



# CELEBRATING WOMEN

MARCH 2022

Award Applications

# ASME New Leaders Award 2020



## Chee Yeen Fung

Health Education England

“In what ways do educational interventions develop analytical and non-analytical clinical reasoning ability in medical students?”

## Dr. Me Project

### Promoting Health | Empowering Children

#### Problem

With increasing demand on General Practice and Accident & Emergency, patient empowerment for appropriate self-care and inspiring medical careers is vital to sustaining the NHS.<sup>1,2</sup>

#### Initiative

The Dr. Me Project is a volunteering programme which trains medical students and doctors to teach primary school children about self-care for common self-limiting illnesses and the appropriate use of NHS resources, whilst also inspiring medical careers.

#### Leadership Role

I founded Dr. Me in 2015 in response to the pressures seen in A&E. I designed and developed the project myself, including all training programmes and materials, and implemented it in local primary schools with student and GP trainee volunteers.

#### Solution

##### The Dr. Me Project

Trained medical students and GP trainees deliver 1 hour sessions to Year 5 classes. The children are given “Dr” name labels, and are called “Dr” throughout the session. Dr. Me starts with a game involving 6 audit scenarios, where the children decide whether to stay home, visit the GP or go to A&E. This is followed by three 12 minute practical workshops on Sore Throat and Fever, Vomiting and Diarrhoea, and Minor and Head Injuries. The session concludes by repeating the audit game to assess the children’s learning, and completion of feedback questionnaires to evaluate their confidence in self-care and interest in medical careers.

##### Medical Student Training Course

A Medical Student Training Course was developed in 2016, which was designed fit with the undergraduate timetable. The course includes two 3 hour clinician-led training sessions, followed by self-directed learning.

The first training session focuses on the challenges in the NHS, self-care and the appropriate use NHS resources. The second focuses on clinical knowledge and teaching skills. Students are then supported to design their own 12 minute workshop, before delivering clinically- supervised sessions in local primary schools.

Development of the course included an exhaustive training package with all necessary resources required to train students and to run the Dr. Me project, including lesson plans, feedback forms, handouts, school letters etc [Supporting Document 1].

##### GP Trainee Training Course

A second bespoke GP Trainee Training Course was developed in 2019 [Supporting Document 2]. The 1.5 hour training session is designed to fit into the GP Vocation Training Scheme (GPVTS) timetable, and focuses on self-care communication and teaching skills.

## Obstacles

A few challenges in developing the Dr. Me Project are outlined below.

### 1. Getting started

As an FY2 with no credibility, it was difficult to get support in the initial stages. Following some rejections, I came to realise that an idea alone was not enough. I reflected on the failure and the criticisms received, and decided to pilot the idea with my peers to prove the Dr. Me concept. I learnt to gain peer support through adapting my pitch and developed an evaluation plan to gather evidence of success. It is only through these lessons that I have since been able to garner support from Health Education England (HEE), the Royal College of General Practitioners (RCGP), the Medical Schools Council (MSC) and Self-Care Forum UK.

### 2. Creating a sustainable model

One of the biggest challenges was to build a sustainable project. Having noted other initiatives lose funding and disappear, it was vital that the project would not be financially reliant. I thus modelled the project on university societies. By making it fun but also academically and professionally rewarding, the project became attractive for students and GP trainees to volunteer and lead the project locally, allowing for long-term sustainability.

### 3. Maintaining the vision

Following the initial successes, I was approached by a medical school who offered to brand and incorporate the project into their curriculum. At this stage, Dr. Me was still very small and linking up with a university would have easily expanded the project and its visibility. However, the long-term vision was to see Dr. Me run nationwide in student and trainee groups. With university branding, I would effectively lose autonomy and identity. As such, I ultimately turned the offer down to focus on the long-term goal.

## Impact

Since 2015, Dr. Me has reached 216 children. Overall, correct responses after teaching improved by an average 16.3%. The vomiting scenarios have improved from 48% to 69%, sore throat from 64% to 88% and minor injuries from 85% to 89%. Feedback showed 99% of children enjoyed the sessions, 95% felt more confident in self-care and 64% were more interested in becoming a doctor.

Positive feedback was received from all medical students and GP trainees regarding their experience and professional development. Furthermore, medical students have presented the results at national and regional conferences, winning the best oral presentation prize and being shortlisted for a medical student prize.

The project has also gained interest from multiple national institutions, such as HEE, the RCGP and the MSC, due to its widening participation impact in primary schools. Dr. Me has also received endorsement from the Self Care Forum UK President due to the health promotion impact, and for raising awareness of self-care in medical schools.

## Learning Points

### 1. Just do it

You may not always get permission, so why not get creative and give it a go?

### 2. Make failure count

Whatever the criticism or failure, there is often still underlying lessons. Figure out the real issue, learn from it, and make failure count.

### 3. Remember your values

Never compromise on the values underlying your vision, even when tempting opportunities arise.

## Future Directions

### Medical Students

I am working with the MSC to expand the project to more medical schools. Currently, I am training up Dr. Me Clinical and Medical Student Leads in Manchester, Birmingham, Edge Hill and King's College medical schools.

### GP Trainees

After successful piloting of the GP Trainee Training Course, I am currently in discussion with GP Programme Directors in London to incorporate Dr. Me into other GPVTS programmes.

### Further Research

I am working with medical students on 2 research projects exploring the benefits to students and GP trainees participating in the Dr. Me Project.

## Media Links

**Website:** [www.drmeproject.com](http://www.drmeproject.com)

**Twitter:** @DrMeProject

**Facebook:** [www.facebook.com/DrMeProject](http://www.facebook.com/DrMeProject)

## References

1. NHS; 2019. The NHS Long Term Plan. [online at [www.longtermplan.nhs.uk](http://www.longtermplan.nhs.uk)]
2. Self Care Forum; 2020. Save our NHS: Time for Action on Self Care. [online at <https://www.selfcareforum.org/2013/10/09/mandate-for-self-care/>]

# ASME/GMC Excellent Medical Education Awards 2019 – Undergraduate Category



**Dr Kathleen (Kay) Leedham-Green**  
Imperial College London

**Designing for health: Evaluating an interdisciplinary learning project in collaboration with service users**

## Name, job title and institution/organisation of co-applicants

**Dr Wing May Kong;** Head of Medical Ethics and Law, Undergraduate Medicine, Imperial College London.

**Dr Elizabeth Muir;** Clinical Senior Lecturer in General Practice; Faculty of Medicine, School of Public Health, Imperial College London.

**Dr Jennifer Wallis;** Medical Humanities Teaching Fellow; Faculty of Medicine, Faculty of Medicine Centre, Imperial College London.

## Specify the role of the PI and each applicant in the project including %FTE commitment

**Dr Kay Leedham-Green:** Overall responsibility for research project, ethical approval, design of focus groups, analysis of data and dissemination of research findings – 0.025FTE

**Dr Wing May Kong:** Design and delivery of teaching, including stakeholder consultation and engagement in co-production workshop, analysis of data and dissemination of research findings – 0.05FTE

**Dr Elizabeth Muir:** Analysis of data and dissemination of research findings, supporting delivery of teaching and stakeholder meetings – 0.025FTE

**Dr Jennifer Wallis:** Carrying out focus groups and semi-structured interviews, analysis of data – 0.025FTE

## Start date and expected length of the proposed project (in months)

September 2020; 12 months.

## Enquiry Goals

### Aims

To support medical students in internalizing the professional values and behaviours expected of the medical profession (General Medical Council, 2018) through an interdisciplinary design project, where medical students work with users of mental health services and their carers on an architectural co-design project addressing issues relating to the social and environmental determinants of health, as well as access to health and healthcare.

### Objectives

- Evaluate the impact of an interdisciplinary learning project in collaboration with service users on student's confidence and satisfaction with learning outcomes for the project.
- Evaluate the effectiveness of an interdisciplinary learning project in collaboration with service users in relation to social accountability and community engagement.
- Evaluate the impact of an interdisciplinary learning project in collaboration with service users on students' self-perceived skills in relation to team working, communication, and management of uncertainty.
- Evaluate the impact of an interdisciplinary learning project in collaboration with service users on the ability of students to reflect on illness as a lived experience and the relevance of this for professional practice.

### Research questions

- How and in what ways does engagement with the determinants of health through a multidisciplinary co-design project with service-user involvement impact upon medical students' emerging professional identities?

- What value is created through the programme? This will be investigated via analysis of student outputs and reflective learning diaries, a qualitative approach tagged to Wenger's (2011) framework for assessing value in communities of practice.
- How are any transformations (top of Wenger value scale) linked to the novel approaches used (service user involvement, co-design approaches, multidisciplinary approaches, integrative approaches to learning and assessment)? This will be investigated via focus groups triangulated with data from module evaluation (survey) and an analysis of outputs.
- Is engagement with, and experience of, the programme different for different demographics (e.g. gender, age, widening participation students)? This will be investigated by a survey-based approach, using validated scales and multivariate analysis.
- How do students, staff, administrators and service-users feel the effort and costs of the programme were in relation to the gains; how do they feel the programme could be improved and why? Investigated via process evaluation, based on survey data triangulated with interview/focus group data.

### Justification for Enquiry

## Background and rationale

The importance of collaboration in healthcare has been emphasized by policymakers and medical educators. The 2008 Department of Health paper *High Quality Care For All* called for local, focused, approaches to change in healthcare involving 'patients, carers, the general public and staff' (17). In medical education, moves to integrate collaborative learning into the curriculum have shown significant benefits for students, service users, and staff: breaking down barriers between students and service users, challenging perceptions about other professional groups (Anderson et al, 2010), and addressing the sense of disempowerment felt by many service users (Larkin et al, 2015). The project for which we are seeking funding is particularly guided by the principle of 'learning with rather than about' service users (Rees et al, 2007).

## Project overview

The challenges of integrating collaborative learning into already stretched teaching curricula is noted by the Centre for the Advancement of Interprofessional Education (CAIPE) (Barr & Low, 2011). However, embedding collaborative student-service user interaction into the medical curriculum in the earlier years is likely to influence later professional efforts to incorporate service-user expertise into institutional practice and policy (Barr et al 2010), assist students in feeling assimilated into a community of practice (Rees et al, 2007; Lave & Wenger, 1991, 1998) and prepare them for clinical contact with patients (Littlewood et al, 2005).

By working directly with service users and collaborators from an architectural school during this project, medical students will develop skills of partnership working and teamwork whilst networking with those with lived experience. As preparation for closer contact with patients in Year 3, the project gives students the opportunity to develop both their ability to cope with uncertainty and their interpersonal skills. Within a mental health context, interactions with service users can help to reduce prejudice and challenge assumptions about mental illness.

The project will integrate with teaching on quality improvement and introduce students to the concept of triple value health care (Gray & Jani, 2016), in particular personalised value as a key component for sustainable healthcare improvements. The project places the perspectives, values, and needs of service users at the heart of the design process. This will provide students with authentic learning relating to social accountability and sustainability via the co-production of a design that will have beneficial effect in a healthcare environment.

The design element of the project contributes to existing work on hospital design and the importance of design for patient wellbeing. Curtis et al (2005) identify various ways in which design may affect 'perceived levels of empowerment for people with mental illness; ... the sense of privacy and refuge ... and integration into sustainable communities.' (605–06) This project has the potential to make a valuable addition to such work.

## Design and methodology

In 2019–20 Imperial College London will introduce an interdisciplinary learning project running across Years 1 and 2 (c.360 students /year), in collaboration with service users affected by long-term mental health conditions. The project provides students with an opportunity to enhance their understanding of long-term mental health conditions from the perspective of lived experience, as well as neuroscience and healthcare interventions. Students will explore issues including safety in healthcare, narratives of dementia, and questions of justice and sustainability.

The design project for which we are seeking funding takes place in Year 2 of this longitudinal project. Medical and architecture students (c.100), service users, and third sector organizations will work together in a three-hour co-production workshop in Autumn 2020. Groups will consist of 10–12 students and 2–3 stakeholders

drawn from service users, allied health professionals, and third sector organizations. Imperial staff with experience as service users will be invited to participate as well as drawing from patient participation groups across NW London. We aim to include a minimum of 30 service users (ideally 50–60) in the project design. The groups will address what makes a good healthcare environment for specific complex conditions including dementia and autism. We aim to work with established third sector organizations including Age UK, Pathway, and Mencap.

Students then work in interdisciplinary teams creating a brief for the redesign of a specified healthcare site, identifying five small design improvements for their site (The Sorrell Foundation, 2004). The teaching team will work with Psychiatry leads to identify 16 sites, including Elderly Mental Health Units (EMUs) and learning disability and autism centres.

In the Spring term interdisciplinary groups will spend a day redesigning their allocated healthcare environment, producing a 3D model and poster explaining how the design delivers personalised value (in terms of service users and clinicians using the space) and social sustainability, and how it reflects the clinical course of their allocated health condition. The poster will be presented and assessed by panels of Imperial teaching staff and lay stakeholders. Over the two years students will build up a portfolio of in-class formative group assessments (focused on creativity, communication, and patient experience).

Evaluation will be built into the project design and is guided by the module's principles of equity, value, and participation. We will meet with students and service users during planning stages and develop evaluation plans with their input (see detailed evaluation strategy below). Participant feedback from the co-production and design workshops will be collected via open-ended questionnaires distributed in hard copy or using the online Qualtrics system. Post-project focus groups will be run, recorded, and minuted by a trained facilitator outside the teaching team (likely other Teaching Fellows at Imperial); these will be transcribed in accordance with College policy and qualitatively analysed by Drs Kong, Leedham-Green, Muir, and Wallis. Project outputs and feedback from poster presentations can also be used to evaluate project outcomes.

## Detailed evaluation strategy

The evaluation strategy is based on a realist research paradigm, operating on the assumption that learning is real and demonstrable but that the process through which this is achieved is complex and might not work for everyone in the same way. Research questions within this paradigm centre on what learning happened, for whom, in which context, and why. We aim to make evaluation useful so that it feeds into meaningful quality improvement, as well as generating knowledge of interest to the wider educational research community.

We will evaluate learning through qualitative analysis of project outputs and assessment items triangulated with reflective learning accounts and interviews/focus group data. We will be looking for evidence of learning which we will code to Wenger's value scale (Wenger et al, 2011), which is designed to promote and evaluate value in complex educational interventions. **We have adapted the value scale according to our learning context:**

- **Immediate value:** what did students think of the activities and interactions?
- **Potential value:** what did students state that they learned?
- **Applied value:** how did students describe learning translating into action?
- **Realised value:** what value was created for service users and service providers?
- **Reframing value:** what transformations happened e.g. to professional identity?

After we have seen what educational value was achieved, we aim to see how it happened through reflective accounts, interviews, and focus group data. Interview/focus group schedules will be co-constructed with students and service users and informed by initial analysis of student outputs and feedback. We aim to achieve saturation of data across stakeholders for focus groups/interviews, but pragmatic convenience sampling will be employed where needed.

We will conduct an anonymised module evaluation via survey. The timing of the survey will be discussed with students so as not to overload them during assessment periods, and to allow time to reflect on their experience. This will be sent to all 360 students; previous surveys of this type at Imperial indicate a probable response rate of 40–50%. The survey will seek to determine who the programme is working for, and in what ways. **Students will be asked to:**

- Answer three free text questions relating to their experiences of the programme (co-designed with students and service users);
- Answer three free text questions on the impacts of the programme (ditto);
- Rate their experiences of the programme (4 scalars with one free text box to explain);
- Rate the impacts of the programme (5 scalars with one free text box to explain);
- Make suggestions for improvement;
- Complete a validated self-efficacy scale (3-point);
- Provide optional demographic information (age, gender, widening participation status, prior degree, SpLD, disability impacting on ADLs) so that we can analyse whether the programme has been delivered and experienced equitably.

Quantitative analysis will be conducted by a trained analyst using SPSS. We will not be looking at before/after learning gain, as there is no control. We will, however, conduct an analysis of variance to see how self-rated learning gain and experience of the programme varies across the cohort, including in relation to student demographics and self-efficacy (1-way non-parametric tests for independent samples: Kruskal Wallace/Mann Whitney U tests).

Qualitative data will be analysed using a Consensual Qualitative Research approach (Hill, 2012) facilitated by Dedoose (cloud-based software) involving two researchers coding the answers to free text questions, audited by a third. Researchers will meet during the coding process to construct a code book of domains and ideas and develop categories.

## Success criteria and barriers to proposed work

Many studies have sought to assess the experiences of students and service users in medical education, but often via the lens of the service user as medical educator (Jha et al, 2009; Towle et al, 2010). Our project brings students and service users together as partners working together to produce a workable brief and learn new skills. Although this has the potential to subvert perceived hierarchies between service users and medical professionals, the project also has the potential to cause anxiety for students: they may find themselves recipients of personal information from service users, or struggle with the tension between collaboration and care/control of patients (Needham, 2007). Although co-production implies an equal partnership, this can prove less clear-cut in practice (Fenwick, 2012). These issues will be addressed by working with service users and students in the design of the co-production workshop, building in time for briefing service users, and debriefing sessions where participants have space to discuss any issues.

The design proposals will be shared with the NHS provider organisations who have no obligation to implement any of the designs. This will be made clear to all participants at the start of the project. Importantly, students must address social accountability and sustainability in their posters and we will work with service users in the design of the co-production workshop and the strategy for disseminating the ideas generated to the wider community.

Success criteria	Addressing potential barriers
Successful involvement of service users in co-design elements	We anticipate there may be difficulty engaging service users, including potential for non-attendance. <ul style="list-style-type: none"> <li>Our strategy includes involvement of third sector organisations who have established service-user led education programmes, including over-booking where recommended.</li> </ul>
Successful engagement of health service providers, allowing their facilities to be studied through the eyes of vulnerable service users	Potential failure to sign up sufficient health service providers. <ul style="list-style-type: none"> <li>We have an established network of teaching hospitals, community services and general practices that we will engage early in a market-making effort. Many sites are contracted to provide educational opportunities for our students. We hope that the obvious co-benefits to the provider (e.g. CQC expectations for service user involvement) will help this process.</li> </ul>
Successful engagement of architectural expertise	Potential difficulty recruiting and quality assuring architectural input. <ul style="list-style-type: none"> <li>We have established contacts at the Royal Institute of British Architects who will support this programme, including quality assurance of educational facilitation.</li> </ul>
Explicit use of evidence-based co-design strategies	We will provide faculty training on experience-based co-design including a toolkit (Point of Care Foundation, 2019).
Evaluation completed on time: all data generation including focus groups within 6 months of programme completion; data analysis completed within 12 months and write up and submission for publication within 18 months of programme completion.	Difficulty protecting time for research. <ul style="list-style-type: none"> <li>The principal investigator is a full-time educational researcher, who works 0.6 FTE for this institution; she has an extensive publication record and protected time for this work.</li> <li>The PI will be supported by the resources of the Medical Education Research Unit, which trains approximately 16 clinical teaching fellows in educational research methods each year. We have the capacity to extend the number of available researchers via this pool as needed.</li> </ul>
Improvements from previous year, fed forward into subsequent years.	Timely generation of feedback. <ul style="list-style-type: none"> <li>Survey responses via Qualtrics will be timed to allow the module organisers to see the raw evaluation data and respond to student and service-user suggestions for improvement in time for the following year.</li> </ul>

## Ethics requirements and procedures

**Ethical approval for this project will be obtained via Imperial's ethical approval system. Advice will be sought from relevant advisors within the College with reference to the College's established ethical guidelines and procedures:**

- Imperial College Ethics Code:  
<https://www.imperial.ac.uk/media/imperial-college/research-and-innovation/public/research-integrity/Ethics-Code.pdf>
- Imperial College Research Ethics Committee (ICREC) Terms of Reference:  
<https://www.imperial.ac.uk/media/imperial-college/research-and-innovation/joint-research-compliance-office/public/Terms-of-Reference.pdf>
- Imperial College Education Ethics Review Process:  
<https://www.imperial.ac.uk/research-and-innovation/support-for-staff/education-ethics/>
- Imperial College London Relationship Review Policy covering all third-party collaborations:  
[https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/secretariat/public/about-the-secretariat/what-we-do/ethics/Relationship-Review-Policy-2021\\_.pdf](https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/secretariat/public/about-the-secretariat/what-we-do/ethics/Relationship-Review-Policy-2021_.pdf)

As a project involving service users and interdisciplinary professional groups, we will also make use of guidelines produced by the Centre for the Advancement of Interprofessional Education (CAIPE). By involving service users in co-production workshops where they engage in tasks on an equal footing with students, our project involves service users actively, drawing directly upon their expertise, avoiding the risk that their involvement is 'tokenistic' (Happell et al, 2015: 20) or 'passive' (Rees et al, 2007: 360). There are mixed views in existing literature about whether and how service users ought to be compensated for their time participating in medical education (see Rees et al, 2007). In this project service users and carers who choose to take part will have their travel expenses and time compensated in order to participate fully in the process. We are in conversation with representatives from Pathway and the Royal College of Nursing who have extensive experience of projects involving diverse service user communities.

Larkin, Boden & Newton (2015) emphasize the need for careful use of experience-based co-design in mental healthcare settings due to the possibility of re-traumatization or the replication of damaging power relationships. Thus, many of CAIPE's guidelines that are of direct relevance to this project will act as guiding principles for us: the need to respect diversity within and between the professions, promote parity between professions in learning environments, and the involvement of service users and carers in teaching and learning (Barr & Low, 2011).

## Outputs and dissemination

We anticipate that the research will be written up as a co-authored article in e.g. Medical Education. We hope to include a service user as one of the co-authors. Additionally, conference proposals for presentations will be submitted, for example to ASME and internally for our Education Days. We also plan to reflect upon the project via the Imperial website and newsletters. Given the close involvement with service users, we will endeavour to work with third sector organisations and service user groups to disseminate information about the project beyond the medical education community. Students will be encouraged and supported to give presentations at relevant Away Days or conferences, ideally jointly with service users.

## Team expertise and experience

Dr Leedham-Green is a full-time educational researcher. She delivers teaching in Clinical Education and Public Health, and is the recipient of a number of prizes, most recently the Aspire award on behalf of Imperial's Medical Education Research Unit in 2018. Her extensive experience of medical education research makes her ideally suited as PI of this project.

Dr Kong brings leadership experience within medical education as Head of Medical Ethics and Law within the Imperial medical school. She has a track record for successful innovation in medical education. She is Chair of the NW London Diabetes Foot project, a four-year NHS England-funded transformation project. Since the launch of this in 2017, she has created a network of service users, clinicians, and commissioners to co-design transformation change in the provision of services for people with diabetes in London.

Dr Muir is a Clinical Senior Lecturer in the Department of Primary Care at Imperial with significant experience of both medical teaching and research. In this project, her advocacy for carers in general practice, interest in patient-centred care, and knowledge of health inequalities provide a solid contextual background for the team to draw upon.

Dr Wallis is a full-time Teaching Fellow at Imperial with experience of teaching across various disciplines in Higher Education, as well as engaging with service users via her work in the history of psychiatry and facilitating public workshops in collaboration with museums and archives. In 2019 she was shortlisted in the Best Undergraduate Teaching category in Imperial's Student Academic Choice Awards.

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[Word count, excluding References: 2,767]

## Finances

- Expenses for guest lecturer on Health and the Built Environment, based on typical standard class return train travel within UK (£150) and one night's accommodation in London at Prince's Gardens (£120) = **£270**
- Travel expenses for service users and carers to attend co-production workshop and assist in research design. 60 x £30 = **£1,800**
- Travel expenses for service users and carers to attend co-production workshop and assist in research design. Day Anytime London travelcard at £13.10 each for 60 people = **£786**
- Payment for service user focus group participants taking part in project evaluation. Two focus groups of 1 hour with 10-15 participants in each, at £10ph = **£300**
- Travel expenses for service user focus group participants taking part in project evaluation. Two focus groups of 1 hour with 10-15 participants in each, Day Anytime London travelcard at £13.10 x 30 = **£393**
- Transcription costs, 8 hours at £16 ph (based on industry standard of four hours transcription per one hour of audio, with some leeway) = **£150**
- Attendance at ASME conference to disseminate research findings, two delegates for one day at c.£250 each (based on 2019 conference rates) = **£500**

**TOTAL £4,199**

## Suggested reviewers

**Dr Daisy Fancourt**, Senior Research Associate, Institute of Epidemiology & Health, University College London.

**Professor Janet Richardson**, Emeritus Professor, School of Nursing & Midwifery, University of Plymouth.

**Dr Flora Smyth Zahra**, Clinical Senior Lecturer in Interdisciplinarity & Innovation in Dental Education, King's College London.

### Application approved by:

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# ASME Small Grants 2019



## Anna Richmond

Nottingham University Hospitals Trust, UG Medical Education Department

**“In what ways do educational interventions develop analytical and non-analytical clinical reasoning ability in medical students?”**

### Background

Clinical reasoning is the complex process through which doctors formulate diagnoses and make decisions about management or treatment plans for patients [1]. Development of clinical reasoning ability starts at medical school with acquisition of medical knowledge and clinical skills. There is growing consensus that dual information process theory enables us to better understand the clinical reasoning process. In particular the observation that individuals reason consciously and deliberately (i.e. analytical reasoning) as well as reasoning unconsciously and intuitively (i.e. non-analytical reasoning) [2].

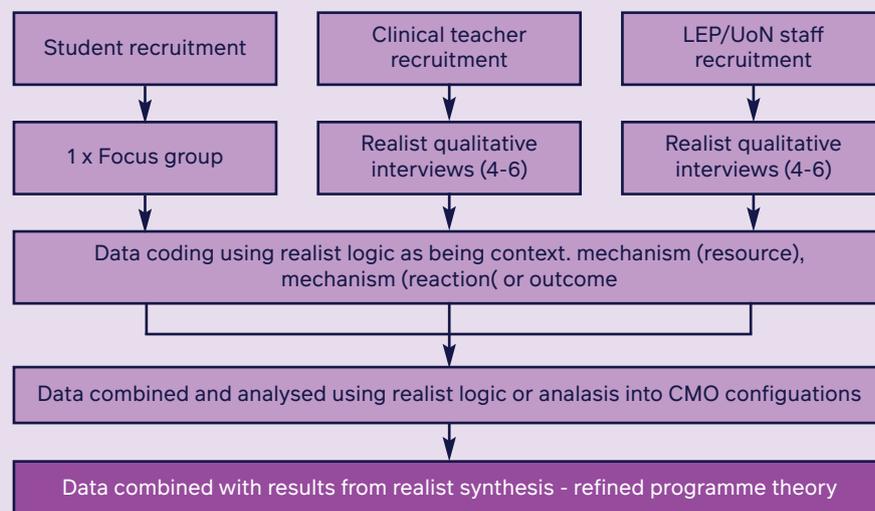
Non-analytical reasoning develops with the acquisition of medical knowledge, the accumulation of clinical experience and the adaptation and refinement of various illness scripts for particular diseases. Our realist synthesis [3, 4] has identified an initial programme theory describing key contexts that contribute to the success or failure of educational interventions for developing clinical reasoning ability. Refining this initial programme theory by illuminating the way in which surrounding contexts interact with interventions may allow educators, faculty, curriculum planners and even students themselves to make changes to improve clinical reasoning outcomes.

### Aims

This programme of research aims to bring greater insight to the way in which educational contexts affect medical students' abilities to develop CR skills. The overall research question for this programme of research is **in what ways do educational interventions develop analytical and non-analytical clinical reasoning ability in medical students?**

### Research methods

1) focus group interviews with medical students and 2) realist qualitative interviews with a) clinical teachers and b) staff involved in planning undergraduate teaching at a local education provider or university level. The flow-chart shows the recruitment, design and plan for analysis of the data:



## Justification for choice of methodology

This research uses realist methodology which is a theory driven approach to explore generative causation between interventions and outcomes. It allows consideration of the impact of various factors or contexts on the participants responses to those interventions [5]. This methodology is well aligned to our research question as it enables researchers to develop greater understanding of the wider individual, teacher and organisational factors that affect educational interventions. Furthermore, the methodology enables greater understanding about the reasons why interventions may 'work' for some individuals, but not others, as well as 'work' in some contexts but not others.

Projected outcomes: The combined qualitative output of the studies (focus group and interviews) will be analysed using a realist logic of analysis, combined with the initial output from the literature review leading to the production of a refined programme theory. The outputs will describe the factors which influence student's responses to educational interventions and the outcomes when developing clinical reasoning ability in undergraduate medical students.

## Timetable

**April 2019** – recruit clinical educators/teaching fellows and local education provider (LEP) or university staff to participate in interviews

**April 2019** – Provide participants with pre-interview information; the purpose of the study and a brief overview of the theories created so far

**May 2019** – Interviews – approx. 8-12 in total

**July 2019** – recruit students to focus group and provide pre-focus group information (as above)

**August 2019** – analysis of data

## Funding

Item	Projected cost
1 Transcription costs – audio recordings from focus group and interviews (approx. 16 hours @£16 p/h)	£256.00
2 Allowance for attendance at focus group/interview (£10 per participant – approx. 24 participants)	£240.00
<b>TOTAL</b>	<b>£496.00</b>

## Key references

1. Cooper, N. and J. Frain, ABC of Clinical Reasoning. 1st ed. 2016, Chichester: Wiley Blackwell/ BMJ Publishing Group.
2. Evans, J.S.B.T. and K.E. Stanovich, Dual-process Theories of Higher Cognition: Advancing the Debate. Perspectives on Psychological Science, 2013. 8(3): p. 223-241.
3. Richmond, A., et al., A realist synthesis of educational interventions that are used to develop clinical reasoning with respect to dual information processing in undergraduate students. PROSPERO CRD42017072029 2017.
4. Richmond, A., et al., The student is key to success: a realist review of educational interventions to develop analytical and non-analytical clinical reasoning. Prepared for submission, 2019.
5. Pawson, R., Evidence-based Policy. A realist perspective. 2006, London: SAGE.