I wanted to find a way considering its significance for the research. Eventually, my solution was asking the participant to open a sociogram image which I would send before the interview with Microsoft Paint and making changes using the text tool. During this process, I would ask participants to share their screens. It proved to be such a simple yet effective solution, despite some slight issues.

By the end of the process, I had successfully completed rich data from 45 migrant academics via online mediums. Navigating my research during the pandemic, therefore, required me to be decisive and creative in the face of various issues. But, such is life! Life is a collection of consecutive issues and troubles. Happiness is found in our ability to overcome.