



# Postgraduate Conference 2012

## Abstracts (15 minute papers)

### **Generative divergent analysis – a creative approach to analysis within educational research**

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The approach to analysis within educational research needs to be matched to the purpose. The presentation will outline and exemplify a customised approach to analysis identified as generative divergent analysis (GDA). The GDA model was conceived as a parameter for the Creative Analytic Paradigm (CAP) in order to allow for the paradigm's more open format. Within the CAP the purpose of analysis is to identify points of contact with the phenomena of experience which generate and have the potential to generate reflection. The analytical process also involves elaboration of the associated themes. Analysis begins with and includes differentiating the perceptual field by noticing naturally occurring objects of interest/actively evocative objects and/or by actively focusing attention (re latent evocative objects). As a constitutive and creative process, analysis within the GDA model includes looking away from the object evoking the initial response and following the generated ideas, rather than being specifically concerned with deconstructing the object itself. This more creative and imaginative way of thinking relates well to the concept of divergent thinking and to ideas of fluency, flexibility and originality. Divergent analysis within the GDA model is generated in experience and relates to a contemplative process model of research as 'relationship'.

### **The physiological demands of the three phases of competitive one- day eventing in novice female event riders**

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Developing sports specific conditioning requires an understanding of the demands experienced by athletes during competition. There is no research available investigating demands of competitive riders and therefore the aim was to evaluate the physiological demands of competitive ODE in female novice riders. Heart rate (HR), blood lactate (BLa), and handgrip (GS) data were collected from 27 riders (mean  $\pm$  SD; age  $34 \pm 10.4$  years; height

169.3 ± 6.2 cm; mass 67.4 ± 9.6kg) at competition. BLa concentration was measured at baseline (BL) and completion of each phase; Dressage (DR), Show Jump (SJ) and Cross Country (XC). GS was measured at BL and post each phase. Riders spent more time at high exertion (90-100%HR<sub>max</sub>) XC (74.8%) and SJ (43.1%) than in DR (28.0%) (P=0.01). Mean BLa differed significantly between the phases; (mean ± SD) DR (2.2 ± 1mMol), SJ (3.5 ± 2.2mMol) and XC (4.7 ± 1.8mMol) (P<0.01). Mean GS was seen to decrease significantly (P<0.05) from BL and in all three phases (P<0.01). Supplementary strength and conditioning should focus on achieving a sound aerobic base. And additionally strength training may improve asymmetry and strength of the upper body to reduce the effects of fatigue displayed in these athletes.

### **Is inside-out, inside-out? Exploring a sociological perspective of intra-psychic space through the outside of normative experience**

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A normative understanding of mental space suggests a private, inner realm or sanctum that can be known only from the inside-out. Psycho-analysis, the confessional and the judicial-penal system all assume its validity. A vast academic and popular literature yearns for the discovery that will reveal this assumed inner space in all its splendour as an object for the scientific gaze. Freud called it the 'psyche', philosophers of mind have labelled it the 'hard problem', neuro-scientists anticipate the moment that science, the big white hunter, bags this most elusive prey. And yet others, having lost all hope, deny it is a problem at all. Amidst the noisy milieu however, there is a little voice, a faint whisper that begs the question: What if the theory of inside-out is itself inside-out? What if the inner space could be, perhaps will be, an outer space? Beyond the noise and the clamouring for the prize of inner experience there has always been this otherness that begged the question, research that pointed elsewhere, to a social space that was also somehow 'inner'. This paper responds to the brief by exploring a sociological notion of subjective experience through the normative experience of 'madness'. In celebration of the exteriority of experience, the presentation will use a variety of forms and types of media to communicate an experience of madness as the outside of a normalised inner experience.

### **The effect of eccentric contractions in a glycogen-depleted state on metabolic responses during prior submaximal cycling**

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Glycogen depletion following prolonged exercise is often associated with susceptibility to, and recovery from, exercise-induced muscle damage (EIMD). In a state of EIMD,

cardiorespiratory responses may become compromised during subsequent moderate- and high-intensity cycling. Yet, the effects on metabolic and cardiorespiratory responses during low-intensity cycling are unclear. Ten men ( $22\pm 3$  yr,  $180\pm 7$  cm,  $81\pm 16$  kg) exercised for 10-min on a cycle ergometer at 50% maximal oxygen uptake prior to, and 12-hr after completing 100 unilateral maximal voluntary eccentric contractions with knee extensors of each leg. The evening before the eccentric bout, a unilateral glycogen depleting protocol was performed to lower muscle glycogen in the right leg. Cardiorespiratory responses were recorded using a portable metabolic cart (Cosmed K4b<sup>2</sup>, Italy) during cycling. Changes in maximal isometric voluntary force (MVIF) were used to assess EIMD. Paired samples t-tests were used to detect difference in pre- and post-values for metabolic and cardiorespiratory measures during the last minute of exercise, and MVIF. Twelve hours post, EIMD was evidenced by MVIF reductions of: 7% (left leg;  $P=0.06$ ) and 8.3% (right leg;  $P=0.008$ ). Respiratory exchange ratio reduced from  $0.97\pm 0.05$  to  $0.92\pm 0.05$  ( $P=0.02$ ), while oxygen uptake ( $1.5\pm 0.2$  to  $1.6\pm 0.2$  L $\cdot$ min<sup>-1</sup>,  $P=0.39$ ), carbon dioxide output ( $1.4\pm 0.3$  to  $1.4\pm 0.2$  L $\cdot$ min<sup>-1</sup>,  $P=0.54$ ), minute ventilation ( $36.9\pm 0.7$  to  $38.1\pm 0.6$  L $\cdot$ min<sup>-1</sup>,  $P=0.69$ ) and heart rate ( $110\pm 2$  to  $111\pm 2$  beats $\cdot$ min<sup>-1</sup>;  $P=0.85$ ) were similar. Fat oxidation increased post from  $0.16\pm 0.1$  to  $0.26\pm 0.1$  g $\cdot$ min<sup>-1</sup> ( $P=0.05$ ), but carbohydrate oxidation was unchanged ( $1.6\pm 0.3$  to  $1.4\pm 0.4$  g $\cdot$ min<sup>-1</sup>,  $P=0.36$ ). Eccentric exercise preceded by a unilateral glycogen depleting protocol altered metabolic responses during low-intensity cycling exercise. Increased fat oxidation may be due to impaired insulin action with EIMD; but this was not supported by cardiorespiratory responses. Such may be attributable to limited damage induced by the eccentric bout, the intensity of the cycling exercise or a combination of both. Regardless, the design may have utility in examining mechanisms underpinning the physiological responses to exercise in an EIMD state.

### **The human face in social research**

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Critics of educational research say it suffers from *physics envy*, lacks academic rigour and that its subsequent reports are couched in jargon that fails to speak to the practitioner. It appears difficult for education researchers to find an appropriate research design that will facilitate an avenue of communication and strike a cord with its diversity of consumers. In my research on teachers' professional identity, I sought to achieve a balance between academic rigour and practitioner engagement. I was acutely aware research design could form a barrier to practitioner engagement. In an effort to overcome this, I purposely chose to adopt an ethnographic approach which allowed me to immerse myself in the teachers' world, discipline myself to learn their *language* and forge a link between their local discourse and the global one. In doing so, I came face to face with the threats and opportunities of human contact in research. What are these opportunities and challenges?

## **Exploring and improving access to direct payments by people with dementia living in rural communities**

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Direct payments are cash payments made to individuals eligible for social care services which allow them to manage and pay for their own social care rather than receiving it directly from their Local Authority. Research suggests that direct payments can enable people with dementia to stay in their own home for longer, and experience greater choice, flexibility and an improved social life. However, uptake of direct payments is currently low. People living in rural communities may particularly benefit from the additional flexibility offered by direct payments; however they may face difficulties accessing appropriate services. The aim of Phase 1 of the research is to explore the reasons why people with dementia who live in rural communities do or do not gain access to direct payments. This will be achieved through analysis of direct payment uptake data, focus groups with social workers, examination of online discussions about direct payments, and interviews with people with dementia, carers and social workers. Findings will inform Phase 2 of the research: the building and pilot testing of an intervention which can be utilised in rural communities to maximise access to direct payments by people with dementia.

### **Technology and family farming: Promoting independence or co-operation?**

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Issues such as a rising world population, climate change and the economic crisis have led to a questioning of the UK's agricultural sector to maintain a sufficient and reliable food supply. As a result, led by various policy think-tanks, the UK Government is looking to technology to increase sustainable food production. My PhD research explores the contemporary nature and importance of family farming in the UK, and interrogates how these changes may become reality for these members of the agricultural sector. This paper focuses on the interactions between family farmers and various forms of technology. It is particularly concerned with how these technological engagements impact the seasonal events and social relationships associated with family farming. For example, it investigates how technology has impacted the use of additional labour from the community during seasonal events such as baling, before arguing whether this has led to greater independence or co-operation within family farming. In order to do this, the paper will draw on six months of multi-sited ethnographic fieldwork conducted on family farms in Ceredigion, Wales, UK. The paper makes significant contributions to understandings of the family farming way of life, theorisations of technologies in 'context' and 'culture', and conceptualisations of future agricultural change.

## **Influences on the success of small-to-medium enterprises in Tangier**

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It is becoming increasingly difficult to ignore the importance of the small and medium enterprise (SME) sector in the economic and social development of a country. In view of their increasing importance, this present study aims to develop a situational model of the factors that influence success of small and medium enterprises in Tangier. The initial research framework, which emanated from a systematic literature review, has been empirically investigated using a two-stage methodology. Using a quantitative approach in the first phase, a paper and online survey questionnaire was administered to a population of 365 industrial SMEs. In the second phase, a qualitative approach was embraced, in which fifteen in-depth face-to-face semi-structured interviews were conducted with owners/managers of SMEs that were selected based on a judgmental sampling. The study found that the non-breaching of religious beliefs, in relation to finance, was important for entrepreneurs and was considered as a spiritual success. Findings further indicated that avoidance of losses related to the infrastructure factor enables business success since it ensures business continuity. Furthermore, the concepts of lean production were found to be associated with business success. The study concluded that success of SMEs in Tangier is built upon the combination of internal and external factors. However, while many factors seem to be similar to other studies in different contexts, some factors are context based. This research contributes to the understanding of business success in Tangier. The study has succeeded in developing a situational model that enriches current research by offering specification, justification, and empirical validation of a set of various important factors that tend to be associated with business success.

## **Hydrodynamic variability within the habitats of a trout stream**

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River research and management activities often focus on mesoscale habitat classifications such as physical biotopes (*e.g.* pools, riffles, glides). The results of recent research suggest, however, that we have little knowledge of how the hydraulics of physical biotopes differ from one another. So called 'standard hydraulic variables' based on mean flow velocity do not provide adequate discrimination between physical biotopes and may not constitute the most mechanistic descriptors of habitat for instream biota (*e.g.* salmonid fish). Instead, turbulent flow properties may provide the basis a more effective and ecologically-relevant classification. Given the dearth of information on the hydrodynamic characteristics of physical biotopes in UK lowland streams, the first step in testing this conceptual framework was to collect high frequency velocity data from a range of habitats on the Leigh Brook, a third-order stream in Central England. A series of 90 second velocity records was taken from each of five representative physical biotopes using a 25 Hz Acoustic Doppler Velocimeter. Results show that turbulent flow properties provided better power to discriminate between

physical biotopes than standard hydraulic variables. The structure of spatial, discharge-related and short term temporal flow variability differed fundamentally between several visually distinctive habitats, providing support for a preliminary classificatory framework.

### **High resolution remote sensing and object-based image analysis for river habitat detection**

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The assessment of in-stream habitat availability within fluvial environments is required by the EU Water Framework Directive. In the UK, this assessment traditionally includes mapping of water surface patterns known as ‘surface flow types’. Surface flow types result from the interaction between channel morphology and flow hydraulics and can be both biologically and hydraulically distinct. Such mapping is usually conducted from the river banks where estimates of spatial coverage are made by eye. However, this approach is plagued by issues of user subjectivity and inaccuracies in the spatial extent of mapped units. Remote sensing and specifically the recent developments in unmanned aerial systems (UAS) now offer an alternative approach for rapid collection of very high resolution imagery from low altitudes and under bespoke flight conditions. This research aims to develop a method for mapping SFTs using high resolution optical imagery collected from a helicopter-based UAS, combined with object-based image analysis techniques. It also aims to investigate whether this approach is capable of characterising flow velocity – a key determinant of habitat availability which has been largely unexplored through remote sensing.

## **Abstracts (3 minute presentations)**

### **The Development of Leadership Skills in Women Carers**

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This presentation will focus on linking women, caring and leadership skills. Many women are still responsible for their household and for bringing up children. Family caring responsibilities tend to be gender biased. Gender matters because it shapes the identities and behavioural dispositions of individuals, how people see themselves, the ways they behave and how they see others. I want to discover the effect of this on the development and exposure of leadership skills in women who care for family or friends outside of work. For women with caring responsibilities additionally, there is a constant and organic interface between home and work. The caring responsibilities themselves and this interface of balancing work and home, fit well with the more caring leadership style now practised in schools. Teaching Assistants are being asked to rise to the challenge of more demanding roles which require leadership skills and At the other end of the leadership scale, there are many initiatives to encourage more women to be Headteachers. This suits many women who are practised or practising carers. I will elude to why it is women who care, the nature of caring and a caring or distributive leadership style.

### **A Study of Migration of Highly Skilled Tanzanians to the UK**

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The broad aim is to explore reasons that contribute highly skilled Tanzanians to migrate abroad, using the migration of highly skilled Tanzanians to the UK as an example. This study takes a qualitative exploratory approach that employs a subjective ontology to explore reasons that apply in Tanzania that contribute to the decision for highly skilled Tanzanians to migrate to the UK. Data from qualitative interviews that give opportunities to gain understanding from participants' experiences and perceptions on the reasons that contribute to the decision for international labor migration and the impact on domestic economic development to be explored and be better understood. An understanding of the perceived reasons for international labor migration and its impact on the domestic economy development will assist in suggesting ways in which the Tanzanian government can influence its highly skilled people to remain and work in the country. Given the lack of previous qualitative research studies on the impact of migration of highly skilled people on economic development, this paper can contribute qualitative method is of value for future research.

## **An ethnographic case study of a group of Muslim schoolgirls and their PE teachers at two schools in the West Midlands**

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This thesis is an ethnographic case study empirical investigation of a group of Muslim schoolgirls and their PE teachers at two schools in the West Midlands. The four main aims are to investigate:

1. The identity of Muslim schoolgirls.
2. Whether the Muslim female identity impacts upon participation in school-based PE.
3. PE teachers' perception of the Muslim female identity and how they meet the needs of female Muslim pupils in PE and school sport.
4. Whether the PE teachers use inclusive practices in their lessons.

The empirical data were gathered over a period of twenty months, mainly by in-depth interviewing of the respondents illuminating the same issues from the perspectives of the pupils and their teachers. The study confirms the findings of previous research, which found that issues of kit, fasting during Ramadan and extra-curricular activities posed problems for Muslim pupils. Although teachers were committed to inclusive practice, in reality the experiences of pupils were more reliant upon the quality of individual teachers. Teachers are effective where they have been trained to teach in multi-ethnic schools and are, therefore, sensitive to the issues involved. Multi-cultural and racism-awareness courses appear to be indispensable for a better understanding of the pupils.



## Abstracts (posters)

### **Farmers' adaptation to climate change – Can farmers and practitioners in the UK learn from practice in developing countries?**

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This poster presentation discusses and explores concepts found in the authors literature review forming part of the PhD thesis 'Farmers interpretation of climate change in the welsh marches.' The aim of the poster is to present work in progress, using literature findings and indicators of how these will be brought forward to be applied to the next stage of the authors' research. Specifically, the poster will concentrate on the potential to apply participatory workshops used to facilitate farmer adaption to extreme weather in developing countries, into a UK context. Climate Change is predicted to result in increased temperatures in the UK by 3°C - 4°C before 2080, when combined with more erratic rainfall agricultural production will undoubtedly be significantly affected. Despite an abundance of scientific research predicting climatic change, little has focused on the social-economic impacts of climate adaption in the UK agricultural sector. Climate change adaptation is an emerging topic in the developed world, yet in developing countries research since the 1980 has established methodologies to encourage farmer adaptation to extreme weather events and environmental change. Commonly used approaches from Africa and Southern India include: the rural livelihoods approach, indigenous knowledge transfer and participatory rural appraisal. The potential role of such methods to facilitate farmer adaption in the UK will be explored. To conclude, the author will argue that now is the time that practitioners and farmers in the UK need to reverse roles and adopt a bottom-up approach learning lessons from farmer adaptation to climate change in developing countries.

### **Material Culture in the Margins: comparing Roman and Roman-Iron Age sites in the military zone of North West England**

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This poster reports on the findings of a pilot study set up as part of wider research into craft production and exchange in Roman Britain. The aim of this presentation is to investigate the placement and value of particular artefacts and materials in Northern England during Roman military occupation (1<sup>st</sup> - 4<sup>th</sup> centuries A.D.). By comparing a Roman-Iron Age site with a Roman site we hope to highlight differences in the use of artefacts, which can then be related to variation in social and economic systems. This pilot study will inform future research, attempting to integrate the multiple production traditions present during this period in what are now the regions of Cumbria, Northumbria and Lancashire. Trade in the pre-Roman Iron Age in the North West is poorly understood. Broadly the archaeological

record appears dominated by raw materials, especially ground stone, with some metals and scant evidence for pottery. During the Roman occupation new trade routes brought a wider range of goods into the region, apparently to service the Roman military infrastructure with subsequent 'trickle down' into civilian settlements. Consequently we argue that, in this militarily-dominated and colonial frontier, the acquisition, use and discard of material culture reflects relative tensions between the largely indigenous rural population and the inhabitants of the forts and civilian settlements. By exploring this and integrating more recent theoretical perspectives regarding colonial and post-colonial theory, we hope to bring our understanding of material culture in Northern England into line with studies elsewhere in the Roman Empire.

### **Reconstruction of a Younger Dryas plateau icefield in the English Lake District: A modified approach to reconstructing palaeo-climate**

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A large number of sites remain unmapped in the central Lake District, England, precluding characterisation of the style and extent of former Younger Dryas ice masses during this key period. Additionally, environmental changes have been documented using both proxy-based records and model simulations but a disparity still exists between model simulations and climate reconstructions using glaciers as proxies. Palaeo-ecological data and modelling data denote a broadly cold and dry climate during the Younger Dryas, but glacier-based reconstructions consistently produce a warm and wet scenario at the glacier ELA, affecting the validity of the models. It is proposed, the lack of agreement between these is in part due to methodological shortfalls, e.g. the failure to include the cooling effect of glacierised surfaces on reconstructed air temperatures. Using empirical data from automatic weather stations around Vatnajökull, Iceland, we investigate this effect. Mapping followed a morphostratigraphic approach which permits reconstruction of the likely ice-mass geometry and palaeo-ELAs to be calculated. Palaeo-precipitation and temperature totals are derived using established techniques and compared to those gained from empirical modern temperature measurements. The style of glaciation was a plateau icefield, *ca.* 33 km<sup>2</sup> more extensive than previously reconstructed and relative-age estimates indicate a Younger Dryas age with a mean ELA of 532 m which implies a palaeo-precipitation of 2179±295 mma<sup>-1</sup>, broadly corresponding to previous regional reconstructions. The empirical data results in a 2° to 2.5°C decrease in temperature due to the '*glacier cooling effect*'. This demonstrates that it lowers both variables at the ELA to a scenario in line with other proxies when applied to the reconstructed icefield. Although a preliminary assessment, this suggests that caution is necessary when employing synoptic proxies to derive former local glacier-climates during the Younger Dryas.

## **Lateglacial geomorphology in the Tweedsmuir Hills, Scotland – Implications for retreat patterns, glacier reconstruction and chronology.**

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The Tweedsmuir Hills, Southern Uplands, Scotland, contain excellent assemblages of glacial landforms, including hummocky moraine, classically associated with a Lateglacial deglaciation (c. 14.7 – 11.7 cal. ka BP) in the UK. Although initially documented in 1855, a detailed systematic geomorphological investigation has never been undertaken in the region, meaning reconstructions are patchy, outdated and lacking chronological control. This has resulted in conflicting styles of glaciation being inferred, with both plateau icefield and valley glaciers reconstructed in the Tweedsmuir Hills. Importantly, comprehensive numerical modelling experiments for the period, c. 38 -10.4 ka BP, predict a significant body of ice for the Tweedsmuir Hills at the onset and throughout the Younger Dryas (c. 12.9 – 11.7 cal. ka. BP). Field data, which at present, are missing means that the numerical modelling remains untested. Given the emerging evidence that ice-masses survived, during or throughout the Lateglacial in a number of regions in Scotland, the glacial geomorphology and reconstructions for this area will provide a key input of palaeo-glacier data for subsequent investigation of wider patterns of Lateglacial ice-mass distribution and climate gradients across the UK and NW Europe. Geomorphological mapping followed a morphostratigraphic approach using a combination of aerial photos, NEXTMap™ and mapping in the field using a ruggedized tablet PC, with built in GPS and ArcGIS 9.3. The glacial landforms indicate two separate landsystems. The first is characterised by elongate subglacial bedforms overriding the topography, trending SW to NE, suggested to be attributable to the Devensian glaciation. The second landsystem is characterised by closely spaced sharp crested moraines, oblique to the valley axis and confined by the topography, meltwater channels and single terrace systems, which are likely to have formed in a subsequent period of renewed glaciation i.e. Lateglacial. The Lateglacial landform assemblage indicates more extensive glaciation than previously envisaged, with both a transection ice-mass and icefield coexisting, reflecting different topographic controls. Interestingly, a geomorphic pattern is observable in more than one valley, which is interpreted as a synchronous recession of the outlet glaciers and a rapid deglaciation towards the summits. Whilst two landsystems have been mapped the second poses interesting problems regarding extent and timing of glaciation. The Loch Skene site has been traditionally associated with a small valley glacier. However, it appears to feed ice into a lower valley which exhibits a landform assemblage typical of Lateglacial deglaciation in Scotland. It is tentatively proposed that the Loch Skene glacier represents a retreat phase prior to complete deglaciation rather than the Younger Dryas maximum.

## **Deployment of first responders to mass disasters**

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This research reflects on the unique experience of deploying to mass disasters as part of a first responder team either as search and recovery or family assistance. The research currently available concentrates on the psychological effects that deployment and exposure to mass fatalities can have on an individual, but little is known of the paradigm of first responding outside the emergency services or combat groups. The research seeks to understand experience and to separate it from other similar experiences and to measure the existence of a set of personality traits to determine whether the team has a pre defined set of traits unique to them. These traits include: understanding the role of resilience, hardiness, coping and self efficacy. Finally, the research seeks to explore if the teams are self selecting as the observed evidence suggests. The grounded theory methodology is interpretive and qualitative in approach with the sample group being made up of first responders from across the world that deploy for a US based organisation that responds to mass disasters internationally. The team are either volunteers who deploy as part of their work careers, but may have other jobs, or permanent staff of the organisation. The researcher is part of this team and has extensive field experience in major disasters such as: the Thailand tsunami, various airline disasters and civil unrest.

## **Understanding adult male sexual violence victims' reporting and prosecution decisions.**

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To identify salient factors associated with adult male sexual violence victims' reporting and prosecution decisions, using a socioecological, mixed-methods approach. British Crime survey data from 2004-2012 will be explored in two studies and used to model the different social ecologies which may interact to influence victims' decision making. The two models will be developed through adapting the Feminist Rape Mythology Hypothesis (Anders, 2007) to explore how congruence with rape myths (victim and assault level), and social support predict decision-making behaviour. A third study will explore these issues, and the value of the socioecological approach, qualitatively through in-depth interviews with voluntary organisation victim support workers. Planned analyses include multi-level modelling for studies 1 and 2, and abbreviated Grounded Theory for study 3. The research findings are anticipated to have important implications for the policy and practice of the police, criminal justice system, and statutory and voluntary agencies which support male victims of sexual violence. Ultimately it is hoped that this research will shed further light on the experiences of male victims: an oft neglected and under-researched topic.

## **Identifying Cognitive Predictors of Progression from Mild Cognitive Impairment to Dementia – A Project Overview**

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It has been suggested that individuals with mild cognitive impairment (MCI) are at an increased risk of developing dementia as compared to healthy individuals of a similar age. The aim of this study is to establish whether performance on cognitive tasks can predict which individuals with MCI will progress to dementia. This is a longitudinal, quantitative study which will involve participants being tested three times, every 9-12 months, over 2 years. Participants will be recruited to 2 cohorts; individuals with a recent diagnosis of MCI, and individuals who have recently had a memory assessment and have been identified as having no cognitive impairments beyond normal ageing. A maximum of 300 participants will be recruited from specialist NHS services across Worcestershire and the West Midlands. It is hoped that this study will enable the development of a screening tool which could be used in clinics to assess an individual's risk of developing dementia. This has the potential to provide greater amount of prognostic information and to facilitate the selection of participants for trials of interventions which could slow the progression of dementia.