Understanding the social impact of participation in Driven Game Shooting in the UK.

Submitted for the Degree of

Doctor of Philosophy

At the University of Northampton

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Abstract

Taking a critical realist, mixed methods approach, this study fills a gap in the research base relating to driven game shooting (DGS) and its social impact. It looks at how involvement in DGS affects the people involved, using a recognised social impact assessment methodology with a theoretical underpinning of social capital theory. It considers the extent to which DGS creates social impact through the creation of social capital and reinforcement of identity, whether this is affected by size and/or type of shoot and how these impacts can be valued in future. A need for this was clearly outlined by National Resources Wales and its independent evaluation consultants (Hillyard and Marvin, 2017; Natural Resources Wales, 2017). This study is the first research study to consider the social impacts of DGS in full, utilising a recognised Social Impact Assessment method to produce a framework for future use in evaluating the social impact of shooting and therefore represents an original and needed contribution to knowledge. The study comprised of two stages of data collection. Firstly, qualitative, visiting shoots of different sizes and types from small and larger syndicates through to small and larger commercial shoots nationwide, observing/engaging with participants, contacting a sample of 45 people afterwards for a longer telephone interview. Results of these reflective observations and interviews were analysed using a Straussian grounded theory approach, allowing the production of a questionnaire for wider distribution using online and hard copy distribution channels, during the second quantitative stage, which received 2,424 responses suitable for analysis. Results indicate a positive impact on participant's mental health and well-being measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS) compared to national data. This positive impact, facilitated by social support networks created within DGS, is influenced strongly by identity. Regular participation in physical activity, time spent outdoors, a sense of purpose and reduced loneliness appear to be contributing factors to this positive impact. Syndicate membership in particular enhances the mental well-being benefits. This study confirms that the financial value of these social impacts is potentially significant, as the cost-savings to the taxpayer in avoiding poor mental health and maintaining physical health can be very high. This will have implications for policy-makers when considering amendments to the rules surrounding DGS in the UK.

Acknowledgements

I would firstly like to thank all of my participants as without them the study would not have been able to be completed. Their continuing support throughout the process was vital in enabling me to understand the reasons why individuals take part in Driven Game Shooting and how strongly many feel about its role in their life. This enabled me to develop a strong questionnaire and subsequently achieve high levels of responses to it. I remain forever grateful.

Secondly, my thanks go to my supervisors and the department team members for their support, knowledge and guidance which has been invaluable in developing my understanding of particularly theory-based research. I will never think in the same way again. Professor Richard Hazenberg and Professor Simon Denny were outstanding supervisors who supported me throughout my journey and were always there when I needed advice and guidance.

Finally, I would like to thank my family, in particular my husband and children who have supported me throughout my journey, understanding my need to lock myself away and study!

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Acronyms

BASC	British Association of Shooting and Conservation
BGA	British Game Alliance
BMA	British Medical Association
CA	Countryside Alliance
DGS	Driven Game Shooting
DPA	Data Protection Act
EVPA	European Venture Philanthropy Association
GDPR	General Data Protection Regulations
GECES	European Commission expert group on social business or 'Groupe d'experts de la Commission sur l'entrepreneuriat social'
GESA	Greater Exmoor Shoots Association
GWCT	Game and Wildlife Conservation Trust
GWT	Gamekeepers' Welfare Trust
LACS	League Against Cruel Sports
NGO	National Gamekeepers' Organisation
NHS	National Health Service
NOBS	National Organisation of Beaters and Pickers up
ONS	Office for National Statistics
RSPB	Royal Society for the Protection of Birds
SACS	Scottish Association of Country Sports
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNPAN	United Nations Public Administration Network
WHO	World Health Organisation

Chapter 1 - Introduction

What is the social impact of participation in driven game shooting?

"I think it's an endemic way of life. If you've grown up with it, it's part of your DNA"

P48 (gun, syndicate)

1.1 Background

Game shooting at birds (chiefly pheasant, partridge, grouse and duck) has been a part of rural life in Britain since the 17th century (Jones, 2015). Driven game shooting (DGS) emerged in the mid-19th century following the introduction of the double-barrelled breech loading gun, allowing faster and easier reloading (Jones, 2015). It involves guns[1] standing on pegs or in butts, instead of walking towards birds, whilst birds are 'driven' towards and over them by beaters[2] and dogs (British Association for Shooting & Conservation (BASC), 2011). The countryside is managed to provide appropriate habitat and 'cover crops[3]' and birds are reared and released (Game & Wildlife Conservation Trust (GWCT), 2018). DGS became popular throughout the 19th Century, although the sport remained accessible only to those with money and status up until the 1980s (Jones, 2015). A number of types of shoot are now available, from small to large commercial shoots, private gatherings by invitation, to smaller and larger syndicates, where members rent the sporting rights over land and manage the shooting themselves, allowing people from all backgrounds with a range of disposable incomes to participate (British Association for Shooting & Conservation (BASC), 2011).

Several reports indicate that DGS makes a significant contribution to the rural economy (Public and Corporate Economic Consultants (PACEC), 2012, 2014b; Hillyard and Marvin, 2017), BASC, 2011). The Game and Wildlife Conservation Trust has completed much research into the environmental impacts of DGS including reduced soil erosion due to cover crop planting (Crotty and Stoate, 2017), reduced soil phosphate pollution (Reynolds *et al.*, 2017),

[1] The individual people or 'shooters' who shoot the guns.
[2] Beater: Person who flushes… game during a shooting day (Public and Corporate Economic Consultants (PACEC), 2014a)
[3] Crops (such as kale and millet) planted on shoots to provide gamebirds with food and shelter (Public and Corporate Economic Consultants (PACEC), 2014a)

improved habitats and biodiversity (Draycott *et al.*, 2012), increased songbird numbers from supplementary winter feeding, land management and predator control (Baines *et al.*, 2014; White *et al.*, 2014; Sánchez-García, Buner and Aebischer, 2015; Aebischer *et al.*, 2017; Ludwig *et al.*, 2017) and reduced wildfire risk and increased hare populations (Baines *et al.*, 2014). However, shooting birds for sport is vehemently opposed by some people, such as members of organisations like the League Against Cruel Sports, who seek to have it banned (League Against Cruel Sports, no date), arguing that financial and environmental benefits have been overstated (Cormack & Rotherham, 2014) and that some land management practices, particularly for driven grouse shooting, can have negative impacts (University of Leeds, 2014; Lead Ammunition Group, 2015; Avery, 2016). There have also been negative news stories regarding wastage of pheasant meat (Milmo, 2015), disputed by many within the shooting industry, and the wider societal acceptance of big bird days[4] (Starkey, 2018b), which risk reputational damage and, some argue, could question the sustainability of the sport in its current format in some areas (Starkey, 2018b).

This study did not set out to take a 'position' on the rights or wrongs of driven game shooting. It sought to identify some of the impacts on the c. 1.5 million people (see Appendix O) that take part in a legal activity, not to comment on the moral or ethical considerations involved in DGS. Neither does the study seek to examine fully the environmental or economic impacts of DGS, or the arguments that take place between those that think DGS is good for the environment and those that criticize it on environmental grounds. Taking an ethical position on DGS is not simple, as there are many different ways in which the sport is practiced. There are significant differences between DGS on a moorland estate where grouse shooting is part of an integrated pattern of activities aimed at increasing biodiversity, improving habitat, and reducing threats to human and animal health, by reducing the number of ticks present in the vegetation (Game and Wildlife Conservation Trust (GWCT), 2020b); and a commercial pheasant shoot in, for example, the Midlands that may not actively seek to improve the environment. Good practice DGS depends on three common factors: feeding of birds (which inevitably includes non-game birds getting more food); habitat management (which typically

[4] Shooting days when a large number of birds of the quarry species are killed

is intended to improve biodiversity); and predator control (Game and Wildlife Conservation Trust, 2018; Game and Wildlife Conservation Trust (GWCT), 2020a, 2020e). The only consistent ethical position that might be taken on these factors would be an opposition to predator control because it involves killing animals. However, predators survive by killing other animals and both conservation groups, and Government land stewardship schemes, as discussed in section 3.6, both promote (and in the case of stewardship schemes reward) predator control as a way of maintaining a balanced and diverse ecosystem (Department of Environment Food and Rural Affairs (DEFRA), 2005; UK Government, 2020a, 2020b). Discussions relating to the ethics of shooting often include factors such as the use of lead shot, intensive game bird rearing and the impact of large game bird releases on the environment (Hutchinson, 2011), citing the intensive raising of pheasants and partridges for example (Humphreys, 2010). These environmental factors are discussed in section 3.6 of this thesis. There are individuals and organisations who believe that the killing of any animal for sport is wrong (League Against Cruel Sports, no date; Royal Society for the Prevention of Cruelty to Animals (RSPCA), 2014), while the cultural, ritual and social elements of wild killing of animals by humans has also been considered in prior research (Marvin, 2006).

Therefore, this study does not seek to make judgement on the ethical position of shooting birds for sport, instead it follows the recognised GECES social impact assessment methodology (Hehenberger, Harling and Scholten, 2014), with a well-developed theoretical underpinning, to explore the social impacts of the sport in terms of the intended and unintended consequences, both negative and positive, for both the individuals involved and wider society of involvement in DGS particularly in relation to social capital and identity theory. Policy interventions to ban or regulate DGS might wish to take into account the evidence on social impact presented in the thesis

1.2 Current Studies

There is a lack of objective, academic studies relating to game shooting. The last, objective, Economic and Social Research Council funded academic study was completed in 1996 entitled ‘Game Management in England: Implications for Public Access, the Rural Economy and Social

Relations', resulting in the final report and related publications (Cox *et al.*, 1996; Cox, Watkins and Winter, 1996a, 1996b), when wider public access to land was being considered under 'right to roam', prior to the introduction of Countryside and Rights of Way Act 2000 (UK Government, 2000).

The objectives of the project as listed in the final ESRC report were:

- "To examine the significance of new developments in presuppositions regarding property rights in Britain and the implications of such developments for other users and those wishing to make new demands upon rural land.
- To provide an evaluative review of the past and current state of the game and rough shooting industry in rural Britain through a survey of shooting organisers. This would enable its impact on the rural economy, land management, other forms of rural recreation, nature conservation landscape and public access to be assessed.
- To make an assessment of the relative importance of game interests in rural restructuring.
- To develop the policy implications of its findings in relation to such issues as access rights and leisure provision, conservation, the regulation of woodland planting and timber production."

(Cox *et al.*, 1996, p. 2)

This study also recognised the lack of research that was not sponsored by landowners or the country sports industry and that academic studies were often driven by policy concerns (Cox, Watkins and Winter, 1996b).

This study aims to review the literature to identify gaps in the evidence base and explore the social aspects of engaging in DGS, a recognised under-researched area (Hillyard and Burridge, 2012; Hillyard and Marvin, 2017), utilising a recognised social impact measurement process; and to propose a method for measuring and comparing these social impacts in future. It does this by identifying the social impact(s) that participation in DGS has on the people involved in it (not just guns, beaters and pickers up, but also the wide network of people whose lives are affected). A need for this has been clearly outlined by National Resources Wales and their

independent evaluation consultants in a recent consultation on shooting in Wales (Hillyard and Marvin, 2017; Natural Resources Wales, 2017). The only wide ranging study into personal impacts was a self-evaluation study that did not attempt to identify or quantify comparable social impacts (British Association for Shooting & Conservation (BASC), 2016). The Exmoor study into all types of shooting, not just DGS, carried out by PACEC looked only at one geographic location, and in very little detail relating to social impacts, again not attempting to identify a framework of identified social impacts (Public and Corporate Economic Consultants (PACEC), 2012). The 2014 PACEC study only dedicated two pages of its full 128-page report to social impacts and did not attempt to identify a framework of social impacts utilising recognised GECES social impact assessment (SIA) methods. The study attempts to answer the research questions outlined in Table 1.1, developed following the literature review (Chapters 2 and 3) and the pilot study detailed in Chapter 4, in consultation with key stakeholders, in line with the GECES SIA methodology (Hehenberger, Harling and Scholten, 2014).

Question No.	Detail
Research Question One	To what extent does DGS create social impact through the creation of social capital and reinforcement of identity?
Research Question Two	How does the type and size of shoot mediate social capital and identity development?
Research Question Three	How can these social impacts be valued and compared in the future?

Table 1.1 Research Questions

A full understanding of the social impacts, coupled with the existing economic and environmental impact evidence, could be used by policy makers to make decisions, and by those involved in shooting to ensure they deliver a positive social impact and a sustainable future.

1.3 Outline of the thesis

This thesis has eight chapters which address the research questions and objectives outlined above. This chapter gives an introduction to DGS and the reasons for measuring the social impact of the sport through the development of a SIM Framework. Chapter 2 defines and explores Social Impact Assessment (SIA), its development, methodologies, best practice and use. Chapter 3 describes DGS, the main roles within it and give a short background of its development in the UK and its position now, summarises the existing, limited research into the social impacts of the activity and considers the environmental and economic impacts of DGS, through a review of existing research, exploring how the existing research findings relate to social impacts and how existing research is deployed to justify or criticise DGS. Chapter 4 outlines the methodology, exploring both the philosophical underpinning for the study and how it fits in with the methodology outlined, discussing the reasons for adopting a mixed method approach, the sampling methods used, research tools and the ethical considerations of the study.

Chapter 5 details the qualitative analysis, using a Straussian grounded theory method to identify key themes emerging from the research, identifying hypotheses to be tested using data collected using a questionnaire developed out of the data analysis in this chapter, which was circulated to gather data for quantitative analysis, using face to face contact, direct email and online social media. Chapter 6 confirms the validity of the data collected via the wider questionnaire and details the quantitative data analysis. Chapter 7 triangulates the data analysed at both the qualitative and quantitative stages with the findings of the contextual literature review. Chapter 8 concludes the study, providing an overview of the research, suggesting a way for the social impacts of DGS to be measured and compared across different types and sizes of shoot in future, makes policy recommendation, explores the limitations of this study and potential future research and confirms the unique contribution that this PhD study makes to the research base.

Chapter 2 - Social Impact Assessment

This chapter defines social impact assessment and discusses some of the theory behind its development, identifying and comparing various impact areas identified by national and international bodies. Next, it provides an examination of social impact assessment policy development in the UK and how it has recently been linked to health policy. Following this, some of the recognised methodologies, including best practice guidance, are explored. Finally, it illustrates social impact assessment in practice, by referring to a number of social impact assessments that have been completed.

2.1 Definition and Background

The International Association for Impact Assessment (IAIA) defines Social Impact Assessment (SIA) as follows:

> "Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment"
>
> (International Association for Impact Assessment (IAIA), 2018)

This study considers the positive and negative social consequences of DGS, an activity not paid for by government but instead funded by private individuals, that participants have often been involved in for several years, meaning a cross-sectional study is appropriate. The reason for this choice of definition is that others ,noted as follows, are either more suited to a longitudinal study, for example, to allow social purpose organisations to reassure funders that their investment in specific interventions is being well-spent and is making a positive impact, often illustrated with case studies to facilitate future fundraising (Hehenberger, Harling and Scholten, 2015) or more closely related to specific development projects and managing the social issues that arise from them (Esteves, Franks and Vanclay, 2012). In relation to the above definition, DGS is the 'intervention' or activity considered and the 'social change processes'

are those that occur for people, communities and society through individuals' involvement in DGS.

Social Impact Measurement (SIM) was first made mandatory in 1969/70 in the USA as part of the US National Environment Policy Act (NEPA), when Social Impact Assessment (SIA) became a compulsory part of Environmental Impact Assessments (EPAs) (IAIA, 2018). It was recognised that developments such as the pipeline built through Inuit territory in the USA, the first development to use the term 'social impact assessment', had an impact on people not just on the environment around them (Burdge, 1998). Based on the work of American philosopher Roy Wood Sellars (1880–1973) exploring the beginnings of critical realism Eodice, (2012, p. 325) explains that "the mechanisms of the mind play an ineliminable role in how it is that one knows reality. ……. the objects of knowledge are not simply ideas, appearances, or constructions of sensory data but are independently existing entities and states of affairs, though it is the case that one comes to know these objects only through sensory and cognitive processes." It is this individual sensory and cognitive process element that makes the measurement of SIA difficult as people experience things differently and one is essentially trying to put a value on something subjective and socially constructed.

How does one measure the subjective? To a certain extent it depends on the researcher's ontological and epistemological perspective. To measure social impacts one needs to recognise that social structures exist that can be affected by humans' activity or 'agency' and that perception of these structures varies between individuals (Collier, 1994; Archer, 2016), which makes a critical realist approach an appropriate lens through which to assess social impacts. Social impact assessment is, at the basic level, an assessment of the impact on people of any intervention. The reason that a critical realist approach is the most appropriate and valid is discussed in detail in section 4.1.

It is widely recognised that there is a lack of common theoretical underpinning to social impact assessment (Dietz, 1987; Becker and Vanclay, 2003; Aledo-Tur and Domínguez-

Gómez, 2017). Areas to be considered include social theory dealing with issues such as power, culture, place, participation, difference and community (Howitt, 2011). The initial need to measure social impacts as a result of developments to enable mitigations to be valued required a cost to be put onto these impacts. Social capital theory (Bourdieu, 1986; Coleman, 1988; Putnam, 2000; Lin, 2008) is one way of quantifying the value of social impacts in an understandable way.

2.2 Social Capital, Identity, Health and Well-being

Social capital has been defined as "the networks of relationships among people who live and work in a particular society, enabling that society to function effectively" (Oxford Dictionary, 2018c). There has been a large amount of work into the importance of social capital and social contact for good mental health and well-being and the costs to society of treating poor mental and physical health, which could be considered a wider social impact (Carpiano, 2006, 2007; Hinder and Greenhalgh, 2012; Sirven and Debrand, 2012; Knapp, 2015; Jetten *et al.*, 2017; Gale, Westbury and Cooper, 2018; Valtorta *et al.*, 2018; O'Connor *et al.*, 2019). It has been argued that focussing on the medical aspects of health and not the wider social impacts has produced failures in policy in reducing inequalities, due to neglecting the underlying determinants of health (Chapman, 2010). Coleman (1999) argues that another reason for under investment in social capital is the lower level of return for investors "a property shared by most forms of social capital that differentiates it from other forms of capital is its public good aspect: the actor or actors who generate social capital ordinarily capture only a small part of its benefits, a fact that leads to underinvestment in social capital" (Coleman, 1999, p. 36). This indicates that investors in social capital need to either be government agencies, individuals that have a philanthropic nature or that perceive another reason to invest.

Social and community networks are a key element recognised as part of the social determinants of health (Dahlgren and Whitehead, 1991), as shown in Figure 2.1.

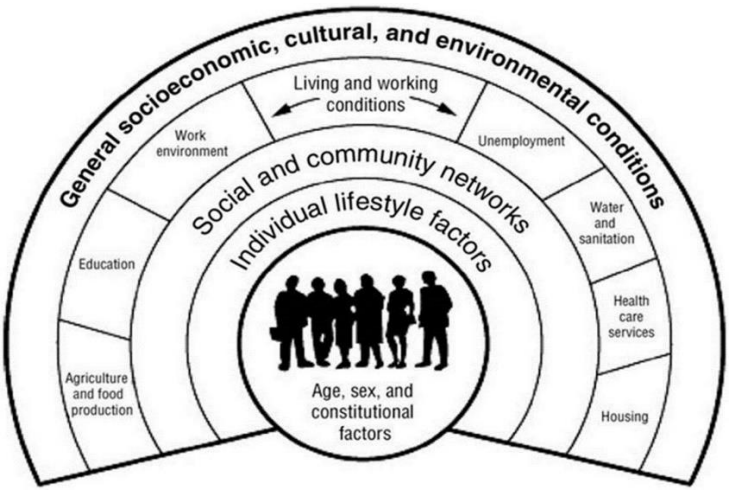


Figure 2.1 The social determinants of health (Dahlgren and Whitehead, 1991)

This study therefore considers social capital and its relation to individual health and well-being, both mental and physical, and its wider social impact.

Perhaps the most widely-cited social capital theorist is Pierre Bourdieu, who identified social capital as one of three forms of capital: economic, cultural and social capital, arguing that in some cases social capital can be used effectively to achieve one's goals (Bourdieu, 1986). Coleman (2000) argued a similar position of social capital's acquisition value, noting that social capital can also be used to achieve goals by increasing the power of individuals through acting together in a group. He illustrated this via a case study of union workers joining together to increase pay and conditions to illustrate how social capital can result in more power for those who initially seem powerless (Coleman, 2000). Coleman also identified three forms of social capital, "obligations and expectations, which depend on trustworthiness of the social environment, information-flow capability of the social structure, and norms accompanied by sanctions" (Coleman, 1988, p. S119). A more recent advocate of the importance of social capital is Putnam, who argues that the decline of social capital is the cause of many of society's problems, defining social capital as the "connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam, 2000, p. 19).

Three dimensions of social capital have been recognised: structural, cognitive and relational, as outlined in Table 2.1 below:

Structural	Cognitive	Relational
Social Structure	Shared understandings	Nature and quality of relationships
• Network ties and configuration • Roles, rules, precedents, and procedures	• Shared language, codes, and narratives • Shared values, attitudes, and beliefs	• Trust and trustworthiness • Norms and sanctions • Obligations and expectations • Identity and identification

Table 2.1 The Dimensions of Social Capital (Claridge, 2018b)

Social capital can be 'bonding', 'bridging' or 'linking', each can be of advantage to the individual (Claridge, 2018a). Bonding social capital, sometimes referred to as horizontal social capital, refers to the ties within the same group, often local communities or groups where members have the same interests (Coleman, 2000), where lots of people know each other and there are strong norms and trusts (Claridge, 2018a). Coleman (2000) would refer to this as a 'closed network', as opposed to an 'open network' where perhaps one person knows more people and therefore holds more 'power' within the network (Coleman, 2000). This type of capital or informal network has been noted as important for personal identity, support and belonging (Woolcock and Narayan, 2000). In some instances, it has been negatively associated with intolerance, in a similar vein to that identified by social identity theory (Tajfel and Turner, 1986), where people can positively associate with one group of people and have a negative view of those outside of the group. In the diagram Figure 2.1, bonding social capital would fall within the 'social and community networks' section.

Bridging social capital is "ties between individuals which cross social divides or between social groups" (Claridge, 2018a, para. 3). It is sometimes referred to as vertical social capital as it crosses hierarchies and 'bridges' between traditional 'classes' and provides information and resources outside of immediate close networks for example, and is important for personal and community development (Woolcock and Narayan, 2000). It is a more formal type of

capital, that includes relationships that reach wider than immediate friends and family, where there is often less trust initially and this has to be built up over time (Onyx, 2014). In Figure 2.1, bridging social capital could fall within both the 'social and community networks' section and perhaps the overall 'general socio-economic, cultural and environmental conditions' section.

Linking social capital is similar to bridging capital in that it relates to formal relationships and can be defined as "the norms of respect and networks of trusting relationships between people who are interacting across explicit, formal, or institutionalised power or authority gradients in society" (Claridge, 2018a, para. 3). This linking social capital would fall within the 'general socio-economic, cultural and environmental conditions' of Table 2.1 above.

In this study, the most relevant forms of social capital are bridging and bonding, as the interventions are not funded either by government or another authority who can define the outcomes and outputs making achievement of these a requisite of receiving funding. Providing funding gives the funder more power over the individual. Weber argued that bureaucratic systems, whilst necessary for the efficient administration of complex societies, limit human freedom and the ability to form social structures. He envisaged societies moving towards an 'iron cage' of structured, rationalised bureaucracy, which he feared may limit human creativity and innovation (Weber, 1905; Elwell, 2013, 2018). This can be seen within modern society, particularly with the increasing move towards 'measurement by technology', and the requirement for all projects to have a numerical 'value'. Weber would argue this approach traps individuals in systems based purely on achieving rationalised numerical statistics. This controls so much of their time that it limits the ability to use alternative, not directly measurable actions, such as trust and reciprocity. It is through the use of proxy measures that good social impact assessment, via engagement with all stakeholders, to design appropriate outcome and impact 'measures', attempts to redistribute the power from solely funders to the individuals taking social action.

This focus on numerical targets can have a detrimental effect on individuals. As an example, from the researcher's personal work experience, within the NHS there are numerous targets to be met by hospitals. One of these is 'number of operations cancelled within 24 hours and not completed within 28 days'. A local provider under pressure due to delayed discharges, was holding off cancelling operations until the last minute unless absolutely necessary, assessing that around 50% of the day's planned operations could be completed, but not all of them, due to lack of hospital bed capacity. However, in order to meet their targets, they were forced to adopt a policy of cancelling all potentially impacted operations two days before they were due. This meant that they did not fail the 'within 24 hour' cancellations target but 50% of the patients received a worst service than they would have done as potentially 50% of operations could have gone ahead. Another example of figures and target manipulation is patients being kept in an ambulance outside A&E as the clock does not start ticking on the four hour wait until they officially 'enter' the hospital. This practice both negatively impacts the patient waiting to enter the hospital and also has the potential to cost lives, as the ambulance cannot be released to deal with potentially life-threatening calls.

Linking social capital is particularly concerned with relations with those who have access to resources, which is not of particular relevance here as DGS is funded by individuals privately and any social impacts represent a benefit not linked to that 'funder' directly. It is possible for individuals to increase their power via the ability to access funding for interventions that result in social benefits, meaning that linking social capital is a form of empowerment as recognised by Weber (1978).

Marx proposed that in a capitalist society like the UK, power is held and controlled by the ruling classes, who ensure that actions perpetuate their power, using the working classes 'labour power' to maintain the status quo (Cook, 2011). Marx believed class to be the sole social stratification (Parkin, 1979). Weber, on the other hand, argued that there are other forms of social stratification not just class, including status and (political) party in his three component theory of stratification, with each impacting on the distribution of power within a community (Weber, 1978). In relation to status, for example, people who work together or

engage in the same social activities feel they have much in common regardless of their 'economic class' as defined by Marx (Haralambos and Holborn, 1995). As noted above, groups of people who identify with common ideals and goals can work together to increase their power within society, regardless of class or social background, to facilitate changes for the better of their 'community' of workers, within an employment situation for example (Coleman, 2000). Linking and bridging social capital can increase a person's power by increasing access to resources for better employment, skills development or services they require (see Chapter 3, section 3.5 for employment and training related impacts). This indicates why identity is an important element in the building of social capital within this study, bridging traditional Marxist class divides and empowering individuals within those groups to access resources that would otherwise be inaccessible.

2.2.1 Social Capital: the role of identity

As noted in the three dimensions of social capital Table 2.1 in section 2.2 above, both relational and cognitive (shared attitudes and beliefs) dimensions relate to identity. Identity theory research has demonstrated a link between social structures and identity (Stryker and Burke, 2000). It has been argued that membership of groups such as families, communities and other social groups, impact on an individual's psychology and identity positively, giving a sense of purpose, meaning and belonging to people's lives, rather than simply being an external feature of the world around them (Haslam *et al.*, 2009). Conversely, negative psychological consequences can result from no longer being part of a group, which consequently impacts on social identity (Haslam *et al.*, 2009).

Tajfel and Turner's (1979) social identity theory (SIT) and self-categorization theory (SCT) are the starting point for any study considering identity (Tajfel and Turner, 1986; Turner and Reynolds, 2012). Tajfel and Turner (1979), proposed that individual membership of groups and sense of belonging in the social world, increases self-esteem and pride. It has been noted there could be both positive and negative consequences of this group identity proposing 'in-groups' and 'out-groups' (Tajfel and Turner, 1986). Negative impacts of in-group participation and conflict with out-groups can be seen in Northern Ireland with conflict between Catholic

and Protestant communities. A less volatile in-group/out-groups relationship would be between the Labour and Conservative parties in politics (McLeod, 2008).

It has been argued that the connection between social capital and social identity theory is an under-explored area (Tzanakis, 2013). Both social capital and identity theory research involve investigating patterns of interaction between agency and structure, a key element of any critical realist study such as this one (Tzanakis, 2013). Two key strands of identity theory, which are related but not the same, are those of Stryker (Stryker, 1987, 2007), who focus on linkages of social structures with identities and the work of Burke and colleagues (Burke, 1991; Stets and Burke, 2000; Burke and Cantwell, 2010), which considers the internal process of self-verification (Stryker and Burke, 2000).

Stryker's work is underpinned by the symbolic interactionist theories of Mead (1934), particularly in relation to self and society (Stryker, 2007). Symbolic interactionism is a sociological theory that provides a framework for understanding how people work together to create symbolic 'structures' and how these structures impact on the self and individual behaviours (West and Turner, 2018), it focuses on the way meanings emerge through interaction of individuals (Scott and Marshall, 2009). Section 3.4 of this thesis discusses how people who shoot view themselves as part of a group of 'like-minded people' and the 'shoot' being part of rural identity. The limited work of Heley (2010, 2011) and Hillyard and Burridge (2012) considered the aspirational nature of shooting and how newly 'rural' dwellers adjust their behaviour when moving to the countryside to become part of the social network in the area, building their social capital.

Commitment to identity, as explored by Stryker and Serpe (1982, 1994) (noted in Stets and Burke, 2000), is clearly linked to social capital. It is suggested that the commitment to an identity, and therefore its importance and likelihood to be 'activated' as opposed to another identity, is related to both the number of persons one is connected to by holding an identity (a common way of measuring social capital and quantifying embeddedness of identity in

social structures (Office for National Statistics (ONS), 2017b)) and by the strength or depth of ties to others. The stronger the ties and the greater the depth of the ties the more salient the 'identity' concerned (Stets and Burke, 2000). Stryker identifies the development of an identity theory from structural symbolic interactionism via four key refinements (Stryker, 2007), which have been analysed in relation to social capital theory in Table 2.2.

Identity theory and structural symbolic interactionism: four key refinements (Stryker, 2007)	the conceptualization of society;	the conceptualization of self;	the relative weight to be accorded social structure versus interpretive processes in accounts of human social behaviour;	the manner in which the processes of social interaction relate to the larger social structures within which these processes take place
Social Capital Link	Trust and social norms. Linking social capital- formal relationships within society.	Identification within a group to build 'bonding' social capital and a support network.	Social capital, both bridging and bonding, as measured by the quantitative social capital indicators (numbers of contacts) and qualitative indicators (depth of relationships)	Linking and bridging social capital, to facilitate access to resources for example

Table 2.2 Stryker's four key refinements to structural symbolic interactionism for identity theory and their social capital links

Burke's perspective is more focused on the self than Stryker's, but is also developed out of symbolic interactionism theory. His identity control theory (ICT) focuses on personal identity and behaviour within the context of the social structures in which people are embedded (Burke, 2007). ICT proposes identity as a control system is made up of four components, identity standard, perceptions, a comparator, and behavioural output (Burke and Cantwell, 2010), as detailed in Figure 2.2 overleaf. This appears to be a development of the three stage mental processes relating to identity and group interaction identified by Tajfel and Turner (1979) categorisation, identification and social comparison (Tajfel and Turner, 1979).

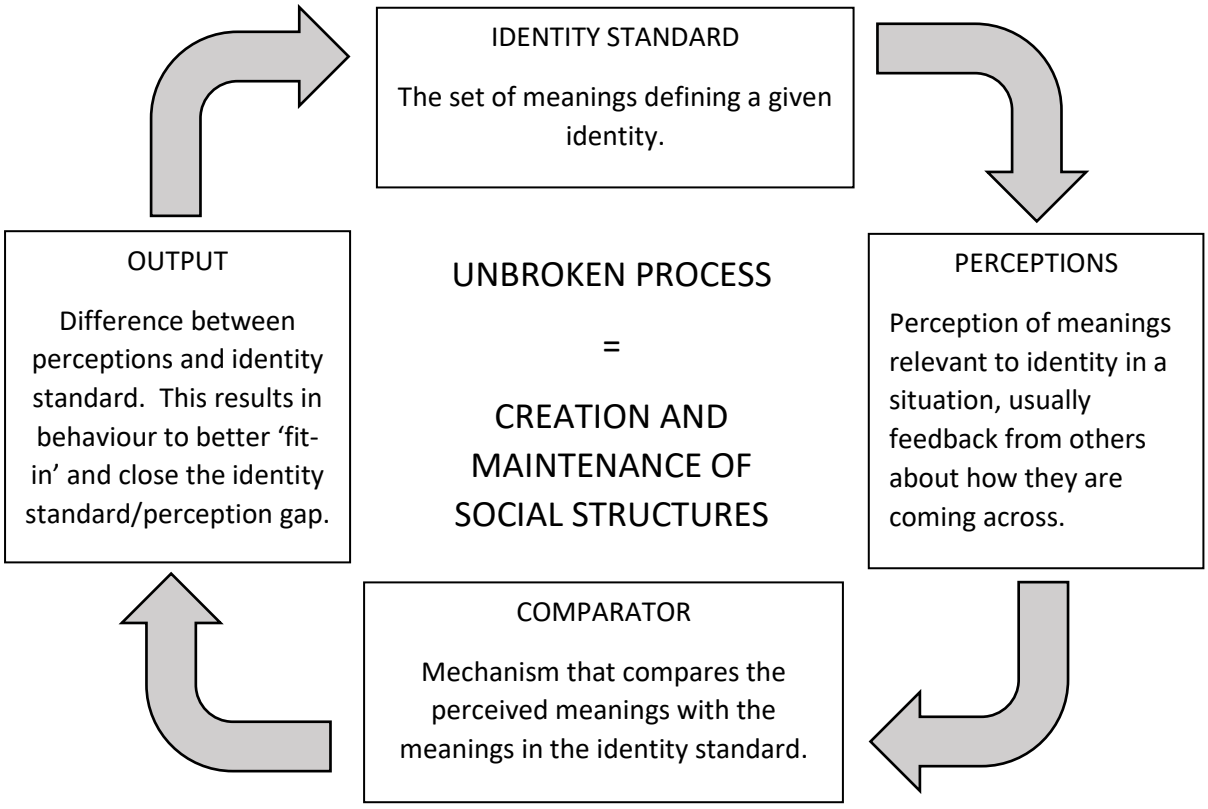


Figure 2.2 Burke's four components of identity. Adapted from Burke and Cantwell (2010).

This process shows that people may adjust their behaviour to fit in with their desired identity group, or 'in-group' as it would be classified by Tajfel and Turner (1986). Burke suggests that an inability to maintain identity, via any break in the identity process outlined above, can cause stress to individuals (Burke, 1991). This indicates that not being able to participate in an activity that represents a constituent part of your self-identity, a reduction of a key element of an individual's social capital, could have negative health and well-being effects. Burke argues that in a group or category based identity, the process of verifying identities allows people to create and maintain the social structures in which the identities are embedded (Burke, 2007) and Jenkins (2008) goes further still suggesting that without social interaction, and therefore social structures, ICT could not exist. Those social structures in turn, it could be argued, maintain a social support network being a form of social capital. This identity verification and human agency create a social structure is clearly in line with the critical realist perspective of this study and so ICT provides a robust theoretical framework for this study.

2.2.2 Social Capital: health and well-being

Two of the four domains used by the government to measure social capital are personal relationships and social support networks (Office for National Statistics (ONS), 2017b) and health and personal relationships are 3 of the 10 Domains measured in the government's regular survey 'Measuring National Well-being' (Office for National Statistics (ONS), 2017a), indicating UK government recognition of social capital as a key aspect of well-being. In addition, combatting loneliness is a key focus in the government's health and well-being report (ONS, 2017a). In rural areas the risk of loneliness can be exacerbated, as highlighted in a report by the Local Government Association (LGA), which indicated that the breakdown of rural social networks is leading to increased loneliness and social isolation in rural areas, particularly amongst older people (Local Government Association, 2017). Loneliness can impact both mental and physical health, increasing the risk of depression, particularly in older adults (Ge *et al.*, 2017) and increasing the risks of frailty (Gale, Westbury and Cooper, 2018), of developing coronary heart disease, and vulnerability to strokes (Valtorta *et al.*, 2018). Social networks have also been shown to help long-term conditions management (Hinder and Greenhalgh, 2012). When social relationships are integral to completion of physical exercise, as is the case with DGS participation, these have been found to be significant determinants of subjective well-being in older adults, thereby providing wider social impacts than purely the physical health benefits of exercise participation (McAuley *et al.*, 2000). It has also been noted that individuals all experience loneliness differently and to be effective any interventions or activities to tackle loneliness need to take account of individual and specific group needs (Olujoke, Fakoya, McCorry and Donnelly, 2020).

There has been much research into the health and well-being impact of social networks and social capital. Table 2.3 lists some studies relating to social capital and health and well-being.

Table 2.3 A selection of studies linking social capital and health and well-being		
Author	Title	Social networks/social capital link
(Bian, Hao and Li, 2018)	Social Networks and Subjective Well-Being: A Comparison of Australia, Britain, and China	Informal and formal social networks were found to have positive impacts on subjective well-being (SWB) in the UK, China and Australia, Informal networks appeared to have a greater impact on SWB.
(Bartolini and Sarracino, 2014)	Happy for how long? How social capital and economic growth relate to happiness over time	Considered correlations between both GDP and social capital. Study found that in the long- and medium-term social capital had a greater impact than GDP on well-being and should play a more prominent role in government policy.
(Carpiano, 2006)	Toward a neighborhood[5] resource-based theory of social capital for health: Can Bourdieu and sociology help?	Reviews existing social capital theories of Putnam (2000) and Bourdieu (1986) arguing that a conceptual framework based around Bourdieu's theory, rather than the more widely used Putnam social capital models which relate more closely to social cohesion, is better placed to assess social capital's health impacts.
(Carpiano, 2007)	Neighborhood[6] Neighbourhood social capital and adult health: An empirical test of a Bourdieu-based model	This test of Carpiano's 2006 model considered relationships between neighbourhood social capital forms (social support, social leverage, informal social control, and neighbourhood organization participation) and adult health behaviours (smoking, binge drinking). Perceived health, interactions with, and access to social capital were also considered. Social capital was linked to both negative and positive health outcomes.
(Abbott and Freeth, 2008)	Social capital and health: Starting to make sense of the role of generalized trust and reciprocity	Explored trust and reciprocity impacts on health, finding the literature offered little justification and evidence for these impacts, proposing further research questions.
(Hinder and Greenhalgh, 2012)	"This does my head in!" Ethnographic study of self-management by people with diabetes.	Study found that having good family and social networks allowed individuals to better manage their diabetes whereas other individuals' capacity to self-manage their condition was limited by their lack of social capital.
(O'Connor *et al.*, 2019)	Intergenerational understandings of personal, social and community assets for health.	This study looked at 41 individuals residing in the same geographic community in Victoria, Australia. Utilising bonding, bridging and linking social capital, this study looked at how older and younger people accessed and interpreted asset in their local community and how intergenerational connection impacted on that social capital. Findings suggested communities can be strengthened with a positive impact for health and well-being, through intergenerational connection and resource sharing, including community assets, to support health.

[5] US study hence the spelling of neighbourhood as 'neighborhood'
[6] US study hence the spelling of neighbourhood as 'neighborhood'

Author	Title	Social networks/social capital link
(Sirven and Debrand, 2012)	Social capital and health of older Europeans: Causal pathways and health inequalities	Analysed panel data from SHARE (the Survey of Health, Ageing, and Retirement in Europe). Found that effect of health on social capital was higher than social capital on health. Results indicated that if people are healthy when they reach 50 they are more likely to access and benefit from social capital, whereas those not healthy reaching 50 may see negative health impacts and miss social capital benefits.
(Knapp, 2015)	Reflecting on 'An economic model of social capital and health'	Reflecting on Sherman Folland's (2008) paper in Health Economics, Policy & Law, the study concludes that well-designed and theoretically underpinned investigations of social capital's impact on health and well-being could be useful.
(Jetten *et al.*, 2017)	Advancing the social identity approach to health and well-being: Progressing the social cure research agenda.	This paper reviewed a number of articles considering how social identity and social capital/group membership can both positively and sometimes negatively affect health and well-being and how this can be developed to assist the 'social cure' agenda. Results highlighted the importance of social identities as a powerful psychological resource which can play a key role in managing and improving health.
(Gale, Westbury and Cooper, 2018)	Social isolation and loneliness as risk factors for the progression of frailty: The English Longitudinal Study of Ageing.	Reviewing national data for 2,817 aged 60 or over from the English Longitudinal Study of Ageing, this study found that older people who experience high loneliness levels are at increased risk of becoming physically frail.
(Valtorta *et al.*, 2018)	Loneliness, social isolation and risk of cardiovascular disease in the English Longitudinal Study of Ageing	This study investigated the cumulative effects of loneliness and social isolation on incident cardiovascular disease. 5397 men and women aged over 50 years were followed up for new fatal and non-fatal diagnoses of heart disease and stroke between 2004 and 2010. The study concluded that loneliness is associated with an increased risk of developing coronary heart disease and stroke, independently of traditional cardiovascular disease risk factors.
(J. Pretty *et al.*, 2005)	A countryside for health and well-being: the physical and mental health benefits of green exercise, Report for the Countryside Recreation Network	Study included the importance of group participation and social capital when exercising in the countryside, citing studies by Pevalin and Rose, 2003 relating to social group connections positive health impacts. It referred directly to social capital studies by Putnam (1993) and Coleman(1988) around trust, reciprocity and obligations.
(Klein, 2013)	Social Capital or Social Cohesion: What Matters For Subjective Well-Being?	Study found that social capital may improve both individual and household income and subjective well-being, especially when the cognitive aspects of social capital are considered.
(Sarracino, 2010)	Social capital and subjective well-being trends: Comparing 11 western European countries	Considered 4 social capital proxies, controlling for time and socio-demographic aspects, in 11 western European countries using World Values Survey (WVS) 1980 and 2000 data. Found evidence of a possible relationship between social capital and happiness.

Whilst there is some debate about whether health benefits should be included in social impact assessment, as noted by the UN in their guidance (United Nations Public Administration Network (UNPAN), 2006), others argue that health is a factor that should be included in any social impact assessment, and that health and social impact assessments should be combined (Rattle and Kwiatkowski, 2003; Tauppinen, 2011). Social contact can provide positive, intangible 'returns' on social capital in the form of life satisfaction and improved physical and mental health, as discussed in the next section.

2.2.3 Social Capital: categorising and quantifying returns

Lin, (2008) proposes the following model theory of social capital as shown in Figure 2.3. Three processes can be identified: investment, access and mobilisation and returns.

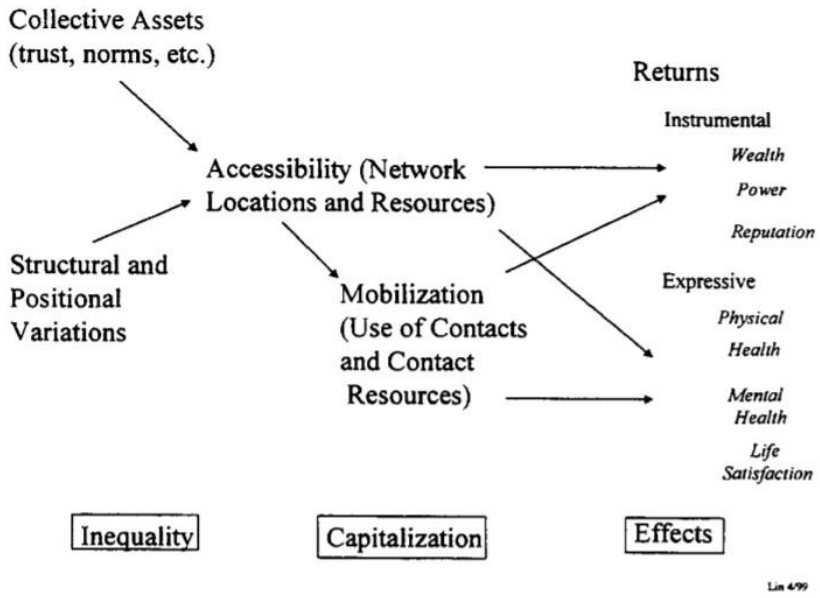


Figure 2.3 Modelling a Theory of Social Capital (Lin, 2008)

Lin (2008) argues that returns can be quantified as outcomes via instrumental or expressive actions. Instrumental 'returns' relate to gaining new resources, whereas expressive 'returns' relate to consolidating and defending against the loss of existing resources, recognising that social, economic and political returns can be identified through instrumental and expressive actions. Instrumental returns are those which are focussed on a specific outcome, whereas expressive returns are often more subjective and do not result in a direct financial gain for

the individual (Lin, 2008). The quantification of the impact of these returns must therefore be measured in possible savings made by the taxpayer, for example, not bearing the costs of rectifying poor physical health caused by lack of physical activity or poor mental health due to loneliness. The social impacts of expressive returns are of benefit to wider society, whereas the social impact of instrumental returns are for the benefit of the individual (Lin, 2008).

Across the UK, Europe and beyond there are different definitions for the types of impacts to be measured, but they share many similarities, as shown in Table 2.4, which details five different approaches to identifying impacts for measurement. Some approaches to identifying measurements for impact are more focussed towards social purpose associations, such as the work of Hornsby (2012), which emphasises the importance of finding a balance between money, impact and society. Hornsby's work translates into a matrix of human, social and environmental rights and benefits and identifies 15 core social and environmental fields including environment, health and well-being, housing and employment and skills for example, to enable a structured, social impact assessment to be completed (Hornsby, 2012; Hornsby and Blumberg, 2013). Assessment methods most suitable for social purpose organisations, whilst useful as an indicator of the use of social impact assessment methodologies, are not as relevant in this study as those developed in conjunction with national and international governments. The social impacts resulting from DGS are not as a direct consequence of investment in interventions designed to result in social impact. The social impacts are a by-product of the activity that is funded privately and delivered by private organisations, not social purpose organisations or government. The research will most likely be used by government policymakers, so the intention of the literature review in relation to potential social impact categories identified in table 2.4 is to give a sample of national and internationally recognised definitions of social impact areas, to highlight the similarities across these suggested measurement areas.

Table 2.4 Selected Social Impact Areas Summary				
GECES suggested areas of measurement (Hehenberger, Harling and Scholten, 2014)	**Big Society Capital Outcomes Matrix** (Big Society Capital, 2015a)	**United Nations Public Administration Network (UNPAN) Centre for Good Governance impact categories (UNPAN), 2006)**	**UN Sustainable Development Goals (Boelt, 2014; United Nations (UN), 2017)**	**Social Determinants of Health** (Dahlgren and Whitehead, 1991)
Housing and essential needs		Quality of Life Impacts	Goal 11: Sustainable cities and communities Goal 10: Reduced inequalities	Housing
Education and learning	1. Employment, Education & Training	Quality of Life Impacts	Goal 4: Quality Education Goal 10: Reduced inequalities	Education
Employment and training	1. Employment Education & Training	Quality of Life Impacts	Goal 8: Decent work & economic growth	Unemployment Work environment
Physical health	4. Physical Health	Health Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks
Substance use and addiction	4. Physical Health 5. Mental Health & Well-being	Health Impacts	Goal 3: Good Health & Well-Being for People	Individual lifestyle factors Health Care Services
Mental health	5. Mental Health & Well-being		Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks
Personal and social well-being	5. Mental Health & Well-being 6. Family Friends and Relationships 7. Citizenship and Communities	Health Impact Quality of Life Impacts Community Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions. Health Care Servs. Social and Community Networks
Politics, influence and participation	7. Citizenship and Communities	Lifestyle Impacts Community Impacts	Goal 16: Peace, justice and strong institutions	General socio-economic, cultural and environmental conditions
Finance and legal matters	2. Income & Financial Inclusion		Goal 8: Decent work and economic growth	
Arts and culture	8. Arts, Culture & Heritage	Cultural Impacts		General socio-economic, cultural and environmental conditions
Crime and public safety	7. Citizenship and Communities	Quality of Life Impacts		General socio-economic, cultural and environmental conditions
Local area and getting around	7. Citizenship & Communities	Quality of Life Impacts		General socio-economic, cultural and environmental conditions
Conservation of the natural environment and climate change	9. Conservation of the Natural Environment	Quality of Life Impacts	Goal 11: Sustainable Cities and Communities; Goal 12: Responsible Consumption and Production Goal 13: Climate Action; Goal 14: Life Below Water; Goal 15: Life on Land	General socio-economic, cultural and environmental conditions

2.3 Social Impact Assessment: Policies & Methodologies

2.3.1 Government Policy

Social impact assessment (SIA) measures a change either over time because of an intervention or compares engagement with non-engagement (EVPA, 2015; International Association for Impact Assessment (IAIA), 2018). The issue with 'proving prevention', as noted in sections 2.1 and 2.2 above, is complex. In effect you are attaching proxy values to the savings made because something was avoided, a return to criminality for example in the case of the criminal justice system or in the case of the removal a piece of amenity land, attaching a cost to replacing the 'social capital' value of a community use space. In relation to government policy, if the legislation around permitting an activity is to be reviewed, an SIA would consider what potential cost-savings to society arise from the activity and what the potential costs of it continuing are and then make an assessment looking at all of the evidence for and against changing policy before making a decision on any changes.

Since the 1990s, UK government policy has been increasingly focused on measuring social impacts to ensure strategic investment of public funds for the best return, which could be indicated by costs savings due to prevention of crime or poor health for example (Wells, 2012). In the UK, to encourage the building of community, social cohesion and 'social capital' and to engage the public in community life, the 'Big Society' agenda was developed, giving communities power through the right to build and deliver local services, encouraging local people to take up active roles in communities, moving decision making powers from central to local government and supporting local groups such as co-ops, mutuals, charities and social enterprises (Cabinet Office, 2010). All of the elements outlined in the Big Society work towards building 'social capital' within the community. In recent years a Big Society Outcomes matrix has been developed to aid in measurement of social impacts (Big Society Capital, 2015a).

The need for a local focus has been put forward as a key element of success in any social impact assessment (McHugh *et al.*, 2013), which links in with 'place shaping', increasing local control and developing areas with a local focus, which can help create a local sense of

belonging and identity Van De Walle (2010) and with the key elements of the 'Big Society' (Cabinet Office, 2010), along with the importance of 'bottom-up' design approach, engaging local people, which has been identified as essential to effective social impact assessment (Franks, Brereton and Moran, 2010; Clifford, Markey and Malpani, 2013). The Localism Act (2011), which clearly links back to the Big Society concept detailed above, recognised this need for local involvement in decision making, delegating more powers from central to local government (UK Government, 2011).

This move towards valuing social impact assessment culminated in the Social Value Act 2012, which came into UK law in January 2013, requiring people who commission public services to think about how they can also secure wider social, economic and environmental benefits (Dobson, 2012). The Act states two points which must be considered:

> "(a) how what is proposed to be procured might improve the economic, social and environmental well-being of the relevant area, and
> (b) how, in conducting the process of procurement, it might act with a view to securing that improvement."
>
> (Public Services (Social Value) Act , 2012 pg 1)

The impacts detailed in the act are the 'economic, social and environmental improvement of an area', potentially saving the government money and bringing in tax revenue perhaps. These improvements would need to be 'secured', which indicates that this potential saving or societal benefit should be measured. In recent years, the austerity agenda and reduced public funding has increasingly seen third sector bodies and social enterprises delivering intervention programmes, but a measure of success has been needed to 'prove' return on investment – that is, putting an objective value on, as noted above in section 2.1, what is often a subjective return (Harlock, 2013).

It could be argued that 'proving' impact is never in reality possible, as reality is socially constructed by the actors in society, as discussed in section 2.2. The diagram, Figure 2.2 on page 31, shows how Burke's four comparators of identity result in the creation and maintenance of social structures (Burke and Cantwell, 2010). Critical realists recognise that not all structures may be observable (Sayer, 2010) and the 'causal criterion' (Collier, 1994)

recognises there are limitations to the measurement of 'impacts' as 'A' does not always lead to 'B' but "observable events that are being causally generated from the complex interactions of mechanisms can give some information on the existence of these unobservable entities" (Zachariadis et al., 2010 p.7). Meaning that, if people have a larger social network it is 'likely' that they will benefit from the 'social capital' created via these networks, which has been proven to have health and well-being benefits as detailed in Table 2.3 in section 2.2.2.

The social determinants of health have been gradually recognised in policy by government. However, it is only since the austerity agenda began in 2010 that the government has really tried to link health and social impacts in a structured way. NHS cost pressures have increased as people live longer, increasingly with long-term health conditions (National Health Service (NHS), 2014). The Five Year Forward View, published in 2014, identified three gaps in the current health service: the health and well-being gap; the care and quality gap; the funding and efficiency gap (National Health Service (NHS), 2014).

> "The health and well-being gap: if the nation fails to get serious about prevention then recent progress in healthy life expectancies will stall, health inequalities will widen, and our ability to fund beneficial new treatments will be crowded-out by the need to spend billions of pounds on wholly avoidable illness."
>
> (National Health Service (NHS), 2014, p.8)

In England, the NHS is focussing on restructuring around 44 'Sustainability Transformation Partnerships', with commissioners of health and social care services working together to reconfigure the nationwide health provision into a more community focussed system, to bring better care to patients and return the system to financial balance in the longer term (British Medical Association, 2016; National Health Service (NHS), 2018b, 2018c, 2019; Alderwick and Dixon, 2019). Within these plans, the benefits of community engagement and self-care are highlighted, encouraging people to take better care of themselves through participation in sports and social activities and living healthier lifestyles, this would impact on the individual lifestyle factors and social and community networks elements of the social determinants of health model (Dahlgren and Whitehead, 1991). A structured approach to improving lifestyles and maximising social impacts is considered via 'social prescribing', either through GPs or

'link-workers' within primary care and other community settings (Husk *et al.*, 2016) or via 'self-referral' or 'self-care' (National Health Service (NHS), 2017; Hazenberg and Karlidag-Dennis, 2018) into community, social and other support activities (National Health Service (NHS), 2017, 2019).

2.3.2 Social Impact Methodologies

As noted above, Social Impact Measurement (SIM) was first made mandatory in 1969/70 in the USA as part of the US National Environment Policy Act (NEPA), when Social Impact Assessment (SIA) became a compulsory part of Environmental Impact Assessments (EPAs), which had previously focussed solely on the environment (IAIA, 2018). Authors such as Vanclay (2003) proposed there was a wider purpose for SIA than just US EPAs. One of the most well-known, early attempts to financially value social impacts was via Social Return on Investment (SROI), which was first developed in 2000 by the Roberts Enterprise Development Fund and later worked on by the New Economics Foundation (Nicholls, 2010). This method combines quantitative measures or 'outputs' (e.g. number of people employed, in training etc.) with 'outcomes' being the direct and indirect changes in stakeholders and their communities ('the change' e.g. improved education, better health levels, avoided expenditure) and applies a 'deadweight' discounting factor to represent what would have happened anyway. Financial proxies are found (such as statistical publicly funded costs avoided) and applied, to imply the monetary values involved (Nicholls, 2009). The term 'Blended Value Accounting' (Emerson, 2003) can be used to describe this full accounting of both social and financial benefits and has been used by social enterprises to represent the full value of project returns including social benefits (Nicholls, 2009). However, there was no set standard for these measurements, so comparison across both organisations and countries was difficult.

The Public Services (Social Value) Act (2012) highlighted the need for a simple, comparable, social impact measurement system, to ensure that the effectiveness of different interventions can be compared and contrasted and that the best value for public money spent can be achieved (Allen and Allen, 2015).

The development of social impact measurement to its current stage has been a gradual process over time. The UK Cabinet Office published a guide to SROI in 2009, detailing seven principles and six stages of SROI and in 2009 The International (IAIA) published International Principles for Social Impact Assessment. McLoughlin *et al.* (2009) developed the SIMPLE methodology as a conceptual and practical basis for embedding SIM within social enterprises, which advocates a five-step approach to impact measurement scope it; map it; track it; tell it and embed it and in which the use of output and outcome measures are considered essential. These five steps aim to ensure impact measurement is genuinely useful, as indicators are well-designed and can be used for strategic decision making, rather than just a 'box-ticking' exercise. Whilst this can be a way to ensure all impacts are considered, the nature of social impact project funding is that central government or large bodies provide monies, often to third sector organisations, requiring targets to be met. Increased rationalisation of bureaucratic processes, as envisaged by Weber (1905) in his iron cage analogy (Weber, 1905, 1978; Elwell, 2018), means that these targets can be reduced to number crunching with little regard for the real needs of the population being impacted by any project. Without careful design there is a risk that the impact measures are overly complex and reflect the needs of the funders, who hold power over service providers as the financial backer, rather than the beneficiaries of any project. Identification of this limitation led to calls for wider stakeholder engagement in outcome design and impact measurement (Clifford, Markey and Malpani, 2013).

Clifford, Markey and Malpani (2013) reviewed measuring social impact in the UK, bringing together a number of stakeholders from care, offender management and youth and education sectors to look at practice and state of thought around UK social impact measurement. The report found that it was important to design evaluation from the bottom up, engaging local communities in design, involving all stakeholders and ensuring that any evaluation requirements are proportionate (due to limited resources of providers) and ideally embedded. They also found that investors are keen to know wider impacts/secondary outcomes of any interventions (Clifford et al., 2013). This increased recognition of proportionality in evaluation requirements is encouraging, but in the researcher's experience,

having worked on several funding programmes within the third sector in the past, this is often not the case.

The European Venture Philanthropy Association (EVPA, 2015) identifies five steps of social impact measurement as shown below in Figure 2.4.

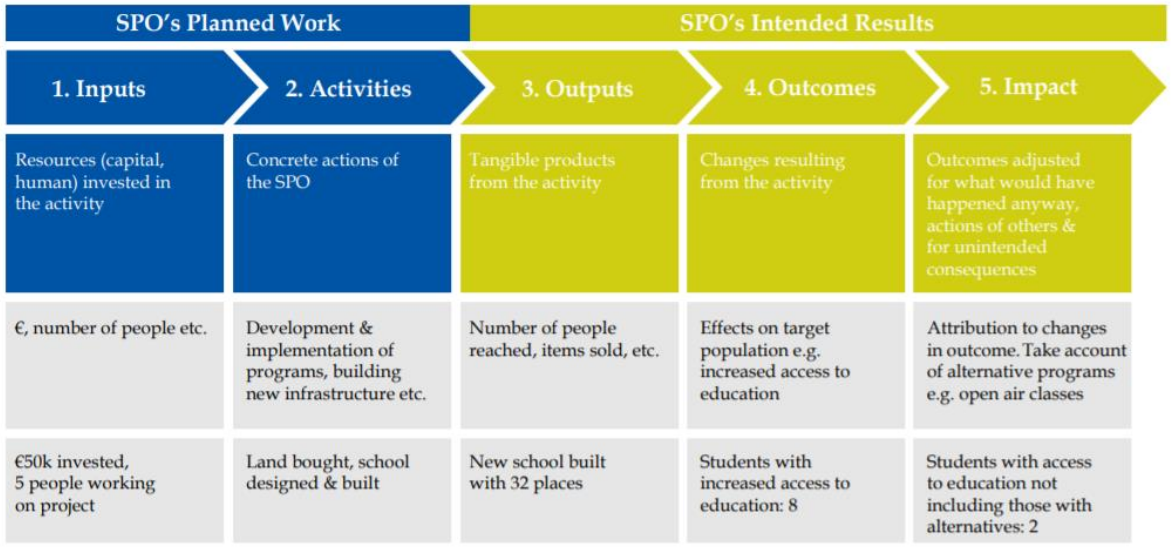
Figure 2.4 EVPA five steps of social impact measurement (2015)

The EVPA produced a guide for social purpose organisations (SPOs) such as charities, non-profit organisations and social enterprises, to help them embed and utilise social impact assessment in a simple, effective and efficient way. The aim is to include both how to measure and manage the impact of specific investments and how the organisation itself contributes to that impact (Hehenberger, Harling and Scholten, 2015).

THE EVPA measurement model is based on the theory of change which they define as follows:

> "A theory of change defines all building blocks required to bring about a given long-term goal. This set of connected building blocks is depicted on a map known as a pathway of change or change framework, which is a graphic representation of the change process"
>
> (Hehenberger, Harling and Scholten, 2015, p. 136).

The Impact Value Chain forms the basis of the EVPA process for social impact assessment as shown in Figure 2.5:



Source: Elaborated by EVPA from Rockefeller Foundation Double Bottom Line Project

Figure 2.5 Impact Value Chain (Hehenberger, Harling and Scholten, 2015)

EVPA step 1 requires objectives to be set – what is to be measured and why? It suggests considering motivations for measurement, the resources available, which will vary depending on the type of organisation, the rigour required and timescales and that consideration should be given to what the problem is, what it is that needs to be achieved and what outcomes would be appropriate (Hehenberger, Harling and Scholten, 2015). Step 2 requires background research and engagement with key stakeholders at design stage, in line with recognised social impact measurement best practice (Franks, Brereton and Moran, 2010; Clifford, Markey and Malpani, 2013). Stakeholders are defined as "Any party effecting and/or affected by the activities of the organisation" (Hehenberger, Harling and Scholten, 2015, p. 136). An initial stakeholder analysis should identify key stakeholders to engage with and then expand upon to engage further stakeholders (Hehenberger, Harling and Scholten, 2015).

Based on the impact value chain, shown in Figure 2.5, the system requires identification of inputs, activities, outputs, outcomes and indicators of impact to allow measurement. The EVPA recommends that use of a framework, such as the Big Society Outcomes Matrix (Big Society Capital, 2015a), can be useful in identifying measures (Hehenberger, Harling and Scholten, 2015). To measure outcomes, indicators should be SMART (Specific, Measure-able,

Achievable, Realistic and Time-bound), clearly defined and more than one indicator should be used. Verification of results can be completed via desk research, competitive analysis or interviews/focus groups and values can be placed with qualitative research (e.g. case studies) or quantitative research (e.g. monetary) value (Hehenberger, Harling and Scholten, 2015). The choice would likely depend on the initial objectives and stakeholder views.

Finally, monitoring progress of the project and reporting is important, to ensure positive social impacts can be identified and the activities that enabled them to be realised repeated where possible, ensuring that investment is focussed on interventions that have proven impact. The EVPA recognises the issue with a lack of standardised, comparable indicators here, but it calls for measurement and monitoring to be embedded in processes of SPOs as a matter of course (Hehenberger, Harling and Scholten, 2015).

In Europe, the leading EC initiative in this area has been the production of a single set of guidelines by the European Commission expert group on social business or 'Groupe d'experts de la Commission sur l'entrepreneuriat social' (GECES). The aim is to provide a simple framework, that while not being too onerous to delivery stakeholders, can provide a uniform way to measure and compare social impacts Europe-wide (Hehenberger, Harling and Scholten, 2014). Like SROI, it uses a mix of output, outcome and impact measures with adjustments applied for 'deadweight' (what would have happened anyway), but with additional adjustments for alternative attribution: deducting the effect achieved by the contribution and activity of others and drop-off: allowing for the decreasing effect of an intervention over time (Hehenberger, Harling and Scholten, 2014). The framework provides a basic set of criteria that can be adapted over time and to fit local criteria to allow for a more effective 'bottom-up' grassroots approach (Clifford, Markey and Malpani, 2013)to designing evaluation (Clifford, J., Hehenberger, L., and Fantini, 2014). The five EVPA stages broadly align with those recommended by GECES: identify objectives; identify stakeholders; set relevant measurement; measure, validate and value; report, learn and improve (Clifford, Hehenberger and Fantini, 2014; Hehenberger, Harling and Scholten, 2014).

The SIMPLE methodology and the EVPA and GECES methods call for identification of 'inputs', 'activities', 'outputs', 'outcomes' and 'impacts', which are defined in Table 2.5 below:

Inputs	Activities	Outputs	Outcomes	Impacts
Resources (human and capital) invested in the activity. E.g. Amount of money invested in providing the activity	The activity, project, product or process that allows you to fulfil your objectives. E.g. DGS	What is 'produced' as a result of the activity or activities. Generally, a number. E.g. number of people involved an activity	The short-term (or medium-term) benefit or change accomplished as a direct result of the output. E.g. higher well-being scores	What is achieved in the medium to longer term as a result of combined outcomes. E.g. reduced costs to society relating to health issues

Table 2.5 Inputs, Activities, Outputs, Outcomes & Impacts Definitions. Contents adapted from McLoughlin et al. (2009) and Hehenberger, Harling and Scholten (2015)

Clifford and Hazenberg (2015) argue that a new code of conduct should be established for Social Impact Measurement based on the work of GECES to enable public service commissioners to comply with the Social Care Act (2012), providing a simple, uniform way of measuring social impacts, without being overly prescriptive or over burdensome in relation to monitoring. The proposed 10-point Code of Conduct is shown in Figure 2.6. The aim of following the code is to provide "collective benefits of consistent, and reliable measurement of social impact that raises public confidence in the effectiveness of delivery and desirability of the outcomes being achieved in all sectors" (Clifford and Hazenberg, 2015, p. 6). This code is useful for research projects, particularly in areas where many impacts are intangible, as it seeks to develop uniformity in measurement of social impacts within the same sectors to allow comparison of impacts across different activities, for example. Its wider use across social research sectors will strengthen the argument to recognise social impacts of activities, including intangible benefits such as 'un-activated' social capital benefits and positive identity benefits, as opposed to just the narrow, statistical measures predominantly used within bureaucratic societies to make policy decisions. This could potentially free policy makers from the 'iron-cage' of rationalised, impact measurement that ignored such areas, when purely qualitative research predominates and comparison between activities is necessary.

1. We will use, and refer to the five-stage process outlined in the GECES, and will show how our measurement methodology fits to that

2. We will, in all published material, adhere to or surpass the minimum disclosure standards laid out in GECES, always with the over-riding obligations of stakeholder relevance, accountability and transparency

3. We will at all times strive to make the effort and cost expended on measurement of social impact proportionate to the benefit to be had by knowing the additional information generated

4. We will seek to use similar outcomes as others in the same or similar areas of service and social delivery except where to do so would not adequately meet stakeholders' needs for explanation. In the latter case we will explain in all reporting why we have departed from the usual outcome used.

5. We will seek to use similar indicators as others in the same or similar areas of service and social delivery except where to do so would not adequately meet stakeholders' needs for explanation. In the latter case we will explain in all reporting why we have departed from the usual indicator used.

6. We will describe the contribution of particular and relevant parties to the delivery of outcomes, but will only measure their impact if it is useful and proportionate to do so, as agreed with relevant stakeholders.

7. We will support, in our dialogue and our reporting, the definitions of key terms used in the GECES report, and that of the Social Impact Investment Taskforce.

8. We will, wherever possible, publish results of social impact measurement for the benefit of the wider community

9. We will encourage policy makers, at local and national level, to recognise social impact and value in commissioning and contracting

*10. We will display the *GECES kitemark badge on all published material including our website(s)* (Clifford and Hazenberg, 2015 p.6)

Figure 2.6 Proposed 10 Point Code of Conduct for Social Impact Measurement

In line with the GECES 10-point code of conduct, and to combat the lack of uniform indicators or common theories, several studies in the area of social impact have involved exploring framework creation to measure diverse areas such as high speed broadband introduction (Rampersad and Troshani, 2013), dam building (Kirchherr and Charles, 2016), social investments (Räikkönen *et al.*, 2016), the criminal justice system (Paterson-Young *et al.*, 2017; Paterson-Young, 2018) and waterway regeneration (Hazenberg and Bajwa-Patel, 2014). This is useful as it provides a framework for future measurement which allows for social impacts to be compared between different projects or groups, identifying which are most beneficial.

This study will follow the 10-point code of conduct and recognises that GECES is the most efficient and well-researched method to follow, having been developed by leading researchers and experts from across Europe, building on earlier SIA methodologies as outlined in this section. It involves stakeholder engagement to design social impact assessments, utilising a bottom-up approach, which in the researcher's previous experience in third sector evaluations is the best and most effective way of identifying benefits of programme and real 'impact', as has been evidenced in the research base (Clifford, Markey and Malpani, 2013). The ten-point code outlines a clear and transparent process to follow without being prescriptive and allowing outputs, outcomes and impacts to be developed that meet stakeholders needs, but in a framework format allowing others to access, replicate and compare results potentially across the shooting industry via a comparable and uniform set of clearly defined and appropriately researched impacts being identified. For social impacts to be most effective they need to be identifiable and ideally able to be replicated. As Clifford and Hazenberg (2015) argue:

> "The choice in the UK is simple: as a community we adopt the GECES standards and work within them to develop the detailed guidance to bring them to life, or we reject them and re-invent standards for ourselves that at best waste the year or more of work undertaken by the GECES, and at worst divide us from other EU and G8 countries by doing something different."
>
> (Clifford and Hazenberg, 2015 p.2)

2.4 Social Impact Assessment: Practical application

Social impact assessments are related to changes as a result of an activity, plan or project (IAIA, 2018). Under the SIMPLE and GECES methodology these changes are referred to as short term outcomes, medium term outcomes (or impacts) and longer term impacts (McLoughlin *et al.*, 2009; Clifford, Hehenberger and Fantini, 2014; Hehenberger, Harling and Scholten, 2014). These can either be longitudinal (measuring change from before and after an employability intervention for example) or cross-sectional (looking at a particularly point in time, comparing case studies or potential impacts with those not affected by a particular plan or project). These assessments can be a useful tool in assessing societal well-being in areas of social cohesion and societal well-being outlined in section 2.2.

Often, specific interventions designed to have a positive 'social impact' are funded by governments, that have finite budgets. It is important that the effectiveness of projects is measured to ensure that any funding is best spent and effective programmes can be expanded. However, it has been argued that attention must also be drawn to educating funders as part of the process, so they do not place over-burdensome monitoring requirements on delivery agents that are not proportionate to the programme cost (Clifford et al., 2013). This has been the case in some programmes, where monitoring and compliance can take up a large proportion of time (and therefore cost) with seemingly little regard to the output and outcome achievements, with resultant demotivation causing high staff losses to the programme (Hunter, 2017).

Originally, social impact assessment was used to measure the impact of developments of large infrastructure projects, such as the building of reservoirs for example (Burdge and Johnson, 1998). More recently, SIA has been used by organisations such as social enterprises to measure results, particularly for funded programmes to improve employability; for example, as part of measuring the impact of regeneration schemes and within Social Impact Bonds, a method in which investors receive a return based on achievement of set outcomes/outputs from a programme of work.

Clifford et al. (2013) and Franks, Brereton and Moran (2010) note that a good Social Impact Assessment (SIA) engages local people in design. Sairinen and Kumpulainen (2006) recognised this in their assessment of social impacts of waterfront regeneration in Helsinki. In this cross-sectional study, they identified four social dimensions of waterfront planning (resources and identity, social status, access and activities, waterfront experience), which were analysed for impacts for all sections of the community receiving benefits from the regeneration and used as test cases for applying impact typology. Looking at such areas as the availability of mixed housing for people from all backgrounds and access to amenities for use by all sectors of the population are clearly areas that align with enabling relationships to be built between people from different backgrounds and build 'social capital'. Their report could be used to develop more standardised indicators for future waterfront regenerations.

As noted above in section 2.2, education, training and employment are recognised as both key social impacts (United Nations Public Administration Network (UNPAN), 2006; Boelt, 2014; Hehenberger, Harling and Scholten, 2014; Big Society Capital, 2015a; United Nations (UN), 2017) and social determinants of health (Dahlgren and Whitehead, 1991). A 2011 evaluation of a programme to encourage enterprise skills development in young people not in employment, education or training (NEETS) used a combination of qualitative interview data to identify themes and self-scoring questionnaires for both General Self-Efficacy (GSE) scales (Schwazer and Jerusalem, 1995) and Attitudes to Enterprise (ATE) for each participant before and after the intervention, showing an increased scores in both areas which could result in more NEETS engaging in enterprise and self-employment than they otherwise would. (Denny, Hazenberg, Irwin and Seddon, 2011). This is a positive use of outcome data in measuring social impact.

Output and GSE outcome measures were used effectively again according to Hazenberg, Seddon and Denny (2015), in relation to a graduate employability enhancement programme (EEP). This is in line with the SIMPLE methodology, which insists on the use of output and outcome measures (McLoughlin *et al.*, 2009). This study was longitudinal in design measuring the effectiveness of an intervention and showed broadly positive output data. Although this project showed no link between employment and high GSE scores, they noted that other

researchers such as Eden and Aviram (1993) had linked high GSEs to greater re-employability; Creed, Bloxsome and Johnston (2001) to increased job search activity; and Fugate, Kinicki and Ashforth (2004) to greater employability. They noted that EEPs have a responsibility to provide output, outcome and impact benefits evidence (Hazenberg, Seddon and Denny, 2015). Gaining employment is a key social determinant of health (Dahlgren and Whitehead, 1991). Belief in oneself is a measure of well-being and this, coupled with a stable income, gives individuals both the means and the mind-set to become involved in activities within communities and build social capital which has also been shown to have positive health benefits as detailed in section 2.2 above.

The world's first Social Impact Bond, piloted at Peterborough prison from 2010 to 2015 used output and outcome measures linked to payment by results with the aim of reducing re-offending (Ministry of Justice, 2015). With contracts between government and a range of providers from third, public and private sectors, ex-offenders were offered a range of interventions such as training programmes and personal support to gain employment. Success was measured using output and outcome metrics. These interventions are designed to improve participants' life opportunities, prevent reoffending and therefore reduce crime levels in communities. This use of social impact measurement worked well and in this instance the hard output monitoring was coupled with a qualitative evaluation report (Disley *et al.*, 2015).

However, there is a risk that in squeezed financial environments, only hard, monetary outputs are increasingly used and the softer well-being elements, so essential to overall social well-being and social capital, in the form of support networks built for example, are side-lined (McHugh *et al.*, 2013). Critical realists argue that there is a process of 'causal powers' (Collier, 1994) and if one interprets this into social capital, any social network capital may not have yet been activated via a 'causal mechanism' at the time of measurement and therefore there are no measurable indicators to track. However, this does not mean that the network lacks value and impact as it exists as a structure and when the need is there it can be activated. Membership of the group reinforces identity and confidence of individuals with positive

impacts on well-being (Haslam *et al.*, 2009) and in times of crisis that support network can be activated, thereby reducing the likelihood of individual health and well-being issues for example and wider social impacts via poor mental health, inability to work and the costs of health care (Poortinga, 2006). The GECES group found that 'practitioners, fund managers and SEs (agreed) that any attempt to impose 'from the top' a pre-determined, closed set of quantitative indicators risks being highly counterproductive' (Hehenberger, Harling and Scholten, 2014).

The use of a social impact assessment framework to enhance outcomes for children and young people in custody was put forward in a 2018 study (Paterson-Young, 2018; Paterson-Young, Hazenberg and Bajwa-Patel, 2019). Paterson-Young's 2018 study included social impacts relating health and well-being elements for children and young people and whilst this PhD study predominantly considers older people, the research completed by Paterson-Young (2018) confirms the potential to include health and well-being impacts as social impacts within any social impact assessment process.

If no quantitative indicators are used and results comprise of purely qualitative data, commissioners are unlikely to be convinced of the value of any intervention or activity. Many are bound by Key Performance Indicators (KPIs) aligned to their budgets with many public sector investments made on an 'invest to save' basis, even if these are saving made by preventing future costs, some quantitative data is necessary. A study by Kagan and Duggan (2011) used innovative methods of game playing to engage with hard to reach, marginalised groups in the North of England, with the aim of encouraging social cohesion and building social capital via shared stories. With narrative results only and no attempt to identify themes for example, although informative and useful in developing a method for gathering data, the lack of any quantitative output or outcome data could limit the use of this research in furthering any intervention aims, especially if central government funding was sought, as a measured impact would be required.

2.5 Conclusion

This chapter has identified social capital, including its link to identity and health and well-being within the social determinants of health, as the key theoretical framework for this study.

It has given a history of the development of SIA, including policy development and the move towards including social impacts in health policy. It has outlined four key methodologies: SROI, SIMPLE, EVPA and GECES. The chapter has also discussed the practical application of social impact assessment, with reference to a number of practical examples including evaluations of a programme to encourage enterprise skills development in young people not in employment, education or training (NEETS) and a graduate employability enhancement programme (EEP), an impact assessment of a waterfront regeneration development in Helsinki, a study using innovative methods of game playing to engage with hard to reach, marginalised groups in the North of England and the world's first Social Impact Bond, piloted at Peterborough prison from 2010 to 2015. It also identified best practice and set out the social impact assessment used for this study and the reasons behind that choice.

The next chapter gives an overview of DGS, its background and the individuals involved and summarises the current social, economic, environmental impact literature related to DGS, to identify a gap in the evidence base for measurement of the social impact of DGS participation in the UK.

Chapter 3 - Driven Game Shooting

This chapter describes DGS, gives a short background to its development in the UK and its position now. It details the main roles involved in the activity and the times of the year in which it takes place, which vary according to the bird or 'quarry' shot. It summarises the existing, limited research into the social impacts of the activity and considers the environmental and economic impacts of DGS, through a review of existing research, exploring how the existing research findings relate to social impacts and how existing research is deployed to justify or criticise DGS. In doing so, the chapter seeks to present a Weberian critique of existing policy and decision-making in this field, as well as seeking to demonstrate the need for decisions on DGS to not be made from within an 'iron cage'. The researcher, in making such assertions, wishes to present an argument that the intangible benefits (and negative impacts) are just as valuable (if not more) to assess when making decisions regarding DGS, as economic factors.

3.1 Background & History

Game shooting has been a part of rural life in Britain since the 17th century. DGS emerged in the mid-19th century following the introduction of the double-barrelled, breech loading gun in the 1850s, allowing faster and easier reloading (Jones, 2015). Modern DGS involves guns standing on pegs or in butts, instead of walking towards birds, whilst birds are 'driven' towards and over them by beaters and dogs (British Association for Shooting & Conservation (BASC), 2011). Parts of the countryside are managed to provide appropriate habitat and 'cover crops[7]' and birds are reared and released (Game & Wildlife Conservation Trust (GWCT), 2018). An explanation of the individuals involved in DGS is shown in Table 3.1 on page 598.

The diagram overleaf, Figure 3.1 shows how birds, which move around the site and are often located in cover crops, are encouraged to fly over standing 'guns' towards woodland or similar feeding and roosting sites.

[7] Crops (such as kale and millet) planted on shoots to provide gamebirds with food and shelter (Public and Corporate Economic Consultants (PACEC), 2014a)

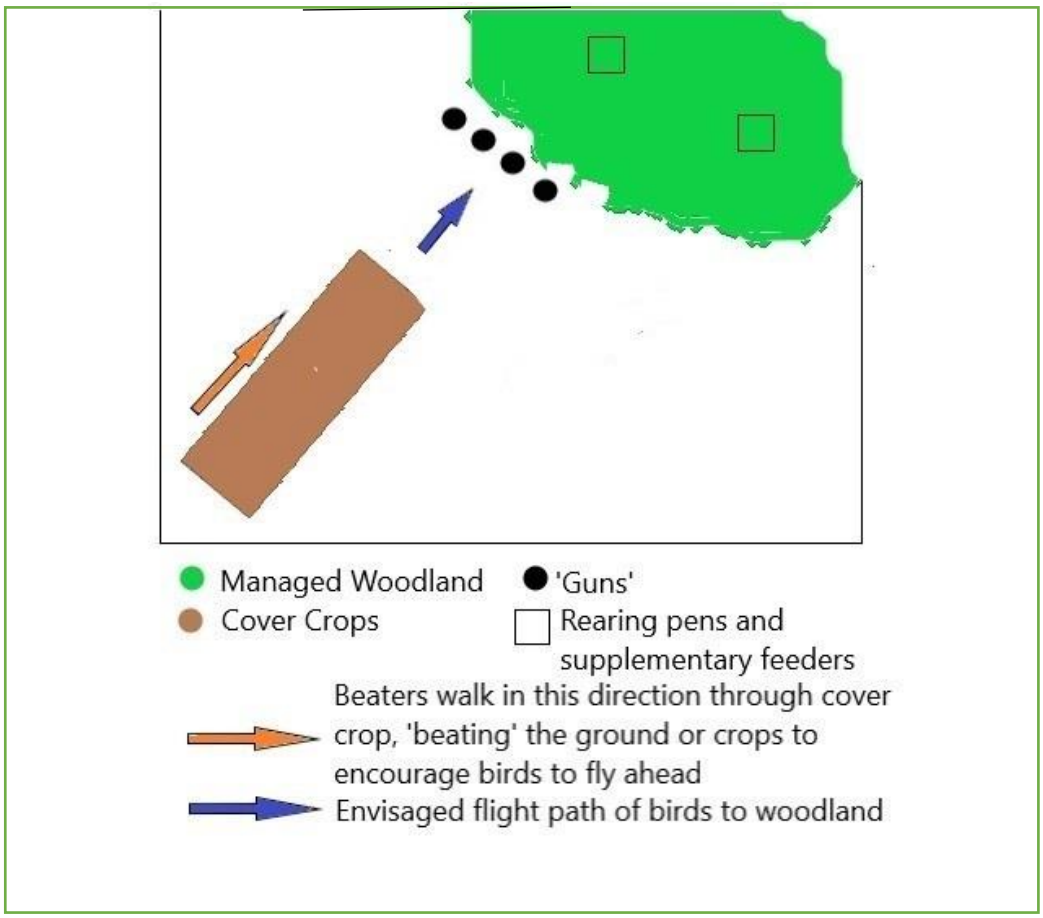


Figure 3.1 Driven Game Shooting process

The Game Act of 1831, which still governs many aspects of the shooting of game today, introduced seasons for each of the game species and required the appointment of gamekeepers and the issuing of licences to shoot game (although licences are now only required in Scotland, not England and Wales) (HM Government, 1831). Originally popular in Europe, the marriage of Queen Victoria to Albert, who was a keen shooter, saw the importation of DGS to the UK (Jones, 2015). DGS gradually took over from the traditional 'walked-up[8]' shooting from the 1860s onwards, due to a combination of the railways, making access easier, the faster breech loading shotgun and the 'social prestige' of the Prince of Wales' love of shooting, most likely inherited from his father Prince Albert (Jones, 2015).

[8] Walked up shooting is a form of game shooting where the individual who is going to shoot the bird 'flushes' gamebirds out of hedgerows, woods or other cover as he/she walks over the shooting ground, rather than having the birds 'flushed' (encouraged to take flight) over the 'guns' by other individuals, as is the case in DGS.

The period from 1870 - 1914 saw the development of bigger shooting estates, employing large numbers of workers, and raising increasing numbers of birds (Jones, 2015). The birds were shot by well-off guns that often enjoyed lavish hospitality at country houses such as Holkham, Sandringham, and Chatsworth. The period from 1880-1914 is often referred to as the 'Big Shot era' (Jones, 2015). The 1831 Game Act had allowed anyone to buy a licence to shoot game, so the newly rich Victorians and Edwardians, who had made their fortunes in the industrial age, had opportunities to mix with those from the upper classes and an industry emerged catering to the needs of the game shooter (Garnier Ruffer, 1978).

World War One saw the end of this grand shooting era as sportsmen, gamekeepers and others serving in the territorial army joined their units, reducing manpower availability and in 1917 the banning of grain and other foodstuff feeding to game birds under the Defence of the Realm Act, along with increases in taxation, also had an impact, leading to only a few shoots, predominantly owned by royalty and the aristocracy, continuing in the inter-war years (Jones, 2015).

Figure 3.2 Advertisement in Country Life. Source: Garnier Ruffer (1978)

During World War Two, the lack of labour available for beaters, pickers-up, loaders etc. meant that walked up shooting often replaced DGS (Jones, 2015). After the war, rationing had focussed government policy on increased food production and the post-war subsidy system led to the removal of hedgerows in increasing numbers, reducing shooting availability as farmers focussed on increasing intensification (Martin, 2011). It was at this time, however, that the syndicate shoot began to take off, allowing private house owners to share the cost of running shoots and employing gamekeepers, with the guns[9], who paid an annual fee to shoot several times a year. Considerably less costly 'self-keepering' syndicates, where members rent the sporting rights over land and manage the shooting themselves (working in their spare time to manage the habitat, rear their own pheasants and control vermin etc.) emerged in the 1960s, allowing more people to participate from a wider range of backgrounds (Jones, 2015). Commercial shooting, where people pay for a day's shooting at a particular site, has also developed considerably since its early days in the 1970s and 1980s (ibid.) and whilst there are no confirmed figures of the number of commercial shoots and their different sizes across the UK, it can be estimated that around 330,000 individuals guns shoot driven game every year in the UK (see Appendix O).

The increasing availability of agricultural payments for farmers to manage their land to provide environmental benefits, as well as food production from the 1980s, and the set-aside scheme in the 1990s, saw an increase in land managed for shoots (Martin, 2011). Different types of shoot are now available from small to large commercial shoots to private gatherings by invitation, smaller and larger syndicates, allowing people from all backgrounds with a range of disposable incomes to participate (British Association for Shooting & Conservation (BASC), 2011). DGS makes a significant contribution to the rural economy (Public and Corporate Economic Consultants (PACEC), 2012, 2014b; Hillyard and Marvin, 2017), (BASC, 2011), through direct employment and wider input to local businesses. The wide range of individuals involved is outlined in Section 3.2.

[9] The individual people or 'shooters' who shoot the guns.

3.2 Individuals involved

The move from walked up shooting to DGS required more individuals to be involved, providing employment and/or a popular voluntary activity for people from a variety of backgrounds (employment and volunteering are discussed in Section 3.5).

The key roles involved in a typical shoot are listed in the Table 3.1 below:

Role	Description
Gamekeeper	Gamekeepers raise and release the birds, making sure there are enough to sustain the shoot and organise the practical details of the shoot day, in conjunction with the shoot captain. The shooting day consists of a number of 'drives' (the process where birds are flushed over the guns) which means the day has to planned to move the guns, beaters and picker-up teams to the right location throughout the day (BASC, 2011). Large commercial shoots employ one or more full-time keepers, whereas small syndicates may employ a part-time keeper or take on the game-keeping duties themselves.
Shoot Captain	The person in overall charge of the day's shooting. Will usually give the welcome address, safety briefing and advise guns of the particular drive nuances and place the 'guns' on their respective pegs (or butts). Maintains communication by radio with other lead individuals on the shoot. Works in conjunction with the gamekeeper to ensure a smooth day and often stays in contact by radio with the game keeper, lead beater and/or lead picker-up.
Gun	'Gun' is the word used to describe the person that stands on the peg (or 'butt' for grouse shooting) and aims and shoots at the birds as they fly overhead. They either pay an annual fee to be part of a syndicate or can attend commercial shoots by paying for each day they attend.
Beater	The beater's job is to flush the game out of the cover crop or surrounding area towards the guns. This is done by walking through the area in a direction pre-planned by the gamekeeper, 'beating' crops with a stick to

	encourage the birds to fly in a certain direction towards the guns. The role of a beater on a grouse shoot is considerably harder than that on a pheasant or partridge shoot, as grouse are typically scattered over a very large area of moorland (BASC, 2011).
Picker-up	The picker-up often works with their own gun dog or dogs. Many have no interest in shooting themselves and training and working dogs is considered a sport in itself. They usually stand behind the guns, watch where the birds have fallen and once it is safe, send the dogs to retrieve the birds. Their role is to ensure all birds shot are found and despatched humanely and that there is no wastage.
Drivers	Drivers are engaged to pull trailers carrying the beaters, pickers-up and the guns between different drives. In addition, most shoots will often have a driver for a vehicle that carries the quarry that has been shot.
Caterers	Usually only seen at larger commercial and the more expensive, syndicate shoots. For example, caterers can provide breakfast, elevenses, lunch, afternoon tea and dinner (with several courses) for the shoot day or days, to sample the game that has been 'bagged'.

Table 3.1 Individuals involved in DGS

In addition, DGS indirectly involves many other people such as gun dog trainers and local businesses (in the provision of clothing and equipment for shooting, as well as local hotels and restaurants for those visiting shoots). The importance of this relationship can be higher in the more rural areas of the UK, such as Exmoor, where the variety of employment is often limited and seasonal (Public and Corporate Economic Consultants (PACEC), 2012).

3.3 Types of Shoot & Seasons

Although there is a wide range of birds or 'quarry' shot in DGS, the BASC guide to the sport in the UK today identifies three main types of shoot depending on the birds or 'quarry' shot and each has a different season in which shooting can legally take place (BASC, 2011). Table 3.2 below outlines these:

Quarry	Season	Predominantly Reared and released or naturally bred
Pheasant 	October 1st to February 1st (although birds must be well feathered before shooting, so often begins in November)	Predominantly reared and released. At the start of the season 20 million of the 28 million pheasants in the UK are reared and released (BASC, 2011)
Partridge 	1st September to 1st February in England, Scotland and Wales and 31st January in Northern Ireland.	Predominantly reared and released, very few wild partridge shoots in England, Scotland and Wales and none in Northern Ireland
Red Grouse 	12th August to 10th December (England, Wales and Scotland). 12th August to 30th November (Northern Ireland).	Naturally bred, unique to the UK

Information adapted from (British Association for Shooting & Conservation (BASC), 2011)

Table 3.2 Three main types of quarry, breeding method and seasons

3.4 Existing Research: Social Impacts

National Resources Wales (NRW) carried out a consultation on shooting over their land in 2017, having carried out an evidence review recognising the benefits of shooting to the environment, economy and social cohesion in Wales. NRW identified that the very few existing reports in the area of social impact and well-being and highlighted the complexity of assessing well-being in the communities affected meaning objective conclusions relating to social interaction and social capital building could not be made (Natural Resources Wales, 2017). The external evaluation of their review identified that "although well-being did feature in several submissions by a number of stakeholders, this issue also dovetails with a very clear evidence gap. Simply, we do not have any independently-sourced information about the social aspects and health benefits of participating in the activities surrounding shooting" (Hillyard and Marvin, 2017, p. 2).

3.4.1 Shooting specific research

A report commissioned by the British Association of Shooting and Conservation in 2014 entitled 'The Value of Shooting' confines its analysis of the social impact of shooting to just two pages 80-81 (Public and Corporate Economic Consultants (PACEC), 2014a). The report did not attempt to define or measure social impacts specifically, and did not follow a recognised social impact methodology and try to develop a measurement framework with comparable measurement indicators, but instead focussed on community links (for example to schools), opinions of respondent around shooting's contribution to their well-being and the social fabric of the local area and the social impact related employment benefits. In their review of the 2006 and 2014 PACEC reports, Cormack & Rotherham (2014) noted the need for more research in the areas of well-being and social impacts.

An additional study into all types of shooting, not just DGS, carried out by PACEC looked only at one geographic location, Exmoor, and included very little detail relating to social impacts, again not attempting to identify a framework of social impacts. (Public and Corporate Economic Consultants (PACEC), 2012).

A second, 2016, study commissioned by the British Association of Shooting and Conservation considered the social, physical and personal well-being contribution of shooting in the UK, using online surveys following an adapted Dillman[10] method. Surveys were run online in March 2015 and 1,457 people responded (84 per cent were BASC members and 16 per cent were non-members (British Association for Shooting & Conservation (BASC), 2016). Their key findings were as follows.

- Shooting makes an important contribution to health and well-being among people of all ages, backgrounds and abilities.
- Shooting can help to get more adults active through sport and physical activity, reduce social isolation and promote personal well-being whilst encouraging people to engage with the natural environment.
- Allowing for variations according to discipline, shooting and its associated activities are moderate to high intensity physical activities.

  (British Association for Shooting & Conservation (BASC), 2016, p. 3)

This British Association for Shooting & Conservation (BASC) (2016) cross-sectional study into the personal value of shooting used self-scoring. It gathered scores in a number of areas such as social contacts (social capital), identity and health and well-being (outlined in Table 3.3, page 71), across a wide network of over 16,000 individuals, but it failed to capture the depth of impacts. BASC later attempted to 'value' some of these benefits in monetary and life-saving terms using proxies via a similar method to Natural England (BASC, 2016). It is important to note the questions in the 2016 BASC study were based on respondents' opinions and reported activity, but not with specific distances or frequency of activity or using recognised scales for measurement to allow comparability with a national dataset. The study was therefore unable to complete any vigorous, statistical testing to compare shooting participant responses with national statistics.

[10] Dillman tailored design method (TDM) uses personalised and repeated contact, paying attention to administrative details, which is particularly suited to online surveys (Dillman, Smyth and Christian, 2014). The use of this method is purported to guarantee 80% response rates and other researchers have noted "TDM is based on sound research principles and confirms that when attention is paid to administrative detail, high response rates can be achieved from difficult subjects" (Hoddinott and Bass, 1986).

DGS is a sport that has opponents in organisations opposed to shooting on ethical grounds, believing that animals should not be shot for sport (Animal Aid, no date; League Against Cruel Sports, no date; Royal Society for the Prevention of Cruelty to Animals (RSPCA), 2014). Shooting birds for sport is a controversial topic and is therefore often in the news (Knapton, 2017; BBC, 2018b; Blackmore, 2018; Bodkin, 2018; Layton, 2018). There are several lobby groups against shooting live quarry for sport, such as the League Against Cruel Sports, that commissioned an evaluation of reports highlighting the positive impacts of shooting, suggesting that any results detailed in the shooting industry commissioned and funded reports would be biased, whilst also questioning the methods used to calculate economic values (Cormack and Rotherham, 2014). The Animal Liberation Front takes action such as the release of partridges from raising pens in Devon (Smart, 2018) and has previously been known to use violence in its fight for animal rights (Edwards, 2010). National organisations vary in their stance on shooting. Whilst the Royal Society for the Prevention of Cruelty to Animals (RSPCA) is opposed to sports game shooting (RSPCA, 2014) the Royal Society for the Protection of Birds (RSPB) have recognised that well-managed shoots can be of benefit to the environment and help key bird populations (Murray C Grant *et al.*, 2012a; Glaister, 2015; Royal Society for the Protection of Birds (RSPB), 2018a), but is concerned that although there are many good practice examples, some poor practice exists in upland grouse shoots (Murray C Grant *et al.*, 2012a; Royal Society for the Protection of Birds (RSPB), 2018a). The National Trust supports well-managed shoots that are in line with its ethos of recognising rural heritage, traditions and spirit and that fit with its principal purposes of conservation and access, following recognised codes of practice (National Trust, 2015). This highlights the focus of evidence on animals, money and the environment and the lack of focus on the human impacts.

Some groups and individuals have made calls for restrictions on game shooting, with both environmental concerns, as explored in section 3.6 of this chapter, and regarding the unethical practices around wastage of quarry (birds shot) by some shoots (Milmo, 2015) not complying with the BASC Code of Practice for Respect for Quarry (British Association of Shooting & Conservation (BASC), 2010). Some shoots have found innovative ways to manage excess game to ensure no wastage (Tomlinson, 2017). In a bid to ensure all shot birds enter

the food chain in 2018 the British Game Alliance was launched as the official marketing board for the game industry (British Game Alliance, 2018). Although this thesis does not consider the ethical aspects of shooting, this is a potential wider reputational impact.

When government and local authorities and other public bodies make decisions about shooting and land use, the need for a well-researched, unbiased evidence base is important to ensure decisions are made taking into account all of the facts when there is a potential wider benefit, whether that be environmental, economic or social, that could be affected by discontinuation of the activity (Hillyard and Marvin, 2017). This study provides more information on the human impacts of DGS as opposed to existing research studies, which have focussed on economic and environmental impacts. A well-researched evidence base has been used by the National Trust recently to grant three shooting licences over its land, in spite of protests by those opposed to shooting (Avery, 2018). It should be noted, it did discontinue the licence of one shoot provider and stop shooting on one area of its land in favour of three that fitted with their ethos (National Trust, 2015). One of the approved shoots is a driven grouse shoot that will be run by a consortium of GWCT members (Avery, 2018). However, Bradford City Council ended shooting over its land on Ilkley Moor, in spite of the environmental and economic impact evidence (Blackmore, 2018). While this may have been different if potential social impacts had been quantified, this cannot be certain as the council is Labour led and the Labour party's draft Animal Welfare Policy indicates a greater concern with animal welfare, calling for a ban of intensive rearing of game birds for shooting (The Labour Party, 2018), which, it could be argued, is a reason why ethical shoots with high animal welfare standards and solutions for ensuring no wastage (Tomlinson, 2017) should be encouraged. This indicates that even evidence of positive impacts can be damaged by shoots that do not comply with good practice, such as BASC guidance on respect for quarry (British Association for Shooting & Conservation (BASC), 2010) and risks damaging the reputation of the sport (Milmo, 2015). Research shows that early concerns around poor practices of some shoots led to collaboration between BASC, the Game Conservancy (now GWCT) and the British Field Sports Society (now the Countryside Alliance) to introduce a set of acceptable standards for shoots and a move towards self-regulation in 1989 (Cox, Watkins and Winter, 1996b).

Visits to shoots identified several individuals who were wary of travelling on public transport in shooting attire for fear of verbal and perhaps physical abuse, which they attributed to the negative image of their sport that was being caused by some portrayals in the media of unethical practices at some shoots. This identifies the conflicts around acceptance of 'big bag days', where large numbers of birds, circa 300 or more[11], are shot on a single shoot day, within the shooting community itself. It is important to have a way to measure the social impact of shoots both for the participants and for the wider community. Whilst it is not within the remit of this study, it could be argued that those shoots that engage in poor practices should be identified to ensure those that are working within the law and guidance can continue, whilst action can be taken against those that do not, indicating that social impacts need to be balanced with an awareness and challenging of negative practices.

Following the National Resources Wales (NRW) consultation and evidence review on shooting over its land (Hillyard and Marvin, 2017), National Resources Wales board made the recommendations that the Welsh government should:

- "continue to use firearms in managing the negative impacts of wild species on the land it manages to achieve the sustainable management of natural resources consistent with our land management objectives and our purpose" (National Resources Wales, 2018a, p. 4)
- "continue to consider applications for permission to carry out control of wild species using firearms on the land we manage" (National Resources Wales, 2018a, p. 5)
- "continue to consider the leasing of rights for pheasant shooting, wildfowling and other pursuits involving firearms on a case by case basis" (National Resources Wales, 2018a, p. 6)
- "continue to use lead ammunition but will keep under review the efficacy of the available alternatives" (National Resources Wales, 2018a, p. 7)

[11] The 2018 Game Shooting Census conducted by Guns on Pegs and Strutt and Parker found that 90% of respondents believed 300 birds or more being shot in a single day constituted a big bird day (Guns On Pegs, 2018).

However, the Labour Welsh Environment Minister has expressed a differing view, noting in a letter to National Resources Wales that the Labour Party 'does not support commercial pheasant shooting or the breeding of gamebirds' because of 'ethical issues' and NRW itself released a statement saying it will not allow use of gamebird rearing pens or release cages on its woodland estates in Wales (British Association for Shooting and Conservation (BASC), 2018a). The board of NRW reviewed the evidence in light of a request from the Environment Minister (National Resources Wales, 2018b). Ultimately, pheasant shooting over NRW land was banned as from March 2019 (Bodkin, 2018), which then led to calls by anti-shooting campaigners for shooting to be banned over land belonging to University of Wales Gregynog Hall campus near Newtown, Powys (Forgrave, 2019). This again shows what an emotive and controversial issue game shooting is and highlights the importance of rigorous, unbiased evidence provision for policy makers and the importance of compliance with good animal welfare standards to ensure wider societal acceptance of DGS.

3.4.2 Social Impacts: Social Capital, Identity and Well-being

As noted in section 2.2, social capital and social networks are important factors in this study. Social contact and friendships were both key impacts outlined in the BASC (2016) report. However, the report did not distinguish between the different stakeholders and their 'social capital' acquisition or the two relevant different types of social capital, being 'bonding', which is more horizontal and likely to occur between members of an informal group and 'bridging' social capital, which is a more vertical relationship (Claridge, 2018a). This study explores any variation in types of social capital in DGS among participants and at different shoot types and sizes, from small, DIY syndicates to small and large commercial enterprises.

Initial scoping visits to shoots identified historical connections to the sport of shooting through past generations, local traditions and rural identity and the BASC (2016) report identified spending time with like-minded people as important. As noted above in section 2.2.1, identity is a key element of social capital and can have positive impacts on mental well-being. It can "provide individuals with a sense of meaning, purpose, and belonging (i.e. a positive sense of social identity)" (Haslam et al., 2009 p.1), which usually has positive

psychological consequences (Haslam *et al.*, 2009). Conversely, if our social identity is compromised by not being able to be part of a group for example, this tends to have negative psychological consequences (Haslam *et al.*, 2009). UNESCO has identified intangible cultural heritage (ICH) as an important factor in the well-being of individuals. The 2003 treaty, to which the UK is not yet a signatory, but several other European countries including France, Spain and Italy are, defines ICH as:

> "the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity"

(United Nations Educational Scientific and Cultural Organisation (UNESCO), 2003, Article 2)

Importance to well-being is highlighted by UNESCO (2018), who note that social practices, which may be regular, seasonal events, often see the return of young people, who may have moved away from their homes to find work for example, to their ancestral communities to engage with these activities. These activities are valued by the communities as they are linked to their perception of their history and worldview and engaging with them keep these community traditions alive, reaffirming the identity of community members (United Nations Educational Scientific and Cultural Organization (UNESCO), 2018). It is this connection to the past and consideration of cultural heritage that has been identified by those individuals spoken to in scoping visits regarding their reasons for participating in DGS, maybe now living in the city and returning to the countryside to maintain the link with past generations.

Rural identity, it has been argued, is an area that has been under explored, and often only in response to proposals to restrict rural sports such as hunting with dogs (Hillyard and Burridge, 2012). Wallwork and Dixon (2004) argued that the Countryside Alliance exploited the rhetoric

of place to try and portray the banning of hunting as an issue of national significance. A 2012 study proposed that a more sociological approach was needed to shotgun and firearms legislation in the UK (Hillyard and Burridge, 2012). It considered, amongst other things, the participation in game shooting, with one of the researchers being an avid shooter and the other being opposed to shooting animals of any kind for food or sport, in the hope of providing a balanced view (Hillyard and Burridge, 2012). The paper argued that shooting is an elitist sport due to the costs involved (estimating a minimum of £250 for a an entry level driven day plus associated costs such as transport) (Hillyard and Burridge, 2012). However, the ability for beaters to shoot for free at annual 'beaters' days', as discovered during preliminary research visits for this study, indicates wider participation is possible. Hillyard and Burridge (2012) also observed that most research into sociological impacts of rural pursuits has been 'reactive', often responding to research produced by interest groups, or commissioned by government committees when policy changes to rural sports are being considered, for example, following the Burn's enquiry[12], which was set up in 1999 to examine the facts in the debate surrounding hunting with dogs, as a result of the newly elected Labour government's manifesto commitment to allow a free parliamentary vote on hunting (Ward, 1999; Milbourne, 2003).

Hillyard and Burridge (2012) highlighted game shooting as a potentially important area for investigating accumulated social and cultural capital 'crossing fields' and accumulating i.e. bridging social capital, whilst also recognising the need for societal acceptance and the possible links to identity and cultural identity/capital, noting "game shooting also needs to be legally and socially permissible and whether it is a form of cultural expression that is cumulative and reinforcing of capital" (Hillyard and Burridge, 2012, p. 10).

[12] The Burn's enquiry terms of reference were:
"To inquire into:

- the practical aspects of different types of hunting with dogs and its impact on the rural economy, agriculture and pest control, the social and cultural life of the countryside, the management and conservation of wildlife, and animal welfare in particular areas of England and Wales;
- the consequences for these issues of any ban on hunting with dogs; and
- how any ban might be implemented.

To report the findings to the Secretary of State for the Home Department"

(Committee of Inquiry into Hunting with Dogs, 1999)

The work of Heley (2010, 2011) explored rural identity in relation to the new mix of individuals living in the countryside, with previously urban dwellers relocating to the countryside. The role of game shooting as an important aspect of 'country identity', which can also facilitate integration of newcomers to an area into a community, has been recognised previously (Cox, Watkins and Winter, 1996b). Heley referred to the 'culture of middle-classness' in rural areas via three activities: the pub, the shoot and the hunt, arguing that the shoot has been appropriated by the newly rural dwelling middle classes (Heley, 2010), which is clearly in line with the need to fit into a group in line with the work on social identity theory by Tajfel and Turner (1986) and the later identity control theory (ICT) as proposed by Burke and Cantwell(2010) and Burke (2007) conforming to the 'identity standard' and continually adjusting behaviour to 'fit-in'. Heley, (2011) also highlighted the problems of access and researcher positionality relating to any ethnographic study of shooting or hunting. Hillyard and Burridge (2012) recognised shooting as an aspirational activity. As fitting in with the community and building a social network within the local area is both key to enjoying life and perhaps accessing resources (and therefore increasing social capital) it is easy to see why this is the case. One of Heley's (2010) subjects noted although he was opposed to shooting game for the purposes of sport rather than food alone, he did not say anything as he did not want to offend other locals (Heley, 2010), conforming to the adjustments to behaviour in line with Burkes identity control theory (Burke, 2007; Burke and Cantwell, 2010), although it could be argued it is unclear whether this is as a result of the need to be part of the in-group or a reflection of the polite nature of British society in general (identity theory was explored further in section 2.2.1).

Hillyard and Burridge (2012) noted that DGS is an activity full of rules and rituals which are strictly enforced such as ensuring only birds within the area of your 'peg' are shot, no birds too low are shot, no mobile phones are used, retrieval of birds by dogs is only completed when advised. These may seem complicated and elitist to the outsider, but these rituals also play a part in the safety of the sport – it is dangerous to shoot birds that are too low as beaters or others may be hit, mobile phones are a distraction around firearms, dogs running to retrieve birds too early could also be a danger, as well as in danger (Hillyard and Burridge, 2012).

Access to the countryside, highlighted as an important reason for DGS participation in previous research (British Association for Shooting & Conservation (BASC), 2016), has been shown in wider research to have positive impacts on health. The green environment is a key factor in health and well-being not only for those involved in practising the sport directly and indirectly, ('guns', beaters, gamekeepers, volunteers and spectators), but also the wider public. This would fall under the general socio-economic, cultural and environmental conditions within the social determinants of health model shown in Figure 2.1 on page 24 (Dahlgren and Whitehead, 1991). As part of a paper 'Access to green and open spaces and the role of leisure services' the King's Fund recently highlighted research:

> "There is [also] strong evidence that access to open spaces and sports facilities is associated with higher levels of physical activity (Coombes, Jones and Hillsdon, 2010; Lee and Maheswaran, 2011) and reductions in a number of long-term conditions such as heart disease, cancer, and musculoskeletal conditions (Department of Health (DOH), 2012). The proportion of green and open space is linked to self-reported levels of health and mental health (Barton and Pretty, 2010) for all ages and socio-economic groups (Maas *et al.*, 2006), through improving companionship, sense of identity and belonging (Pinder *et al.*, 2009) and happiness (White *et al.*, 2013)"
>
> (The King's Fund, 2013, para. 5 and 6)

The limited existing research findings into social impacts are outlined in Table 3.3 below, separated by themes related to the theories and social impact categorisations from various organisations detailed in Table 2.4 in section 2.2.3.

Table 3.3 DGS Social Impact Themes identification							
Theme	**Literature Review**	**Scoping visits**	**GECES Framework**	**Big Society Outcomes Matrix**	**UN Social Impact areas**	**WHO Sustainable Development Goals**	**Social Determinants of Health**
Social Capital: personal relationships & social support networks Health and well-being: combatting loneliness Potential instrumental and also expressive social capital returns (Lin, 2008)	The average number of friends made through involvement in shooting activity was 20. Without shooting: •68% said meeting new people would be harder •63% said making new friends would be harder •62% said maintaining friendships would be harder •77% said their social life in general would be poorer 97% regularly mixed with at least one person due to their shooting activity. Those who primarily shot driven game, beaters and pickers up mixed with 30 or more people on a regular basis through shooting. 52% supporting others one of the reasons for taking part. Above adapted from (British Association for Shooting & Conservation (BASC), 2016)	Socialisation – meeting like-minded people Cross-generational socialisation Rural network building, Support wider community Volunteering – also a social capital indicator.	Personal and social well-being Mental health	5. Mental Health & Well-being 6. Family Friends and Relationships 7. Citizenship and Communities	Health Impact Quality of Life Impacts Community Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks

Theme	Literature Review	Scoping visits	GECES Framework	Big Society Outcomes Matrix	UN Social Impact areas	WHO Sustainable Development Goals	Social Determinants of Health
Health and well-being: personal, subjective well-being Expressive social capital return (Lin, 2008)	Three of the top five areas people said would be negatively affected if they could no longer take part in shooting: 86% Enjoyment of life 78% Happiness 77% Opportunity for relaxation Two of the top three reasons for taking part: 94% Enjoyment 80% Relaxation Above adapted from (BASC, 2016)	Social contact. Enjoy spending time outside with friends and also dogs.	Personal and social well-being Mental health	5. Mental Health & Well-being 6. Family Friends and Relationships 7. Citizenship and Communities	Health Impact Quality of Life Impacts Community Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks
Health and well-being: physical health Expressive social capital return (Lin, 2008)	One of the top five areas people said would be negatively affected if they could no longer take part in shooting: 72% Engagement in sport Overall 80% of shooters likely to be undertaking physical activity for or related to shooting. If they could not shoot: 71% said physical activity level would decrease. 72% said their engagement in sport would decrease. (BASC, 2016)	Experienced long walks. One beater had measure 6-8 miles per day for each shoot, two to three times a week in the season. Health & Exercise, mental (combat loneliness, deal with stress) and physical – wider social impact, cost to NHS	Physical health	4. Physical Health	Health Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks

Theme	Literature Review	Scoping visits	GECES Framework	Big Society Outcomes Matrix	UN Social Impact areas	WHO Sustainable Development Goals	Social Determinants of Health
Health & Well-being: Access to Nature Expressive social capital return (Lin, 2008)	One of the top five areas people said would be negatively affected if they could no longer take part in shooting: 88% Spending time outdoors in nature 91% said they would spend less time outdoors in nature if they were not involved in shooting. Above adapted from (BASC, 2016)	Being outdoors for an extended period. Many said they liked being outdoors, even though it was raining heavily on one of the days in question!	Personal and social well-being Mental health Conservation of the natural environment and climate change	5. Mental Health & Well-being 6. Family Friends and Relationships 7. Citizenship and Communities 9. Conservation of the Natural Environment	Health Impact Quality of Life Impacts Community Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions Health Care Services Social and Community Networks
Social determinants of health Employment & training Instrumental and expressive social capital returns (Lin, 2008)	Employment opportunities and training schemes, particularly of impact in rural areas where work can be seasonal or low skilled (PACEC, 2014, 2012).	Identified providers of NVQs in gun dog training and countryside managements.	Education and learning Employment and training	1. Employment, Education & Training	Quality of Life Impacts	Goal 4: Quality Education Goal 10: Reduced inequalities	Education Unemployment Work Environment
Social identity and shared values. Social Capital within a group	"Shooting makes it easy to spend time….with like-minded people" (BASC, 2016)	Shared Values & Identity. Local heritage and connection to roots all mentioned.	Arts and Culture Personal and Social well-being Politics, influence and participation	6. Family Friends and Relationships 7. Citizenship and Communities	Quality of Life Impacts Cultural Impacts	Goal 3: Good Health & Well-Being for People	Social and Community networks

Theme	Literature Review	Scoping visits	GECES Framework	Big Society Outcomes Matrix	UN Social Impact areas	WHO Sustainable Development Goals	Social Determinants of Health
Wider social impact: Ethical concerns and safety/reputation	The impact of negative publicity (Milmo, 2015) not balanced with ethical shoots (Tomlinson, 2017; BASC, 2010). Impact of this factor on policy maker's decisions (Blackmore, 2018; National Trust, 2018).	Several participants expressed concern with unethical shoots' behaviour giving well-managed shoots a poor image. Some expressed concern in travelling on public transport in shooting attire, for risk of being verbally or physically assaulted because of these issues.	Personal and social well-being	7. Citizenship and Communities	Quality of Life Impacts	Goal 3: Good Health & Well-Being for People	General socio-economic, cultural and environmental conditions

3.5 Existing Research: Economic Impacts

As noted in Chapter 2, this study focuses on social impacts particularly relating to social capital and its links to identity and health and well-being. An essential element of social capital is a cohesive community, which requires inequalities to be tackled and economic and social justice (Cowden & Singh (2017), Rogers & Muir (2007), Cantle (2008). Employment and education are key components identified by Dahlgren and Whitehead (1991) as social determinants of health, as shown in Figure 4.1 below. Employment has been recognised as one of the key determinants of both good health and tackling inequalities (Ellis and Fry, 2010; Bartley, Ferrie and Montgomery, 2005; Dahlgren G and Whitehead, 1991).

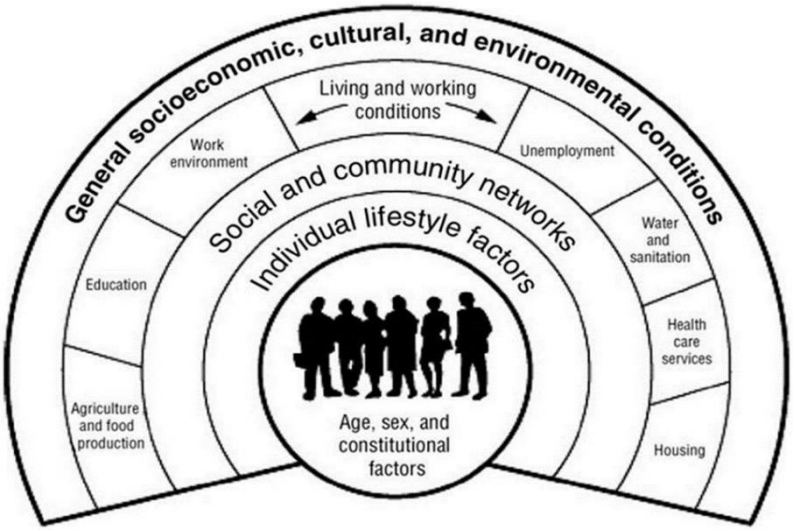


Figure 3.3 Social Determinants of Health (Dahlgren and Whitehead, 1991)

3.5.1 Employment

Research has shown that having a variety of skilled employment opportunities is particularly important in the more remote, rural areas of the UK where alternative employment is often limited and/or seasonal (Monk *et al.*, 1999; Scottish Government, 2012). Shooting has been estimated to support "the equivalent of 74,000 full-time jobs" (Public and Corporate Economic Consultants (PACEC), 2014a). This includes 35,000 jobs directly related to shooting itself, with 21,000 in skilled roles such as gamekeepers, managers and related positions and 140,000 relatively unskilled jobs as beaters/pickers up; and 39,000 indirect jobs within the wider community, particularly the hospitality sector and in the provision of goods and services relating to shooting (Public and Corporate Economic Consultants (PACEC), 2012, 2014a). Social capital theory, identity theory and research suggests that any job can have a positive

impact on an individual, in addition to any economic benefits (Stets and Burke, 2000; Walsh and Gordon, 2008; Dreiling *et al.*, 2015). A job can allow people to build relationships and a social network via bonding social capital and contacts for future opportunities for themselves or their families perhaps via bridging social capital (Dreiling *et al.*, 2015). Employment can also contribute to an individual's role identity and sense of purpose/belonging (Stets and Burke, 2000; Walsh and Gordon, 2008) (see section 2.1).

In addition, many beaters and pickers-up volunteer at shoots as they like to spend time with 'like-minded people', reinforcing their identity, which can positively impact self-esteem and well-being (Stets and Burke, 2000; Stryker and Burke, 2000; Haslam *et al.*, 2009). Volunteering has been shown to be a positive way to move into employment (Paine, Mckay and Moro, 2013) and have health and well-being benefits (Cattan, Hogg and Hardill, 2011; Binder and Freytag, 2013; Han *et al.*, 2016). A 2011 study valued regular volunteering (weekly or at least once per month) at £13,500 (Fujiwara, Oroyemi and Mckinnon, 2013). The building of social capital, particularly bonding social capital, which often occurs through volunteering, has been shown to have positive health and well-being impacts as shown in the Table 2.3 in Chapter 2, section 2.2.2.

3.5.2 Training

A lack of diverse training and skills development opportunities in rural areas has been recognised as an issue due to a number of factors including transport and access to further education (Monk *et al.*, 1999; Scottish Government, 2012; The Commission for Rural Communities, 2012). Development of skills is a form of human capital (Bourdieu, 1986; Coleman, 2000) and the acquisition of 'human capital' has been shown to increase self-esteem and self-efficacy (Denny *et al.*, 2011; Hazenberg, Seddon and Denny, 2015) as explored in section 2.1 of Chapter 2. Skills acquired could be used to increase wealth and power of individuals which are instrumental outcomes as defined by Lin (2008) in his theory of social capital. Any increase in self-esteem and self-efficacy would be defined by Lin (2008) as an expressive social capital return or outcome (see section 2.2.3).

Public and Corporate Economic Consultants (PACEC) (2014) received completed surveys from almost 4,000 providers for their report into the value of all shooting, not just DGS. The surveys revealed providers offered a number of training opportunities such as apprenticeships (6%), informal or formal on the job training (28%), links with formal training organisations (22%) and local educational links (16%), providing school visits for example. School visits are also a form of building bridging social capital between generations within a community (PACEC, 2014).

Careers directly linked to DGS include game-keeping, gun dog training, gunsmithing, land conservation, ecosystem management and shotgun tuition. There are a number of areas listed under the local economies in section 3.5.3, which provide indirect career opportunities, particularly in the hospitality sector. Training is currently widely available, with BASC listing 29 colleges offering game-keeping courses (British Association for Shooting and Conservation (BASC), 2018b). The PACEC report included case studies of colleges providing countryside management and shooting related training in the South West, North West and South East of England (Public and Corporate Economic Consultants (PACEC), 2014a). This PACEC (2014) report also identified a number of personal development and training opportunities, particularly for young people, including gunsmithing apprenticeships, training for specific health maintenance and safety reasons and shooting competitions for scouts, cadets and schools from age fourteen onwards. This helps young people develop social skills and health and safety awareness (Public and Corporate Economic Consultants (PACEC), 2014a), building human and social capital.

3.5.3 Local economy and national spending

Shooting can provide an important form of additional income for farms to allow them to remain profitable, either by renting land to a syndicate shoot, running a small shoot themselves or a combination of both (Cox, Watkins and Winter, 1996b). A 2016 study considering the future of small farms in the UK found, from the SW Farm Survey (2016), that income from shooting was a more common feature in farms over 200 hectares (200<250 ha 16.7% and over 250 ha 16.3%), but with an average of 6.9% of all farms gaining some income from shooting as part of their income diversification (Winter *et al.*, 2016). Research has also

found that not all farms will run shoots purely for economic gain, some may combine income generation desire with enjoyment of shooting as a leisure activity, a positive social impact (Cox, Watkins and Winter, 1996b). The presence of a shoot can increase the contact networks and social capital within a rural area and it has been recognised that social capital can have a positive impact in local economies, creating trust and reciprocity, although evidence is limited (Winter and Lobley, 2005).

A thriving local economy ensures local employment opportunities, which enable young people to stay in their local area rather than move to bigger cities for work. Intergenerational relationships and the building of intergenerational understanding and respect have also been recognised as an important element of social cohesion and social capital (Commision On Integration And Cohesion, 2007; Hatton-Yeo and Batty, 2011) and have been shown to contribute to good health and well-being (O'Connor *et al.*, 2019), as explored in section 2.2.

It has been estimated that £2.5 billion each year is spent on goods and services by shooters (Public and Corporate Economic Consultants (PACEC), 2014a). The 2012 PACEC study into the value of shooting on Exmoor found that usually for every 8 guns, there were 32 beater/pickers/helpers/loaders involved in the shoots who sometimes received a small payment, which was generally spent in the local area and provided an important income source for those benefitting from the income such as local pubs and shops (Public and Corporate Economic Consultants (PACEC), 2012).

As the shooting seasons covers the period outside of the traditional spring and summer holiday season, it allows greater sustainability of businesses in the hospitality sector. This is particularly important in the more remote areas of the UK where otherwise work can be seasonal (Monk *et al.*, 1999; Scottish Government, 2012). The PACEC (2014) report included two case studies within the hospitality sector, both in more rural, remote areas of England that highlighted the employment and training opportunities provided (Public and Corporate Economic Consultants (PACEC), 2014a).

Research, carried out by Mintel and reported in 2018, found that overall game meat sales (including venison as well as game bird sales) increased by 8.6 per cent in the last year and

that demand for grouse is particularly increasing in Scotland (Duke, 2018; Layton, 2018), indicating that this is a growing market with further economic potential. The PACEC (2014) report identified that game meat often remains within the local supply chain, to enable a locally sourced menu within hotels and other local restaurants (which is also a positive environmental impact, reducing food miles) and has been exported to wider areas within the UK and abroad (Public and Corporate Economic Consultants (PACEC), 2014a). All useable meat had been eaten, either by participants in the shoot or via game dealers, in the findings of the PACEC 2012 Exmoor study (Public and Corporate Economic Consultants (PACEC), 2012). A shoot in Scotland has also found an innovative way to both boost income and ensure no wastage through its large scale production of game sausages (Tomlinson, 2017).

The Savills (2017) shoot benchmarking survey identified that a number of game dealers have gone out of business, which makes distribution of game more difficult. In order to ensure game meat is used and not wasted, the public needs to be able to both access the product and be assured it has been prepared correctly and is therefore safe for human consumption. In response to these issues, the game industry equivalent to the 'Red Tractor[13]' scheme, the 'British Game' assurance scheme, was launched through the Countryside Alliance, led by a new body to coordinate marketing of game entitled the British Game Association (Countryside Alliance, no date). This move to ensure no wastage may in part be in response to negative stories in the press regarding disposal of game birds inappropriately (Milmo, 2015). Whilst initial, direct research for this thesis has found that shooting organisations and groups believe this is a minority practice against BASC guidance (British Association for Shooting & Conservation (BASC), 2010), there is a potential reputational impact for the sport and impact on how wider society views shooting if it is not dealt with appropriately.

The need for appropriate sporting attire and equipment also creates a market for goods. Like their forbears in the 1880-1914 'Big Shot Era' (Garnier Ruffer, 1978; Jones, 2015), small and larger suppliers of shotguns, cartridges, clothing and safety equipment for example are bought countrywide. This 'need to fit in', wearing the right clothing, fits in well with identity

[13] The Red Tractor Assurance scheme was established in 2000 and is now the UK's biggest farm and food standards scheme, covering all of animal welfare, food safety, traceability and environmental protection. For more information see www.redtractor.org.uk

control theory (Burke, 2007), whereby individual adjust their actions and behaviour to better fit in with their social group (Tajfel and Turner, 1986), as explored in section 2.1. These suppliers bring money and employment and skills development opportunities into the local and national economy. In terms of the local economy, supplier recommendations from other group members are a form of 'social capital' built via participation in DGS, gaining business which may not otherwise occur (Dreiling *et al.*, 2015). The PACEC (2014) report included case studies of a dealer in guns and collectables in the South East with 6 staff members; an ammunition supplier in the Midlands in business since 1998 with 21 employees and an £8 million turnover, for whom 85% of his business was from the UK; a bespoke shooting accessories supplier in Scotland, who had been operating for 12 years producing high end products, utilising the skills of 15 local craftsman; and a family business in the West Midlands that had been established since 1845, that now employed 38 people (7 directly on the shooting supply side), was training 4 apprentices in 'transferable skills' areas including customer services and marketing had a turnover of £1.5 million for its online sales alone (Public and Corporate Economic Consultants (PACEC), 2014a).

Individuals are recruited to jobs and/or apprenticeships in different ways, but in small, rural communities it is likely that bonding and/or bridging social capital play a role and although evidence is limited, it has been noted that social capital can have a positive impact within rural economies (Winter and Lobley, 2005).

3.5.4 Charitable and community investment

Shooting providers on Exmoor have raised £130,000 for local charities, including providing computers for the local primary school and financial support for the Devon Air Ambulance (PACEC, 2012). Case studies in the PACEC (2014a) report also identify charitable fundraising work at a local level and youth development programmes, funded by the shooting providers, thereby saving the taxpayer money (Public and Corporate Economic Consultants (PACEC), 2014a). Working with local community and youth groups represents both bonding and bridging social capital acquisition within a community and potentially, if landowners or local officials/authorities are involved, linking social capital. Facilitation of community group formation or continuation through financial or other support creates a local group that can

increase individuals sense of identity and well-being (Tajfel and Turner, 1986; Haslam *et al.*, 2008) as explored in section 2.2.

3.5.5 Indirect economic impacts

As noted above, social capital and the importance of relationships, could be said to have an indirect economic impact in providing access to job and training opportunities, perhaps via 'bridging' social capital (Dreiling *et al.*, 2015; Claridge, 2018a). Social interaction has been found to be a key element in longevity and good health, particularly good mental health (Umberson and Montez, 2010), which is particularly pertinent for bonding social capital (Claridge, 2018a), providing a social support network. Poor mental health has been estimated to cost the UK approximately £105 billion a per year when the various social and economic factors are taken into account (Centre for Mental Health, 2010; Department of Health Independent Mental Health Taskforce, 2016). Interestingly, this figure does include £53.6 billion 'intangible' costs to human quality of life, almost half of the overall cost estimate, in addition to the direct costs to health and social care services (£21.3 billion) and loss of output to the economy (£30.3 billion) (Centre for Mental Health, 2010; Full Fact, 2016). It has been suggested maintaining mental well-being could be valued at £10,560 per person (Maccagnan *et al.*, 2019). There is also evidence that poor mental health can exacerbate physical symptoms of illness (Barnett *et al.*, 2012).

Measuring 'avoidance' of mental health issues is a problem in a bureaucratic system as there are no nationwide statistics that can 'prove' prevention. However, prevention is important as it has been found that people with mental health issues are more likely to access secondary care hospital services, more likely to come via costly ambulance services, are more likely to be admitted and have more outpatient appointments than those without mental health issues (Centre for Mental Health, 2018). In recent years, the government and others have tried to encourage people with mental health issues to seek help, with celebrities like Prince Harry talking about their own experiences to 'normalise' mental health issues (Furness, 2017). 'Parity of esteem' for mental health, which was enshrined in law in the Health and Social Care Act 2012, is a government agenda aimed to increase funding of mental health services and give them equal priority with physical health services (Department of Health Independent

Mental Health Taskforce, 2016, Lincolnshire East Clinical Commissioning Group meeting discussions 2016-2018).

The dual impact of physical exercise carried out during participation in DGS, especially by beaters and pickers-up, reducing the likelihood of long-term conditions such as diabetes (Leong and Wilding, 1999) and the fact that people with long-term conditions are more likely to have a mental health issue (Naylor *et al.*, 2012), which has been shown to impact negatively on their recovery and potentially cost the NHS more (Naylor *et al.*, 2012), show the importance of looking into this area regarding DGS. People with a long-term conditions like diabetes have been shown to be able to better manage their condition if they have a strong support network of people around them (Hinder and Greenhalgh, 2012). Without the group interaction afforded to those involved in DGS, especially those who are retired and may have limited social contact otherwise, their mental health may deteriorate and cost the NHS more. This area is explored in much greater detail in Chapter 2, section 2.2.

3.5.6 Overall Contribution to the UK Economy

Research sponsored by the shooting industry has estimated that "shooting is worth £2 billion to the UK economy (GVA[14])" (Public and Corporate Economic Consultants (PACEC), 2014a, p. 3), but an evaluation of the PACEC (2014) value of shooting report, along with an earlier 2006 report, commissioned by the League Against Cruel Sports (LACS) in 2014, disagreed with the value of economic benefits identified, due to the methods used to extrapolate the overall figures. They suggested instead that the research "suggests a range of 'values' for the sector at between £267m and £746.4m according to standard Treasury guidance" (Cormack & Rotherham, 2014). However, they noted that "broadly speaking, the basic assertions that the sport shooting industry has a significant impact on the economy, the environment and the communities involved, cannot be disputed" (Cormack & Rotherham, 2014 p.1). This indicates that even though LACS is fundamentally opposed to shooting of animals for any sports, it still recognises there is an economic and potential social impact of the sport and again highlights

[14] Gross Value Added (GVA): The standard monetary measure of the value of economic activity. Equal to the sum of employment costs plus profits. Also equivalent to the value of goods and services produced minus the inputs (raw materials, services etc) required to produce them. (Public and Corporate Economic Consultants (PACEC), 2014a)

a key issue with statistical reliance in relation to an activity about which people may have strong, diametrically opposed views, again illustrating that statistics can potentially be manipulated by both sides to portray evidence to support their position, an argument against over-reliance on statistics for measuring impacts, particularly in a more subjective and intangible area like social impacts.

3.6 Existing Research: Environmental Impacts

This section does not seek to discuss the environmental issues in an exhaustive way, but rather to review how the environmental impacts of land management for DGS can relate to social impacts and indicate the nature of the arguments deployed to justify or criticise DGS.

3.6.1 Green Spaces and Countryside Management

The impact of game management on the UK landscape was noted over twenty years ago (Cox, Watkins and Winter, 1996b), with the planting of woodlands, cover crops and hedges all being highlighted. As noted in section 3.4, access to nature and green spaces has been highlighted in previous research as a positive social impact of participation in DGS. There has been a significant amount of research confirming the positive benefits of accessing green spaces on people's physical and mental well-being. Exercise outdoors has been shown to have a greater impact than exercise indoors (Thompson Coon *et al.*, 2011; Loureiro, Veloso and Veloso, 2014; Frühauf *et al.*, 2016; Zhang, 2017). Access to green spaces has been shown to help increase activity and reduce obesity (Countryside Recreation Network, 2006; Coombes, Jones and Hillsdon, 2010). Physical inactivity and obesity can lead to long-term conditions such as diabetes and cardiovascular disease (Leong and Wilding, 1999), which are costly to manage in the NHS. A 2014 study indicated that obesity had a burden of around £47 billion a year on society (circa 3% of GDP), making it the greatest impact after smoking (Dobbs *et al.*, 2014), which is more than the annual cost of armed violence, war and terrorism (Press Association, 2014). This increased availability of green spaces to encourage physical activity could reduce this economic burden on society, a wider social impact. Avoiding premature death due to physical activity has been valued at £34,818 per person (The Scottish Government, 2003) and frequent mild exercise[15] has been valued at £3,537 per person (Housing Associations Action Trust, 2018). Overall, Public Health England estimate that lack of physical activity costs the UK £7.4 billion per annum (Public Health England (PHE), 2016).

[15] Mild exercise is defined as "Participation in exercise that does not noticeably change your breathing or make you sweat at least once a week for at least two months" (Housing Associations Action Trust, 2018, l. 59 Value Details Worksheet.)

The 2014 PACEC study into all types of shooting, not just DGS, found that the majority of the demographic group engaged in shooting were male and over 40 (PACEC, 2014) and discussions with the Chief Executive of NOBS (National Association of Beaters and Pickers-up) revealed that the majority of their members are over 50. It has been estimated that only 40% of men complete moderate physical exercise (30 minutes a day, five or more days a week) (Pollard, 2010). It has been suggested the best form of exercise for men reluctant to take up physical activity is to find something they enjoy and can easily include in everyday activities, with walking being considered one of the best options (Pollard, 2010). An analysis of 18 best observational studies, from a review of 4295 studies on walking from 1970, found walking reduced the risk of heart problems by 31% and the risk of death by 32% (during the study period) (Harvard Men's Health Watch, 2009; Pollard, 2010).

The benefits of exercise in the countryside were again highlighted in a 2005 study, that included the importance of group participation and social capital, citing studies by Pevalin and Rose (2003) relating to social group connections' positive health impacts. It referred directly to social capital studies by Putnam (1993) and Coleman (1988) around trust, reciprocity and obligations (J. Pretty *et al.*, 2005).

Land management for DGS provides a rural landscape, which is not used for shooting outside of the game shooting season (August or October until end January/early February), that can often be accessed by the general public. Organisations within and outside of the shooting industry work in partnership to realise potential environmental benefits. BASC has a partnership agreement with Natural England, agreed in 2015 and renewed for a further three year period in 2018 (British Association for Shooting and Conservation (BASC) and Natural England, 2015; British Association for Shooting and Conservation (BASC), 2018c), to aid in the implementation of the government's 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' scheme (Department for Environment, Food and Rural Affairs (DEFRA), 2011). The National Trust work in partnership with shoots who manage the land in line with their ethos (National Trust, 2015; Avery, 2018) and GWCT also work in partnership with shoots to complete scientific research into environmental impacts and ensure positive impacts can be extended and negative impacts mitigated. BASC has a 'Green Shoots'

programme, enabling shoots to work towards public conservation targets (British Association for Shooting & Conservation (BASC), 2011).

Hedgerows can also be impacted by management for DGS. The appearance of hedgerows can benefit wildlife and be aesthetically pleasing, encouraging visitors to walk and enjoy the outdoors, resulting in the positive health and well-being impacts as outlined earlier in this section. When game shooting was reduced after the second world war and intensification of farming was introduced, this saw the removal of hedgerows (Martin, 2011). It is not suggested that there is a causal relationship between the removal of hedgerows and reduced shooting. However, hedgerows are an integral part of landscapes managed for shooting, providing cover for game birds, so in preparing a landscape for DGS the number of hedgerows may be increased or maintained rather than reduced. Independent research has shown the benefits of hedgerows include water quality improvement, flood risk reduction, crop improvements and climate change mitigations, all of which have indirect social impacts (Wolton *et al.*, 2014). Hedgerows also result in increased biodiversity. A 2012 study found that wider hedgerows are seen on farmland with game management, which provides more habitat and potentially more areas for wildlife and therefore increased biodiversity (Draycott *et al.*, 2012). The planting of hedgerows has allowed the wider community, across generations, to be engaged in positive environmental impacts at a partridge shoot in Scotland, building social capital in the area amongst people of all ages (Stephens, 2018).

At the Game Fair in July 2018 the then Chair of Natural England, Andrew Sells, praised shoots that looked after the environment well, but criticised some large commercial shoots of losing sight of the balance between shooting and conservation with too much focus on large numbers of birds being killed for commercial profit (Starkey, 2018a). The editor of the Shooting Times also raised concerns that greed, leading to shooting excessive numbers of birds, giving examples of 500 bird days, risked shooting not being around for the next generation (Starkey, 2018b). It has been argued that the number of birds killed is irrelevant if all the meat enters the food chain (Starkey, 2018b), a goal that the British Game Alliance has set in respect of achieving this aim (BASC *et al.*, 2018; British Game Alliance, 2018). However, it is estimated that 40 million captive-bred pheasants and red-legged partridges are released in Britain annually (Pringle *et al.*, 2019), which has potential negative and positive

environmental impacts, which also need to be considered. Those against shooting have raised concern around negative impact of releasing large numbers of non-native birds on the environment. In February 2020 the group Wild Justice sought a judicial review of gamebird releases, arguing that DEFRA had failed to adequately assess the impacts of non-native gamebird release on Special Protection Areas for birds and Special Areas of Conservation for wildlife (Wild Justice, 2020). There has been research relating to the impact of non-native bird releases on the environment. For example, on their website the GWCT highlight that their scientists have authored or co-authored 13 published papers looking at this area, (Sage *et al.*, 2018, 2009; Draycott *et al.*, 2012; Callegari *et al.*, 2014; Sánchez-García, Buner and Aebischer, 2015; Whiteside, Sage and Madden, 2015; Gethings, Sage and Leather, 2015; Neumann *et al.*, 2015; Gethings *et al.*, 2016; P. A. Robertson *et al.*, 2017; Aebischer, 2019; Capstick *et al.*, 2019; Capstick, Sage and Hoodless, 2019) with a further paper entitled 'The ecological consequences of gamebird releasing' currently in review (Game and Wildlife Conservation Trust (GWCT), 2020d) and in 2010 the RSPB commissioned a report to consider the issue (Bicknell *et al.*, 2010). It has been recognised that impacts on the environment are predominantly positive if birds are stocked at no more than 1000 birds per hectare of release pen, with a reduction in habitat management having potentially negative impacts:

> "In normal circumstances, when birds are stocked at more than 1000 birds ha-1 of release pen (equal to approximately 55 birds ha-1 of woodland, or 3.7 birds ha-1 of estate), negative impacts are likely. When no habitat management is implemented, negative effects may occur at lower densities. At low release numbers habitat management may offset negative effects, and the net impact may be positive" (Bicknell *et al.*, 2010, p. 46)

A positive association between gamebird release and certain predator species (buzzard *Buteo buteo*, jay *Garrulus glandarius*, raven *Corvus corax*, magpie *Pica pica* and hooded *Corvus cornix* and carrion *Corvus corone* crows combined) has been highlighted, potentially leading to increased predation pressure, which could indirectly negatively impact some prey species which would partially counteract positive or benign effects of game management on wider biodiversity. Like many other aspects of game shooting and environmental impacts the situation is complex. Pringle et al.'s 2019 study concluded that:

> "Overall impacts of gamebird releases are likely to be determined by complex interactions between multiple factors, including induced predation pressure, better understanding of which would be possible with compulsory recording of releases and numbers of predators killed. Restriction of releases warrants further investigation and consideration as a potential conservation tool for wild bird populations." (Pringle *et al.*, 2019, p. 1).

It has been estimated that shooting is involved in management and conservation of two thirds of rural land at a cost of £250 million or £3.9 million work days (PACEC, 2014). However, opponents of shooting argue that much of this spend is subsidised greatly by the taxpayer in government grants (Cormack & Rotherham, 2014). The situation is complex. DGS receives no direct subsidies from Government. Preliminary research for this project indicated that many smaller, often syndicate shoots, are run on land holdings that have not applied to be part of either the Entry Level Stewardship, the Higher Level Stewardship or the Countryside Stewardship schemes (Department of Environment Food and Rural Affairs (DEFRA), 2005; UK Government, 2020b, 2020a). Any management of habitat, predation control, and supplementary feeding that is carried out is funded by the shoot members. However, some shooting does take place over either lowland farms or upland moors where a Stewardship scheme is in place. The operation of these schemes involves the landowner (or in some cases tenant) and some landowners/tenants are involved in DGS. Funding is received from government based on the achievement of stewardship objectives such as those of the previously funded Higher Level scheme (wildlife conservation; maintenance and enhancement of landscape quality and character; natural resource protection; protection of the historic environment; promotion of public access and understanding of the countryside) (Department of Environment Food and Rural Affairs (DEFRA), 2005), which could be regarded as both supportive of shooting (maintenance and enhancement of features such as hedgerows, promotion of public understanding of the countryside), and also detrimental to it (promotion of public access). It is important to highlight that driven game shooting is not the only activity that takes place on an area of land; rather it is one of a range of activities that landowners/tenants engage in for reasons of both financial return and personal enjoyment.

3.6.2 Biodiversity

The Royal Society for the Protection of Birds (RSPB) currently has over 12,000 volunteers (RSPB, 2018) and over 1 million members (RSPB, 2017) and these individuals, along with many other people throughout the UK, gain enjoyment through birdwatching, as recognised in the EU Birds Directive (European Commission, 2004), potentially a positive social impact. When groups of birdwatchers meet up to enjoy their shared pastime together they build a form of bonding social capital (Putnam, 2000). In March 2015 the RSPB recognised that well-run pheasant shoots can benefit wildlife (Glaister, 2015). Predator control and habitat management for DGS have been shown to have benefits to bird populations (Sánchez-García, Buner and Aebischer, 2015; Aebischer *et al.*, 2017). Loddington mixed arable farm was managed as a shoot from 1993 to 2002, combining habitat management with predator control until 2002 and winter grain provision until 2006. Results showed where predator numbers are high, as was the case at Loddington, increases in priority bird species could not be sustained without the predator control that had been provided by game shoots. The same was not the case where predator numbers were low in Hope Valley. This indicates that there is a positive benefit on priority bird species when habitats are managed for shooting utilising predator control (Aebischer *et al.*, 2017). Supplementary winter food for gamebirds can have a positive impact on songbirds as long as feeders are regularly relocated and that pests such as rodents, are controlled. (Sánchez-García, Buner and Aebischer, 2015). Songbirds have important roles in ecosystems that indirectly benefit humans, in regulating and maintaining the balance of the environment in which we live and impacting areas such as food production through controlling pests, pollinating plants and spreading seeds (Morante-Filho and Faria, 2017; Birdlife International, 2019).

Grouse moor management can also have a positive impact on songbird numbers. A 2014 study, which considered the impact of grouse moor management on other upland birds in the UK, found that driven shooting supported up to 10-fold more Golden Plover *(Pluvialis apricaria)*, five-fold more Northern Lapwing *(Vanellus vanellus)* and twice as many Eurasian Curlew *(Numenuis arquata)* than moors managed for walked-up shooting, which in turn supported more waders than moors with no grouse interest. On blocks where predators were controlled, Red Grouse, Golden Plover, Curlew and Lapwing were two to five-fold (Baines *et*

al., 2014). The study also found a reduction in the intensity of grouse management may benefit raptors, at the risk of a faster decline in upland breeding wader numbers (Baines *et al.*, 2014). A 2014 study by White et al. looking at 11 years of data found that predator reduction with habitat management can improve songbird nest success for common blackbird *(Turdus merula)*, common chaffinch *(Fringilla coelebs),* dunnock *(Prunella modularis),* song thrush *(T. philomelos),* and yellowhammer *(Emberiza citrinella)* but not common whitethroat *(Sylvia communis)* (White *et al.*, 2014).

Raptor numbers can also be positively impacted by management of land for shooting. Ludwig et al.'s 2017 study into long-term trends in abundance and breeding success of red grouse and hen harriers in relation to changing management of a Scottish grouse moor revealed positive impacts on hen harrier numbers. The study found that grouse and harriers can benefit from grouse moor management, if harriers are not persecuted (Ludwig *et al.*, 2017). However, restoration of grouse moor management, in combination with diversionary feeding of harriers, did not result in a sufficiently increased grouse density to allow driven shooting on Langholm Moor, the location of the study, and therefore this land management is not currently considered economically viable (Langholm Moor Project Demonstration Board, 2019). Illegal raptor persecution remains a concern and the BASC continue to work with shooting and countryside organizations, conservation bodies and the police to reduce it and to find a way to manage raptors legally, where they are impacting on other bird species negatively, through licensed killing of individual birds or their translocation for example (British Association for Shooting and Conservation (BASC), 2009).

In 2017 the Scottish government commissioned a review of the environmental impact of grouse management practices in Scotland, including managed heather burning (muirburn), mountain hare culls, use of medicated grit and issues such as illegal raptor persecution. The purpose of the review was to advise on licensing of grouse shooting businesses in Scotland (Scottish Government, 2017). Their final report, published in November 2019, recommended:

> "that a licensing scheme be introduced for the shooting of grouse if, within five years from the Scottish Government publishing this report, there is no marked improvement in the ecological sustainability of grouse moor management, as evidenced by the populations of breeding Golden Eagles,

Hen Harriers and Peregrines on or within the vicinity of grouse moors being in favourable condition."

(Grouse Moor Management Review Group, 2019, p. 8)

Previously declining game bird species of grouse and partridge have seen increased numbers through management for DGS and grouse moor management (Draycott, 2012; Ewald, Potts and Aebischer, 2012). In their 2012 study, Ewald, Potts and Aebischer noted that grey partridge numbers were in decline from the 1960s and only recently have their numbers increased as a result of managed game shooting. In Southern England partridge numbers have increased from 0.3 pairs/100 ha in 2003 to nearly 20 pairs/100 ha in 2010 on an area of just over 10 km2 (Ewald, Potts and Aebischer, 2012) and in Norfolk, where partridges within a 40 km2 study area in the county of Norfolk have been monitored in conjunction with the Game and Wildlife Conservation Trust (GWCT) since the 1950s, a programme of habitat creation initiated in 2001 has had positive impacts. Supplementary feeding and predation control was undertaken by the landowner, farmers and gamekeepers to restore partridges. The study found numbers increased from 4.7 pairs/km2 in March 2001 to 54 pairs/km2 in March 2011, which is comparable with densities prior to the national decline in grey partridge stock (Draycott, 2012).

The RSPB has been shown to have contradictory policies in relation to predator control practices and relocation of chicks via 'brood management', sometimes favouring the practice and at other times being against it (Game and Wildlife Conservation Trust (GWCT), 2018; Royal Society for the Protection of Birds (RSPB), 2018a). It is difficult to say whether or not these differing viewpoints are as a result of incoherent policies or different, diametrically opposed, views of individuals within the RSPB. The complexity of the issues involved and the different statistics used shows how measurement in a bureaucratic and rationalised manner as highlighted by Weber (Weber, 1905; Elwell, 2018) can make an unbiased analysis difficult, when such passionate advocates for and against an issue exist. It can lead to each party 'cherry-picking' statistics to meet their needs.

3.6.3 Heather Burning, Flooding and Climate Change

Grouse populations have been increased via management of moorland including both predator control and heather burning (Baines *et al.*, 2014; Fletcher, Newborn and Baines, 2014; Ludwig *et al.*, 2017). Heather burning is a controversial topic that has both potential positive and negative social impacts (Fletcher, Newborn and Baines, 2014; Lester, 2014; University of Leeds, 2014; G. S. Robertson *et al.*, 2017; Ludwig *et al.*, 2017). Heather burning is used to provide improved habitat for grouse breeding and it allows the distinctive purple heather landscape that can be seen in the northern parts of the UK to be maintained. Without burning, the North Yorkshire Moors, for example, would be a very different landscape with far fewer flowers and more 'woody' heather plants, which would impact a variety of species (North York Moors National Park, 2018). Managed heather burning (muirburn) reduces fuel load and creates fire breaks, potentially reducing wildlife risk, which will vary regionally and depend on climate and visitor pressure, both of which are expected to increase the prevalence and intensity of wildfire in future (Fletcher, Newborn and Baines, 2014). Wildfires can have impacts on both humans and wildlife. A recent wildfire on the Isle of Rum indicates just how much damage a wildfire can do and how fast it can spread (BBC, 2018a).

Robertson et al (2017) completed a study into whether rotational heather burning increased red grouse abundance and breeding success on moors in northern England. In total, 36 moors in northern England which practiced driven grouse shooting and employed full-time gamekeepers to burn heather, but also to control generalist predators of grouse and their parasitic nematode worms, were investigated. They found that higher grouse breeding success and post-breeding density were likely to be associated with a more varied vegetation structure following burning. But also noted that potential benefits of burning for increasing grouse breeding success and post-breeding density need to be considered carefully against any likely impacts on ecosystem services, particularly in areas of blanket peat (G. S. Robertson *et al.*, 2017). A 2014 study by the University of Leeds, which measured the impact of heather burning over a five year period, found that the water table level was lower in areas that had been burnt, drying out the moorland and releasing stored pollutants, such as heavy metals, into water courses and carbon into the atmosphere (University of Leeds, 2014), a negative social impact in the form of climate change and potential river pollution. This study has been

criticised however, as it did not consider the impacts if burning stopped, as it could be argued that not burning heather could result in uncontrolled wildfires which could be more damaging (Lester, 2014).

Organisations against shooting have expressed concern over possible increased risk of flooding downstream from land managed for grouse shoots as a negative social impact (University of Leeds, 2014). A report commissioned by the RSPB in 2012 found that evidence for flooding being negatively impacted by land management for game shooting purposes was inconclusive. It noted that drainage and land management can be found to have both positive and negative impacts on water flows and associated flood risk (Grant *et al.*, 2012a). It concluded that it is "difficult to disentangle the multiple and interacting effects of grazing, burning, drainage and habitat restoration on water flows without conducting further research at multiple scales" (Grant *et al.*, 2012a, p. 7). Again, an indication of how complex issues cannot always be rationalised to directly measurable statistics.

Some aspects of land management associated with game shooting, such as the creation of beetle banks[16], which have been proven to have a positive impact on grey partridge numbers (Ewald *et al.*, 2010), and provision of winter bird food can help reduce flooding as they can "slow the pathway for water entering watercourses by ensuring that more vegetation is present (and at an advantageous orientation) compared with typical cropping regimes" (Defra, EAFRD and Natural England, 2016, p. 2).

3.6.4 Lead shot

The use of lead shot in DGS is another controversial area. In some European countries such as Denmark (Kanstrup *et al.*, 2016) Norway and the Netherlands lead shot has been banned completely. However, Norway (where the use of shotguns in woodland is much lower than

[16] A ridge or bank made or set aside on cultivated land (and often sown with perennial grasses) to provide a suitable habitat for insects (especially aphid-eating beetles) and other creatures which prey on crop pests (Oxford Dictionary, 2018a)

in the UK (Game and Wildlife Conservation Trust (GWCT), 2020c)) voted to reverse its ban in 2015 (Ares and Baker, 2015), predominantly on animal welfare grounds due to the insufficient lethality of non-lead rifle ammunition available at the time (Game and Wildlife Conservation Trust (GWCT), 2020c). The use of lead shot in wetlands, over all foreshore, over specified SSSIs, and to shoot ducks, geese, coot and moorhen is forbidden, but in all other areas of Scotland, England and Wales the use of lead shot is legal (BASC, 2018).

Lead has been proven to have negative health impacts (Pain *et al.*, 2010) and whilst careful butchering can minimise exposure to lead, some argue that there could be a risk that birds ingest shot whilst feeding (Quy, 2010) and the Food Standards Agency (FSA) notes that to minimise risk, lead shot game should not be eaten too frequently (FSA, 2015). Pain et al. (2010) completed a review of the evidence observing that the risk of lead in the diet for UK consumers eating gamebirds had been previously assessed as low (Pain *et al.*, 2010). Many foodstuffs contain lead absorbed from the environment. The European Commission (2018, para. 3) note that "cereal products and grains, vegetables (especially potatoes and leafy vegetables) and tap water are the most important contributors to lead dietary exposure in the general European population…….Consumer groups with higher lead exposure levels include high consumers of game meat and of game offal". In line with many other higher risk foodstuffs, such as raw eggs and undercooked meat, the National Health Service (NHS) advise not eating game that has been shot using lead when pregnant (NHS, 2018), as lead consumption can affect the development of a baby's brain and nervous systems.

There are non-lead alternatives, currently used in countries where lead shot is banned, which could be used to mitigate this negative environmental and indirect social impact. These lead-free alternatives have been found to be as effective as lead in their ability to kill wildlife as painlessly as possible and represent a suitable alternative to traditional lead ammunition (Trinogga *et al.*, 2013), however concern has been expressed that the most effective lead shot alternatives are up to four times more expensive and that even they may not be suitable for use in antique shotguns (Shooting Times, 2013).

Following a review of the evidence in a report from the Lead Ammunition Group (Lead Ammunition Group, 2015; Swift, 2015), in 2016 the UK government decided not to impose a nationwide ban on lead ammunition, with MP Liz Truss noting that the impacts of lead ammunition were not significant enough to change the current policy (Department of Environment Food and Rural Affairs (DEFRA), 2016). Again, this issue of lead ammunition use in such a controversial area has led to cherry-picking of statistics and research to match each side's argument, of which a thorough review was required by the government. On 24th February 2020 shooting industry representatives issued a joint statement between The British Association for Shooting and Conservation (BASC), British Game Alliance (BGA), Countryside Alliance (CA), Country Land and Business Association (CLA), Game and Wildlife Conservation Trust (GWCT), National Gamekeepers' Organisation (NGO), the Moorland Association (MA), Scottish Land & Estates (SLE) and Scottish Association for Country Sports (SACS) of their wish to see a phasing out of lead and single use plastics in ammunition used to shoot live quarry with shotguns within five years (British Association for Shooting and Conservation (BASC), 2019) and their intention to work with members to achieve this ambition.

3.6.5 Anti-microbial Resistance (AMR)

Game birds are susceptible to a wide range of diseases and it is important to minimise the spread of these diseases, amongst both game birds themselves and other species, through the use of careful monitoring of birds, good husbandry, hygiene and antibiotics where appropriate (Animal and Plant Health Agency (APHA) Avian Expert Group, 2015). The threat of antimicrobial resistance (AMR) through the overuse of antibiotics, the emergence of infections that are resistant to antibiotics, poses a threat to our future ability to treat infections in human patients (Davies, 2011). The government has produced a strategy to work with both the agricultural sector (including game bird rearing) and the health sector to reduce antibiotic usage and help mitigate this risk (Department of Health and Department for Environment Food and Rural Affairs, 2013). The GWCT has been working together with the many other bodies involved in reducing antibiotic usage to the absolute minimum to combat this potential negative, social impact. Last year the game industry achieved a greater reduction in usage than its target of 25% at 36% reduction in just one year, and the use of

antibiotics in game feeds was reduced by 53%, with organisations within the sector aiming to reduce antibiotic usage by another 25% by the end of 2020 (BASC *et al.*, 2018).

3.6.6 Soil Quality

Intensive farming can reduce soil quality and therefore harm crop production, which could have a negative social impact on people via increased food prices and potentially lower food quality. There is some evidence that cover crops planted for DGS can mitigate this impact. A 2017 study found that cover crops were found to improve soil structure, reduce erosion, increase soil organic matter, potentially provide black-grass control and increase nutrient availability for future crops (Crotty and Stoate, 2017). In a study on the effects of cover crops on phosphatase activity in a clay arable soil in the UK, Reynolds et al. (2017) found that cover crops could be a potential means to enhance soil phosphorus cycling. The presence of a cover crop affects soil phosphatase enzymes, with this effect appearing to be species-dependent and not dependent on the amount of biomass from the cover crop (Reynolds *et al.*, 2017).

3.7 Conclusion

This chapter has given a history of DGS to its current position and explained the key roles relating to the sport. The chapter has outlined the evidence gap relating to the social impacts of participation in DGS, highlighting the lack of rigorous measurement and statistical testing in previous studies. Furthermore, it has shown that previous studies into the social impact of shooting have not defined social impacts or followed a recognised social impact assessment process (described in more detail in Chapter 2 and in relation to this study in Chapter 4), relying on opinion data not subjected to rigorous, statistical comparative analysis with existing national datasets. It has explored how the research relating to the economic and environmental impacts of DGS relate to social impact factors and how this research can be used by those both for and against DGS to justify their position, highlighting the way that reliance on statistics can limit innovation and that statistics can sometimes be 'cherry-picked' and used by parties with diametrically opposing views to support different arguments. It has illustrated that in addition to the more easily quantifiable economic impacts there are also 'off balance sheet' benefits, in the form of social capital structures and support networks

available to be activated via the 'causal mechanisms' of a need arising, for example when advice in a particular area of life of support in a time of need is required. The self-esteem and mental well-being benefits gained from being part of a group, in line with identity theory as explored in the Chapter 2, section 2.2, are also previously unmeasured impacts. These are often neglected by government and policy makers as they are not easily quantifiable in a rational manner in line with traditional bureaucratic processes.

This chapter has shown that this study provides a unique contribution to the evidence base on DGS's social impacts, by identifying the social impact(s) that participation in DGS has on the people involved in it (not just guns, beaters and pickers up, but also the wide network of people whose lives are affected), using rigorous, comparable scales for quantitative data collection (see Chapter 4, section 4.6.2) and following a recognised SIA methodology (see Chapter 2 and Chapter 4, section 4.4, Figure 4.1). These aspects were shown to be lacking in the existing research base, as noted in this chapter, highlighted in the impacts of shooting evidence review by National Resources Wales (Hillyard and Marvin, 2017; Natural Resources Wales, 2017). The need for further research into social impacts was also supported by the League Against Cruel Sports funded review of the PACEC 2006 and 2014 report (Cormack & Rotherham, 2014).

This study is the first research to consider the social impacts of DGS in full, utilising the recognised GECES Social Impact Assessment method (Clifford, Hehenberger and Fantini, 2014; Hehenberger, Harling and Scholten, 2014), explored in Chapter 2, to produce a framework for future use in evaluating the social impact of shooting. It particularly considers impact on individuals' health and well-being as a social impact of participation, an area that has been considered in measuring outcomes for children and young people (Paterson-Young, Hazenberg and Bajwa-Patel, 2019), but not for older people, which this study has shown form the majority of DGS participants (see Chapter 6, section 6.2 and Chapter 7, section 7.3.1). The potential areas of benefit identified in the form of mental and physical well-being (see also Chapter 2, section 2.2), which were also featured in earlier studies in the impacts of DGS participation, are measured in this study using a recognised and tested well-being scale (see Chapter 4, section 4.6.2) allowing comparison to national data for well-being via rigorous,

statistical analysis. Physical exercise frequency and distance completed data was also gathered in this study, providing stronger data to support physical health benefits of participation identified in earlier studies. This study therefore represents an original and needed contribution to knowledge.

It could be argued that a good SIA should use appropriate proxies to properly quantify these 'off balance sheet' and often intangible resources, perhaps utilising social capital theory, particularly relating to identity and health and well-being, whose relevance to this study is outlined in Chapter 2. This study attempts to design a method of measuring the full social impact of DGS including these valuable, intangible impacts and Chapter 4 outlines the methodology for exploring the social impacts of DGS in this study.

Chapter 4 - Methodology

This chapter first considers the epistemological and ontological approaches for this study, confirming which approach was taken and why this was the most suitable. It then sets out the research aims and objectives of this study and the justification and motivation for the research, including a review of the methods utilised in the other limited studies considering the social impacts of DGS. After this, the chapter sets out the research methods used for this study including secondary data collection via the contextual literature review, the primary data collection methods, sampling, data analysis, triangulation and framework development. The chapter concludes with the ethical considerations for this study.

4.1 Epistemology and Ontology

The combination of ontological assumptions and epistemological assumptions are the key features of the approach to research in any study and constitute the research paradigm under which the study is being undertaken (Blaikie and Priest, 2017). Ontology can be defined as "A theory of the nature of social entities" (Bryman, 2001, p. 505). It relates to the nature of reality; how the world operates, how we see reality and how this influences peoples' behaviour. Once their position on social reality is understood, social researchers need to define another set of assumptions, epistemological assumptions, that indicate how knowledge of this (assumed) social reality can be obtained and decide on the best way to obtain the knowledge necessary to answer research questions (Blaikie and Priest, 2016: 23). Epistemological assumptions can be defined as "what constitutes valid knowledge in the context of the relationship of the researcher to that being researched" (Collis J, Hussey, 2009, p. 334).

Objectivism is an ontological approach developed by Ayn Rand, a Russian American writer, In the 1940s and 1950s, which proports that reality is separate from and unaffected by consciousness and that humans can experience reality from an objective standpoint and rejects the notion that human consciousness impacts in any way on reality (Bryman, 2001). Objectivists usually adopt a positivist epistemology (Saunders *et al.*, 2009). Positivists are

more likely to adopt a deductive approach to research, defining theories and hypothesis for investigation via empirical methods, utilising predominantly quantitative methods (Bryman, 2001). Positivists strive to maintain a value free research position and measurement is controlled, making results more easily generalisable and, in theory, able to be replicated, although this is difficult in social sciences (Bryman, 2001). While a purely positivist, objective approach could have been adopted in this study, this tactic would have failed to capture the depth of the impact on certain individuals. Hasan, (2016) argues that positivism can aid our understanding of the contemporary social world in certain circumstances and is most suited for large-scale social surveys or for providing descriptive information about the social world. In this research project, this approach could have been used to fully understand the demographics of those engaged and to understand wider social impacts of participation by using statistical data, such as the costs of long-term conditions, which may be avoided via engagement in the activities being investigated.

Constructivism (also known as subjectivism) opposes objectivism. Constructionists believe reality is constructed by individuals depending on their perception and social experience and that there is no single reality or truth. The constructionists' view of reality allows for maximum understanding of all perceptions of reality within a research project, usually adopting an interpretivist epistemology (Saunders *et al.*, 2009; LeCompte and Schensul, 2010). Interpretivists are more likely to adopt an inductive approach to research, first collecting data and developing theories for analysis, utilising predominantly qualitative research methods (Bryman, 2001; Saunders *et al.*, 2009). Interpretivists insist that research can never be value/bias free and that the researcher must recognise the impact of their personal views, background and culture on the research activities (Saunders *et al.*, 2009). For this study an approach could have been taken to reject statistical analysis and concentrate purely on qualitative research, adopting a constructionist approach within an interpretivist epistemology (Saunders *et al.*, 2009). The interpretivist approaches highlights human intentionality as a key determinant of behaviour in addition to other internal and external causal factors (Packard, 2017), which is relevant in this study as the question of why people engage in the activity is of central interest. However, interpretivists do not accept abstract concepts such as organisations, social groups and structures as ontologically real entities

(Packard, 2017), which would have proved problematic in this study, as it considered social networks and structures built via participation. Instead a recognition of the social groups and structures created through engagement in the activity needed to be acknowledged, whilst accepting each participant may have a different understanding of this reality. A constructionist approach, within an interpretivist epistemology, would have offered depth of understanding of the complex actions of social members and capture the multiple realities of the society (Hasan, 2016), with key impact themes potentially identifiable. However, it would have failed to capture the quantitative impacts of the activity, which could be argued as being key to understanding the full impact on both individuals and society as a whole and for identifying areas for future study. In addition, within a capitalist society such as the UK's in which we are trapped in a restrictive bureaucratic system as envisaged by Weber (Weber, 1905; Merz, 2011), where success can only be measured by statistics, some form of quantitative research is necessary to enhance the 'value' of the study. Therefore, we must consider for example, not only what the cost-savings are, but also the cost, both financial and human (which may also be shown to have a knock-on financial cost within society), of changing the current position.

A critical realist approach appears to overcome the shortcomings of both the objectivist, positivist and constructionist, interpretivist approaches noted above. This approach seeks to explain the independent, underlying causes or generative mechanisms which may themselves be unobservable directly (Mingers, 2006). Critical realism was introduced by American philosopher Sellars (1880–1973) to demonstrate the insufficiencies of both phenomenalism "The doctrine that human knowledge is confined to or founded on the realities or appearances presented to the senses" (Oxford Dictionary, 2018) and realism. He proposed that the mind plays an ineliminable role in how it is that one knows reality and that the objects of knowledge are independently existing entities and states of affairs, not simply ideas, though it is the case that one comes to know these objects only through sensory and cognitive processes (Sellars, 1916). One of the most widely-cited critical realists was Bhaskar, who insisted that we must understand what the world is like for us to have knowledge of it (Bhaskar, 2008). Porpora, (2015, p. 78) notes that "although social constructionists differ among themselves, to varying degrees they all think (1) that we can never know the

ontologically real object in and of itself but only our constructions of it, and (2) that because our constructions of reality differ culturally, truth itself is relative, and we all virtually inhabit different worlds that we ourselves construct". Critical realists reject this idea, accepting there is always an actual truth; however, they are critical of peoples' ability to understand the world with certainty. In line with pragmatist ontology, they advocate use of the most appropriate methods, but as with objectivist ontology they recognise reality exists. However, their ontology is wider than an objectivism ontology and recognises reality can sometimes be empirically measured, unlike a constructionist ontology. Bhaskar proposes reality is both intransitive (existing independently of humans) and stratified—i.e. hierarchically ordered (Bhaskar, 2008). Fleetwood (2013) proposes four modes of reality in critical realism: material reality (e.g. oceans, planets), ideal reality (discourse, language, beliefs), social reality (organisations, social structures), and real artefacts (e.g. buildings, tools). Critical realists accept that theories, background, knowledge and values of the researcher can influence what is observed (Mingers, 2006).

To answer the question 'What is the Social Impact of participation in DGS?' the researcher must recognise the study is considering impacts on humans, whom are not empirical, robotic beings, individually they react and perceive things differently. Measuring social impacts involves attempting to place an objective value on something which is subjective and the realities being measured are not all purely empirical, although some can be measured empirically, such as numbers of individuals involved in an activity and how often they participate. This study approaches the assessment of the social impacts of DGS from the theoretical standpoint of social capital theory and identity theory. Why do people engage in DGS? Realists and objectivists may argue that when individuals take part in an activity it is for the happiness of the participants alone, and the simple act of taking part and getting paid is the reality of the activity whereas constructionists could argue that when attending the activity, individuals, are not just engaging in the activity itself, but also building friendships and support networks and that each individual taking part experiences the activity differently and therefore perceives a different reality (Driscoll, 2000). This study recognises that both these statements might be true, indicating a critical realist approach, combining both the

observable and empirical impacts and the participant understanding and perception of the activity and its impacts, is most suitable.

Early social impact measurement studies tried to quantify impacts using Social Return on Investment models (SROI), a predominantly positivist approach, although including outcomes which can be subjective (Nicholls, 2009). However, these failed to capture the wider social impacts recognised as important in Social Impact Assessment in a 2013 study by Clifford, Markey and Malpani. The GECES method of social impact assessment utilises a mix of output, outcome and impact measures with adjustments applied for deadweight (what would have happed anyway), but with additional adjustments for alternative attribution (deducting the effect achieved by the contribution and activity of others) and drop-off (allowing for the decreasing effect of an intervention over time). The GECES framework provides a basic set of criteria that can be adapted over time and to fit local criteria to allow for a more effective 'bottom-up' grassroots approach (Clifford, Markey and Malpani, 2013) to designing evaluation (Clifford, Hehenberger and Fantini, 2014). Outputs are clearly quantitative measures in line with a positivist approach, but outcomes have been measured using tools like general self-efficacy (GSE) questionnaires (Schwazer and Jerusalem, 1995; Denny *et al.*, 2011; Hazenberg, Seddon and Denny, 2015). These questionnaires attempt to apply an objective number to explain the view of reality i.e. the self-efficacy of a programme and its impact on the participants involved. Scales such as those measuring self-efficacy are interesting as they seek to measure a socially constructed phenomenon utilising positivist approaches (Schwarzer, 2014). The Edinburgh Warwick mental well-being scale, and its verified shortened version, is another example of this approach, and this study utilises the short Warwick Edinburgh mental well-being scale (SWEMWBS) as part of its stage 2 questionnaire.

The study adopts a critical realist approach, recognising that structures exist separate from individuals, which can be influenced by different personal perceptions and can be created by human agency. The study recognises that the activity of DGS and its direct impacts are real, but that the perception of these impacts and their benefit will differ between participants

(shared values, identity, personal well-being), which is a key aspect of research approached from a critical realist perspective. The social structures created, such as groups of friends in a social support group or network, may be 'real' but as yet not activated by a causal mechanism. The 'value' of the social structure or social network as a potential resource ready for activation is captured via the social impact measurement framework developed. The study explored why people engage in the activity and what impact this has both on them and wider society, including those outputs, outcomes and impacts that may have appeared initially unobservable, therefore, a critical realist, mixed methods study was the most appropriate and valid approach.

4.2 Research Aims and Objectives

This study assesses the social impacts of participation in DGS by aiming to answer the following research questions:

- To what extent does DGS create social impact through the creation of social capital and reinforcement of identity?
- How does the type and size of shoot mediate social capital and identity development?
- How can these social impacts be valued and compared in the future?

The objectives are to fill the gap in the evidence base identified in Chapters 2 and 3; to explore the sociological aspects of engaging in shooting, a recognised under-researched area (Hillyard and Burridge, 2012; Hillyard and Marvin, 2017), utilising a recognised social impact assessment process; and to propose a method for measuring and comparing these social impacts in future.

4.3 Research Methods

As discussed in section 4.1, this study adopts a critical realist approach. The epistemological and ontological stance of the researcher is instrumental in the choice of research methods. Critical realist studies frequently take a mixed methods approach (Easton, 2010; Fletcher, 2017) to allow exploration of both directly observable reality and the social structures created

by human agency, not directly observable but still in existence, yet to be activated via causal mechanisms (Sayer, 2010; Zachariadis *et al.*, 2010). It has also been argued that a mixed methods approach is suited to social capital research, due to the complex nature of relationships explored and their nuances, which cannot be effectively explored by either quantitative or qualitative methods alone (Rao, 2002; Dudwick *et al.*, 2006). Table 4.1 shows a summary of the main epistemological and ontological approaches to research:

Epistemological approach	Likely Ontology	Methodology & Main Methods
Positivism	Objectivism: there is a single truth or reality	Deductive approach Experimental research & surveys Quantitative methods predominate Measurement and scaling Replicate-able results Statistical analysis
Critical Realism	'Stratified Reality' A mix of objectivism and constructivism. Recognising an objective reality exists but that we must also understand what the world is like for us to understand and have knowledge of it	Most appropriate. Mixed methods Start with some assumptions. Qualitative and quantitative e.g. Use of surveys combine surveys with both closed and open ended survey questions Link to statistical analysis Case studies Observations/reflective diary entries
Interpretivism	Constructivism: There is no single reality or truth. Reality is created by individuals and groups.	Inductive approach Qualitative methods predominate Ethnography Grounded Theory Phenomenology Case Studies Narrative research Discourse analysis

Table 4.1 The main epistemological and ontological approaches to research & preferred methods.

Taking a mixed methods approach, which can allow social scientists to be more confident of their findings (Dudwick et al., 2006; Rao, 2002, Webb et al., 1966; in Bryman, 1988), this study used a mix of observations to write a reflective diary and observations/case studies, semi-structured interviews and a wider questionnaire data-set. The study combined methods used in previous social impact assessment studies (Sairinen and Kumpulainen, 2006; Denny *et al.*, 2011; Paterson-Young *et al.*, 2017; Hazenberg, Bajwa-Patel and Giroletti, 2018; Paterson-Young, Hazenberg and Bajwa-Patel, 2019) with the positive aspects of both the PACEC reports on the overall benefits of shooting (Public and Corporate Economic Consultants (PACEC), 2012, 2014a), which incorporated case studies, and the wide reach of the BASC Personal Value

of Shooting Report (British Association for Shooting & Conservation (BASC), 2016). Mixed methods studies can allow triangulation of results and improve validity if the results show mutual confirmation (Bryman, 1988). Previous studies in similar areas using a critical realist approach have focussed on between 4-10 case studies (Easton, 2010) and utilised 30 semi-structured selected participant interviews and three background interviews with secondary data analysis (Fletcher, 2017). The use of case studies can enhance statistical data by contextualising the reasons for engagement with an activity and the full impact on individuals involved and is useful if the boundaries between the phenomenon under investigation and the context are unclear (Cundill *et al.*, 2014). This can also uncover wider social impacts within society and further areas for investigations.

This research was cross-sectional, with the observational and case study data and the associated semi-structure interviews collected during the August 2018 to February 2019 shoot season and the questionnaire data collected between May and July 2019. A longitudinal study was inappropriate, as many participants have been shooting for decades and a group of people new to shooting could not be identified. A pilot study of seven semi-structured interviews was combined with the literature review research, reflective notes from visits to two shoots of different types (small commercial and DIY small syndicate) and informal conversations with key stakeholders. Preliminary results revealed a number of theme areas around social capital, identity, the social determinants of health and other areas relating to health and well-being, which were used to confirm the design of the semi-structured interview schedules and the appropriateness of the stage 1 methodology. The pilot study also allowed definition and then refinement of the research questions to their final format.

This study followed the GECES five stage process: identify objectives; identify stakeholders; set relevant measurement; measure, validate and value; report, learn and improve (Clifford et al., 2014; Hehenberger et al., 2014), as outlined in Figure 4.1.

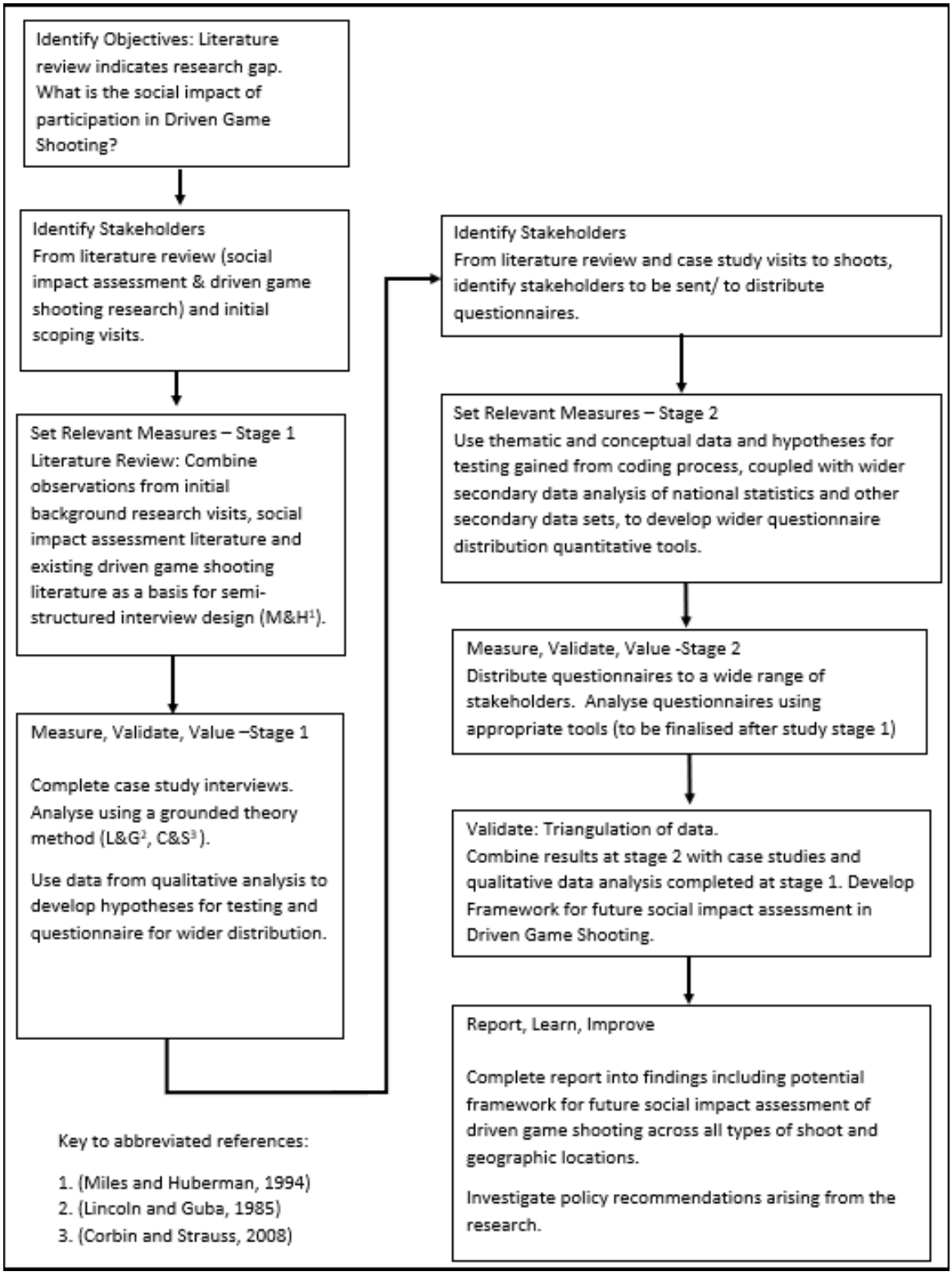


Figure 4.1 GECES aligned (Clifford, Hehenberger and Fantini, 2014) process for this study

4.4 Justification and Motivation for the Research

As noted in section 2.6 in Chapter 2 and in Chapter 3, a clear gap in the evidence base can be seen in relation to the social impacts of DGS. There have not been any robust academic studies looking at the social impacts of either DGS or shooting as a whole. The most relevant study found in relation to social impacts of participation in DGS was a cross-sectional survey of approximately 16,000 individuals, carried out by the British Association for Sporting and Conservation, entitled 'The Personal Value of Shooting' (British Association for Shooting & Conservation (BASC), 2016). It used self-scoring, in the same way as the study by Denny *et al.*(2011). It gathered scores in a number of areas such as social contacts (social capital), identity and health and well-being, but it failed to capture the depth of impacts. BASC later attempting to 'value' some of these benefits in monetary and life-saving terms using proxies via a similar method to Natural England (BASC, 2016). As noted in Chapter 2, wider impacts can be illustrated in case studies, in a similar way to the economic benefits, which include the availability of training and skilled employment a factor in economic and social justice, illustrated in the case studies produced by PACEC in their Exmoor study (Public and Corporate Economic Consultants (PACEC), 2012) and their wider shooting study (Public and Corporate Economic Consultants (PACEC), 2014a). Only two pages of this report were dedicated to social impacts. The League Against Cruel Sports funded reports critiquing this 2014 PACEC report, and an earlier similar report from 2006 questioned the interpretation and extrapolation of statistical data. The last independently funded research into DGS identified by the researcher took place as part of an ESRC study in 1996, considering game management and property rights: implications for the rural economy, the environment and social relations (Cox *et al.*, 1996; Cox, Watkins and Winter, 1996b, 1996a). Bias is a key issue with the most recent reports on shooting's impact. When organisations and/or individuals are for or against an activity, figures can be cherry picked by those for or against a cause. This study deliberately avoided sponsorship and engaged a researcher with no experience of game or clay shooting to ensure an independent position could be maintained.

None of the recent existing studies followed a recognised social impact assessment (SIA) methodology. This study uses the GECES recognised social impact measurement process to an assessment of the social impact of participation in DGS (Hehenberger, Harling and

Scholten, 2014). A review of social impact assessment studies on NELSON revealed studies in diverse areas such as rural broadband (Rampersad and Troshani, 2013), leisure centre impact (Hazenberg, 2018), the youth criminal justice sector (Paterson-Young *et al.*, 2017) and canals and waterways impact (Hazenberg and Bajwa-Patel, 2014) had utilised frameworks for measurement of social impact, a recommendation of the GECES group to enable comparability (Hehenberger, Harling and Scholten, 2014).

In terms of social impacts within existing reports on the impacts of shooting, key themes identified for further research related to relationships, identity and health and well-being, as detailed in Table 3.3 in Chapter 3. It is widely recognised that there is a lack of common theoretical underpinning to social impact assessment (Dietz, 1987; Becker and Vanclay, 2003; Aledo-Tur and Domínguez-Gómez, 2017). This study uses social capital linked to identity and health and well-being, based on the preliminary stakeholder engagement and a review of recent, existing studies to provide an SIA with a clear, theoretical grounding.

It is also important to consider the researcher's personal motivation for this study. The researcher worked as Business and Research Consultant since 2004 and has been an NHS Clinical Commissioning Group lay board member from 2013 to 2020. This time spent working in a constrained financial environment highlighted the wider impact of cuts to services considered 'unnecessary', as an immediate saving cannot be realised from them. A greater focus within the NHS on system based health and care is a step towards consideration of not only potential cost savings to be realised via not continuing any activity, but also what the cost of doing nothing or hindering access to certain activities may be in the longer term. The inclusion of self-care in the NHS Long-term Plan (Alderwick and Dixon, 2019; National Health Service (NHS), 2019) highlights the importance of the 'hidden' impact of activities to people's health and well-being, and what impact the discontinuation of these activities has not only on the individual, but also to wider society, both financially and in terms of quality of life.

4.5 Secondary Data Collection – Context

This section considers the context of the study through a review of social impact assessment, its history, development, theoretical underpinning and application with an overview of the existing, limited research into DGS and its impacts, much of which is accused of bias. Once a suitable theoretical underpinning for the social impact assessment of DGS had been identified the researcher was able to plan a social impact assessment (SIA) methodology in line with recognised SIA processes.

4.5.1 Driven Game Shooting

As the researcher had never been involved in DGS, the first step entailed developing an understanding of the history, context and practice of DGS, as detailed in section 3.1 of Chapter 3. Online resources were limited or of commercial nature, with only one relevant journal article being sourced (Martin, 2011), therefore two books were acquired for this purpose:

- The Big Shots, Edwardian Shooting Parties by J Garnier Ruffer (1978)
- Game Shooting: An Illustrated History by D S D. Jones (2015)

A selection of information leaflets provided by the British Association Shooting and Conservation (BASC) proved useful in gaining an understanding of the sport as it stands today (British Association for Shooting and Conservation (BASC), 2009; British Association for Shooting & Conservation (BASC), 2010, 2011). Utilising the key words 'Driven Game Shooting' and 'shooting social impacts' the Northampton Electronic Library Online (NELSON) service did not provide any results but a subsequent search of Google and Google Scholar revealed three key reports: an exploration of the personal value of shooting and two reports reviewing the economic, environmental, and social benefits of shooting sports in the UK overall and in Exmoor, all funded by the shooting industry (Public and Corporate Economic Consultants (PACEC), 2012, 2014a; British Association for Shooting & Conservation (BASC), 2016). The researcher also sourced a review of one of these reports, along with an earlier report by the same authors, sponsored by the League Against Cruel Sports, which disagreed with the interpretation of the data and the statistical extrapolations regarding financial benefits (Cormack & Rotherham, 2014). This highlights an issue of bias within this contentious

research area where opposing voices in an argument can manipulate statistics to suit their argument. During the review period, National Resources Wales (NRW) was completing a consultation into shooting over its land. This evaluation provided several resources for research (Committee of Inquiry into Hunting with Dogs, 1999; Ward, 1999; Milbourne, 2003; Bicknell *et al.*, 2010; Callegari *et al.*, 2014; Lead Ammunition Group, 2015)

A search using NELSON revealed only three articles relating to the rural identity and the sociological aspects of shooting, one of which was co-authored by an Dr S Hillyard, who was co-author of the NRW consultation evidence evaluation (Heley, 2010, 2011; Hillyard and Burridge, 2012). The economic impacts of shooting, which had been explored in depth by both the NRW consultation and the previous shooting industry funded reports, were reviewed and linked to social capital and the social determinants of health where applicable as summarised in Chapter 3 section 3.5.

The lack of game shooting research papers led to the researcher reviewing earlier works via the reference lists of identified studies and searches on the key works of authors. This led to the discovery of what appears to be the last, independent, unbiased study involving game shooting which published a number of reports as part of an ESRC study looking into game management and property rights: implications for the rural economy and social relations (Cox *et al.*, 1996; Cox, Watkins and Winter, 1996a, 1996b).

There is a large body of research into the environmental impacts of DGS, some of which has been carried out by the GWCT. The 245 research papers listed on their website for 2012 to 2017 were reviewed, revealing an initial 12 key papers of significance specifically relating to land management for DGS. To ensure that no potential negative impacts were missed and bias was minimised, the researcher also checked the RSPB and the League Against Cruel Sports websites to identify any themes around environmental impacts that may not have been identified, sourcing any academic works referred to and reading them directly for the purposes of the study. Environmental impact areas reviewed included countryside

management and biodiversity (European Commission, 2004; Sage *et al.*, 2009, 2018; British Association for Shooting and Conservation (BASC), 2009, 2018c; Bicknell *et al.*, 2010; Defra, 2011; Martin, 2011; British Association for Shooting & Conservation (BASC), 2011; Draycott, 2012; Draycott *et al.*, 2012; Ewald, Potts and Aebischer, 2012; Callegari *et al.*, 2014; Cormack & Rotherham, 2014; Baines *et al.*, 2014; Public and Corporate Economic Consultants (PACEC), 2014a; White *et al.*, 2014; Wolton *et al.*, 2014; British Association for Shooting and Conservation (BASC) and Natural England, 2015; Gethings, Sage and Leather, 2015; Glaister, 2015; National Trust, 2015; Neumann *et al.*, 2015; Sánchez-García, Buner and Aebischer, 2015; Whiteside, Sage and Madden, 2015; Gethings *et al.*, 2016; Aebischer *et al.*, 2017; Ludwig *et al.*, 2017; Morante-Filho and Faria, 2017; P. A. Robertson *et al.*, 2017; Royal Society for the Protection of Birds (RSPB), 2017, 2018a; Scottish Government, 2017; British Game Alliance, 2018; Avery, 2018; Game and Wildlife Conservation Trust (GWCT), 2018, 2020d; BASC *et al.*, 2018; Starkey, 2018a, 2018b; Stephens, 2018; Aebischer, 2019; Capstick *et al.*, 2019; Capstick, Sage and Hoodless, 2019; Grouse Moor Management Review Group, 2019; Langholm Moor Project Demonstration Board, 2019; Pringle *et al.*, 2019; Birdlife International, 2019; UK Government, 2020a, 2020b; Wild Justice, 2020), lead ammunition (Quy, 2010; Pain *et al.*, 2010; Shooting Times, 2013; Trinogga *et al.*, 2013; Ares and Baker, 2015; Swift, 2015; Food Standards Agency (FSA), 2015; Lead Ammunition Group, 2015; Department of Environment Food and Rural Affairs (DEFRA), 2016; Kanstrup *et al.*, 2016; European Commission, 2018; National Health Service (NHS), 2018a; British Association for Shooting and Conservation (BASC), 2019; Game and Wildlife Conservation Trust (GWCT), 2020c), heather burning, flooding and climate change (Ewald *et al.*, 2010; Murray C Grant *et al.*, 2012b; Baines *et al.*, 2014; University of Leeds, 2014; Fletcher, Newborn and Baines, 2014; Lester, 2014; Defra, EAFRD and Natural England, 2016; G. S. Robertson *et al.*, 2017; Ludwig *et al.*, 2017; BBC, 2018a; Oxford Dictionary, 2018a; North York Moors National Park, 2018), soil quality (Crotty and Stoate, 2017; Reynolds *et al.*, 2017) and anti-microbial resistance (Davies, 2011; Department of Health and Department for Environment Food and Rural Affairs, 2013; Animal and Plant Health Agency (APHA) Avian Expert Group, 2015; BASC *et al.*, 2018).

Shooting birds for sport is a controversial topic and is often in the news, therefore, a number of magazine and newspaper articles, predominantly on websites, were reviewed (Lester,

2014; Glaister, 2015; Milmo, 2015; Knapton, 2017; BBC, 2018b; Blackmore, 2018; Starkey, 2018a, 2018b; Stephens, 2018; Bodkin, 2018; British Association for Shooting and Conservation (BASC), 2018a; Smart, 2018; Forgrave, 2019). After initial scoping visits the researcher returned home and used web searches to identify any particular press stories identified by participants, referring back to source academic research papers where applicable. The researcher also signed up for a number of newsletters including Game and Wildlife Conservation Trust (GWCT), Royal Society for the Protection of Birds (RSPB), GunsOnPegs (a shooting industry website) and the Countryside Alliance to keep abreast of developments that would be of interest, again finding the source reports where applicable to ensure risk of bias was minimised. The websites of the RSPB and National Trust were also utilised to ascertain their policies on shooting which are explored in Chapter 3.

4.5.2 Social Impact Assessment

In terms of Social Impact Assessment (SIA) an initial reading list detailing key SIA publications led to further articles identified from key authors on the reference lists and wider searches. Once a lack of theoretical underpinning had been identified from the reading, the researcher identified social capital and its links to identity as a potential theoretical basis for this study. The contributions of the three key contributors to social capital theory – Bourdieu, Coleman and Putnam (Bourdieu, 1986; Portes, 1998; Coleman, 2000; Putnam, 2000; Siisiäinen, 2003; Tzanakis, 2013) – were reviewed alongside the contributions from leading identity theory contributors Tajfel, Turner, Stryker, Stets, Cantwell and Burke (Tajfel and Turner, 1986; Stryker, 1987, 2007; Burke and Stets, 1999; Stets and Burke, 2000; Stryker and Burke, 2000; Burke, 2007; Burke and Cantwell, 2010). Resources used to access this literature included NELSON, Google Scholar, and Google search and physical books. Social capital measurement frameworks were also identified (Lin, 2008; Lee, Cornwell and Babiak, 2013).

Prior to starting the doctoral study, the researcher had worked within the NHS and the third sector and had completed research into social prescribing – focusing on better utilising non-medical interventions to positively impact health outcomes and the wider social determinants of health, which added to the additional studies sourced for this study. A number of

resources relating to the social capital and health and well-being (Pevalin and Rose, 2003; Poortinga, 2006; Carpiano, 2006, 2007; Abbott and Freeth, 2008; Sarracino, 2010; Umberson and Montez, 2010; Hatton-Yeo and Batty, 2011; Sirven and Debrand, 2012; Hinder and Greenhalgh, 2012; Klein, 2013; Bartolini and Sarracino, 2014; Knapp, 2015; Office for National Statistics (ONS), 2017b; Ge *et al.*, 2017; Valtorta *et al.*, 2018; Bian, Hao and Li, 2018; Gale, Westbury and Cooper, 2018; O'Connor *et al.*, 2019; Olujoke, Fakoya, McCorry and Donnelly, 2020) social prescribing specifically (Husk *et al.*, 2016; Hazenberg and Karlidag-Dennis, 2018), the impacts of volunteering (Cattan, Hogg and Hardill, 2011; Binder and Freytag, 2013; Fujiwara, Oroyemi and Mckinnon, 2013; Han *et al.*, 2016), social determinants of health (Dahlgren and Whitehead, 1991; Bartley, M; Ferrie, J; Montgomery, 2005; Chapman, 2010), general health and well-being (Leong and Wilding, 1999; Centre for Mental Health, 2010, 2018; Ellis and Fry, 2010; Barnett *et al.*, 2012; Naylor *et al.*, 2012; Department of Health (DOH), 2012; National Health Service (NHS), 2014, 2017, 2018c, 2018b, 2019; Press Association, 2014; Dobbs *et al.*, 2014; British Medical Association, 2016; Public Health England (PHE), 2016; Department of Health Independent Mental Health Taskforce, 2016; Full Fact, 2016; Furness, 2017; Local Government Association, 2017; Office for National Statistics (ONS), 2017a; Alderwick and Dixon, 2019; Maccagnan *et al.*, 2019), the role of identity, self-esteem and self-efficacy in health and well-being (Burke, 1991; Eden and Aviram, 1993; Schwazer and Jerusalem, 1995; Creed, Bloxsome and Johnston, 2001; United Nations Educational Scientific and Cultural Organisation (UNESCO), 2003; Haslam *et al.*, 2008, 2009; Jetten *et al.*, 2017; United Nations Educational Scientific and Cultural Organization (UNESCO), 2018), the benefits of exercise overall (McAuley *et al.*, 2000; The Scottish Government, 2003; Harvard Men's Health Watch, 2009; Pollard, 2010), exercise outdoors (J. Pretty *et al.*, 2005; Jules Pretty *et al.*, 2005; Countryside Recreation Network, 2006; Barton and Pretty, 2010; Coombes, Jones and Hillsdon, 2010; Thompson Coon *et al.*, 2011; Loureiro, Veloso and Veloso, 2014; Frühauf *et al.*, 2016) and accessing and spending time in green spaces (Maas *et al.*, 2006; Pinder *et al.*, 2009; Lee and Maheswaran, 2011; The King's Fund, 2013; White *et al.*, 2013; Zhang, 2017) were therefore reviewed as part of the initial, contextual literature review.

4.5.3 Synthesis and critique

The final stage of the contextual literature review was to apply social capital and identity theory to the findings of the initial DGS research studies review, in terms of environmental, economic and limited social impacts, and critique the methods and findings as appropriate within Chapters 2 and 3 of this thesis. Table 4.2 below shows a breakdown by type, number and area of interest of literature included in this conceptual literature review.

	Area of Interest[17]	Reports[18], books, both commercial and academic, journal papers and national and international government publications and websites[19]	Newspaper, magazine and online articles, organisational guidance and policy documents (includes non-governmental organisation websites)
1	History and Overview of DGS	13	-
2	Economic Impacts	17	2
3	Environmental Impacts	66	18
4	Rural identity and shooting specific social impacts (including conflicts)	17	21
5	Health and well-being, social capital, identity, social cohesion and exercise	67	3
6	Green spaces, well-being and outdoor physical activity	9	1
7	Social Impact Assessment	49	-
8	Social Capital and Identity Theory	34	-

Table 4.2 Summary of literature review sources by topic area and type

[17] Multiple topic areas from 1-4 may have been covered in a single report.
[18] Includes Shooting Industry commissioned reports (BASC Report, two PACEC reports) and A report commissioned by the League Against Cruel Sports, all of which cover economic, environmental and social impacts
[19] Includes National Resources Wales document summaries (2) which cover economic, environmental and social impacts

Findings from the contextual literature review were also combined with preliminary background research visits to shoots and events, along with informal discussions with key stakeholders logged in a journal/reflective notes, to identify the potential key social impacts delivered by shoots which were then aligned to the social impact themes identified in the SIA literature review element and linked to social capital, as detailed in Chapter 3 Table 3.3: DGS Social Impact Themes identification. This enabled the design of the semi-structured questionnaire for the qualitative interviews at stage 1 of the data collection (see Appendix L).

4.6 Primary Data Collection

This consisted of two stages as outlined in Figure 4.1.

4.6.1 Stage 1: Qualitative Research

The first stage of data collection consisted of

- Observation and case study notes: The researcher made notes using a journal at events/shoots and wrote up a reflective record. This process of journal notes and reflective record was also followed after informal conversations with other key stakeholders interested in inputting into the study, but for whom a semi-structured interview would be inappropriate, as they had not agreed to be interviewed formally by telephone, but were happy to discuss their reasons for involvement 'in the field' at a shoot day for example, with full understanding of the project and consent given for their input to be used for the study, as described later in this section.
- Semi-structured interviews: With a selection of beaters, guns, pickers up, gamekeepers and other stakeholders.

There was considerable interest in the study early on in its development. To ensure continued engagement, the researcher sent out a quarterly newsletter to everyone who expressed an interest and visited a game fair, a clay shoot[20] safety session and charity shooting event.

[20] Clay shooting is an activity where participants, using shotguns, attempt to break clay targets that have been mechanically flung into the air from fixed points.

The design of semi-structured interview schedules used for primary data collection, was developed from the social impact themes and the theoretical underpinning identified in the contextual literature review, coupled with stakeholder engagement through initial scoping visits to two shoots and discussions with others engaged in DGS, in line with GECES social impact assessment guidelines (Hehenberger, Harling and Scholten, 2014). The semi-structured interview schedules were tested in seven pilot interviews to confirm their appropriateness for stage one primary data collection.

The use of qualitative research with open ended questions moves the power away from the researcher and into the hands of the participant, enabling them to self-define their own experiences, which is vital to understanding the complex, causal relationships explored in social capital research, and which are a key part of any critical realist study, and help avoid the researcher's assumptions restricting participant's responses (Rao, 2002; Dudwick *et al.*, 2006).

Each interview participant was provided with an information sheet describing the research and the process for opting out (Participant Information Sheet – Appendix A) and formally confirmed their consent (Consent form – Appendix B). Interviews were carried out by telephone and were recorded and transcribed. Recording of interviews allowed the researcher to concentrate fully on the responses and listen out for verbal prompts of areas to explore in more detail and ensured no key points were missed in the note-taking (Jamshed, 2014).

The researcher visited seven shoots, sampled across the range of shoot types and sizes and interviewed a selection of beaters, pickers-up, guns, gamekeepers and others from different shoots sizes and types and from across the country. The rationale for this sampling is shown in section 4.7 Figure 4.3. Gaining consent was handled differently for fieldwork collection/observation and interviews. The Institutional Review Board of the Institute for Community Research (ICR) recognise that obtaining signed consent forms during field

observations is often intrusive, not realistic and makes no sense but still recognised a form of consent was required (LeCompte and Schensul, 2010). The ICR verbal consent script, first used in ethnographic observation of drug use sites, is detailed in section 4.9.1 and this was used for the purposes of verbal consent in this study. To supplement this verbal consent, the researcher took copies of the Verbal Consent Script shown at Appendix C and gave cards giving the researcher's contact details to the shoot organisers and participants in the shoot to ensure participants were fully aware of how to contact the researcher if required.

4.6.2 Stage 2: Wider Questionnaire Development & Control Groups

Following the qualitative stage 1 research analysis, a questionnaire was developed to further explore the themes identified, as detailed in Figure 5.1 in Chapter 5, being social capital (bonding and bridging) and identity contributing to social networks and the potential social impacts (positive and negative) resulting from engagement in DGS.

The questionnaire had eight sections. Not all sections were to be answered by everyone:

- Sections 1-5 was to be answered by all DGS participants (DGS participation, demographics, personal relationships and well-being, physical health and well-being and opinions) although some questions were optional.
- Section 6 was to be answered by individuals who regularly attend driven game shoots as a beater/picker-up
- Section 7 was to be answered by paying guns only
- Section 8 was to be answered by syndicate members (including roving syndicates) only
- The final question about organisational membership was to be answered by all participants.

The opinion questions were formed out of the literature review findings in Chapter 2, section 2.1 and Chapter 3, section 3.4 (social capital, identity and health and well-being). The qualitative research analysis in Chapter 5, sections 5.3 and 5.4 resulted in the hypotheses to be tested using these questions as shown in Tables 5.10, 5.14 and 5.15. The location of the results within the study for each hypothesis test is shown in Table 6.1, Chapter 6. The opinions

questions were split into three sections social networks, identity and heritage (explored in Chapter 2, section 2.2 and Chapter 3, section 3.4) and wider impacts/perceptions (explored in Chapter 3, section 3.4) and used a 5 point Likert scale answer system with responses as follows:

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

The questions within this section formed a scale to be analysed using statistical methods of analysis for some questions to compare responses between groups of participants within the overall respondent group (Johnson and Creech, 1983; Zumbo and Zimmerman, 1993; Norman, 2010; Sullivan and Artino, 2013). This method of response was used for all 'opinion' style questions within all sections of the questionnaire as it was similar to the format used the most recent earlier study into the personal impact of shooting (British Association for Shooting & Conservation (BASC), 2016) and maintaining a uniform response format made the questionnaire easier for participants to complete. There was not an option for the respondents to reply 'prefer not to answer', but they were not required to answer the question to move on to the next section of the questionnaire.

This study was interested particularly in physical and mental health and well-being impacts and therefore included sections to collect data around these topics. The physical health and well-being section asked about exercise levels and health conditions and the mental health and well-being section used a verified scale to measure personal, mental well-being. Personal well-being has been measured by the UK government as part of its annual health and well-being survey (Office for National Statistics (ONS), 2017a) using the Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS) (NHS Health Scotland; University of Warwick; University of Edinburgh., 2007). A study (Peasgood *et al.*, 2014) identified six scales to measure well-being to measure well-being, noting that the use of multiple measures made comparisons difficult between studies. The use of the SWEMWBS scale for mental well-being

measurement allows comparison with the national dataset (UK Data Service, 2017) with any data collected avoiding the comparison issues identified by Peasgood *et al.,* (2014) when using different types of scales for comparison between groups/studies (Peasgood *et al.*, 2014).

The researcher considered the inclusion of questions related to life satisfaction within the wider questionnaire, but decided against this for several reasons. As noted above, the use of a five-point Likert scale was preferred as it matched the format of the most recent survey into the personal value of shooting (British Association for Shooting & Conservation (BASC), 2016). The Diener *et al.*, (1985) satisfaction with life scale uses a seven-point Likert scale for responses so would not have been suitable (Diener *et al.*, 1985; Griffin, 1985). The need for a national comparator dataset was paramount and the national health and well-being survey uses a ten point Likert scale for its questionnaire responses (Office for National Statistics (ONS), 2020) and therefore its inclusion would have both lengthened and complicated the questionnaire in varying the response scale length. As the researcher wanted to ensure the questionnaire was not too long and high levels of life satisfaction have strongly been associated with positive mental health (Lombardo *et al.*, 2018), it seemed appropriate to solely use the SWEMWBS with its five-point Likert scale responses in the health and well-being section.

In terms of measuring social capital, the UK government uses a very narrow set of statistics, including personal relationships, social support network, civic engagement and trust and cooperative norms (Office for National Statistics (ONS), 2017b). These measures were reviewed and whilst they are too narrow alone to enable a full exploration of the social impacts in relation to DGS, an adapted question from the 'personal relationships' section was included in the stage 2 questionnaire under section 5 'Opinions: Social Networks'. This was supplemented with demographic data to allow analysis of the different backgrounds of those involved in DGS and additional questions relating to friendships.

In developing measures for social capital measurement within a framework a number of papers were reviewed and a particularly useful study by Lin (2008) was identified, proposing a theory of social capital as shown in Figure 2.3 on page 35 of Chapter 2. As noted in Chapter 2, Lin (2008) argues that returns can be quantified as outcomes via instrumental or expressive actions. Instrumental actions relate to gaining new resources whereas expressive actions relate to consolidating and defending against the loss of existing resources, recognising that social, economic and political returns can be identified through instrumental and expressive 'returns' (Lin, 2008). Instrumental returns are those which are focussed on a specific outcome whereas expressive returns are often more subjective and do not result in a direct financial gain for the individual meaning that the quantification of the impact of these actions must therefore be measured in possible savings made in the taxpayer not bearing the costs of rectifying poor physical health caused by lack of physical activity or poor mental health due to loneliness for example (The Scottish Government, 2003; Centre for Mental Health, 2010; Naylor *et al.*, 2012; Public Health England (PHE), 2016; Mcdaid, Bauer and Park, 2017). The social impacts of expressive actions are of benefit to wider society whereas the social impact of instrumental actions are for the benefit of the individual (Lin, 2008) In addition, a 2013 study looking to develop an instrument to measure the social impact of sport, proposed a "Social Impact of Sport Scale" including the dimensions of social capital, collective identities, health literacy, well-being and human capital (Lee, Cornwell and Babiak, 2013). These articles, combined with the qualitative data analysis results, were key in the development of the questionnaire.

For the purposes of this study, due to the controversial topic and the nature and longevity of engagement of many participant of the activity it would be difficult to allocate an unbiased and suitable control group to enable a comparative data model study to be completed. Therefore, an administrative data model utilising historical trends in the public data related to the outcomes suggested was appropriate. However, the study also sought to dig deeper into the types of social capital within DGS and any variation between shoot types, sizes and participants, so additional questions were included to measure this area.

To summarise, social capital measures used by government to collect national statistical data were not broad enough alone for the purposes of this study. The SWEMWBS scale questions that are included in the UK government annual health and well-being survey, along with the question relating to loneliness, were included in the wider questionnaire at stage 2 to allow comparison with a national dataset. As a verified scale used in wide scale, national research, including the UK government Understanding Society surveys (UK Data Service, 2017), the SWEMWBS is a good scale to use in this study. The scale contains 7 questions, rather than the 14 of the standard Warwick-Edinburgh mental well-being scale which means respondents were more likely to complete the question in full. The full dataset for the 2015-16 Understanding Society Wave 7 survey that is used to compile the annual UK government health and well-being survey can be accessed in full to enable rigorous, statistical comparison of any results gathered from DGS participants with this national dataset.

4.7 Mapping Stakeholders & Sampling

4.7.1 Stage 1 Sampling – Shoot visits and qualitative research

In order to ensure maximum engagement, initial visits and background research an initial stakeholder and impact analysis was completed as shown in Figure 4.2.

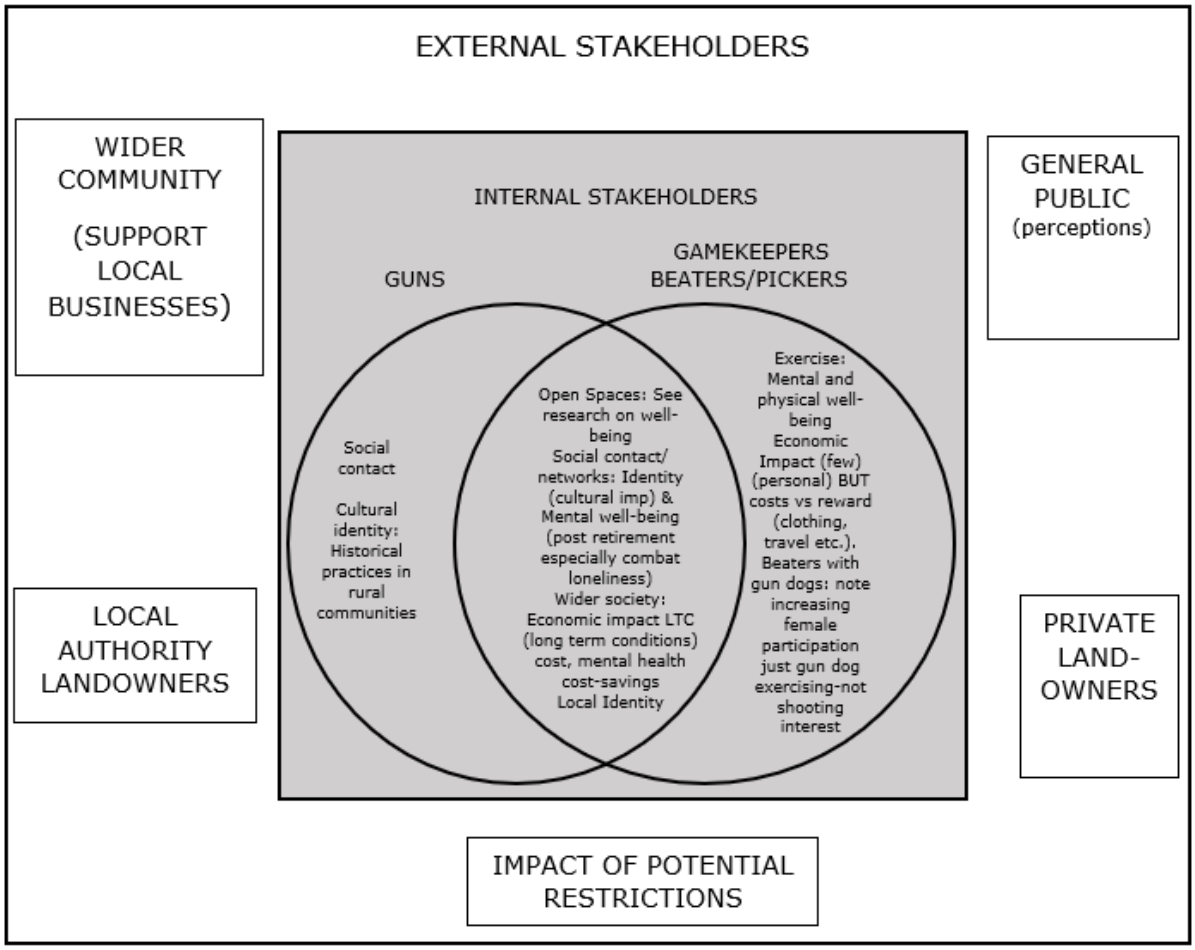


Figure 4.2 Stakeholders and initial impact analysis

After the initial stakeholder engagement and narrowing of the theoretical underpinning for the study, the key groups to be interviewed were identified as the internal stakeholders, due to the focus on social capital, identity and health and well-being as a result of engagement in DGS. Therefore, a sample of beaters, guns, pickers-up and gamekeepers who participated in DGS were identified at shoot visits of different size and type across the country (as detailed in Table 5.4 in Chapter 5) and then interviewed after the shoot day via telephone. The shoots

to visit were purposefully sampled so as to cover the wide-range of shoots identified through the literature review, as shown in Figure 4.3 below.

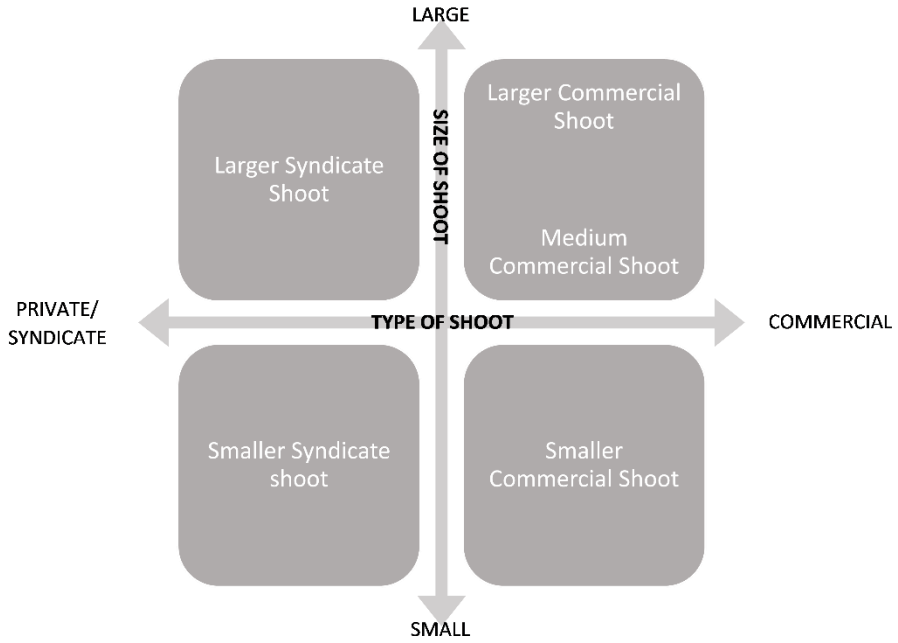


Figure 4.3 Shoot sampling matrix

A purposive sampling approach runs the risk that the researcher has failed to identify key groups or has introduced bias (Ruane, 2015). Theory driven, purposive samples are the most commonly used samples in applied social research (Miles and Huberman, 1994). The researcher was careful to select from the range of shoots based on geographic locations and shoot type only. In addition, in this study the triangulation with the second stage data collection from a wider, non-selected participant base mitigates this risk. The researcher recognises that only those wishing to participate were 'sampled', which could be noted as convenience sampling. However, Bryman (2001) acknowledges convenience sampling can "provide a springboard for further research or allows links to be forged with existing findings in an area" (Bryman, 2001, p. 202).

4.7.2 Stage 2 Sampling – Wider questionnaire

Second stage sampling involved distribution of the questionnaire via online and hard copy channels as detailed in section 4.8.2 to ensure coverage of a wide range of individuals involved in DGS and achieve maximum response rates. A response of 2425 was achieved. According

to Cohen, the recognised sample size needed to detect small effects at the medium level is 783 (Cohen, 1992) whereas the Australian Bureau of Statistics sample size calculator indicates that for a 95% confidence level a sample of 385 individuals is necessary and for 99% confidence level the sample size necessary is 664 (Australian Bureau of Statistics, 2019).

4.8 Data Gathering and Analysis

For details of the consent process please see section 4.9.

4.8.1 Qualitative Data Gathering

The researcher visited seven shoots as detailed in Chapter 5, section 5.1 in Table 5.1 and Table 5.2. The researcher made observations and wrote a reflective record after each shoot. Whilst at the shoots written consent was gained from a sample of 45 guns, beaters, pickers-up and others to be interviewed after the shoot day by telephone. Interviews were recorded and transcribed for analysis.

4.8.2 Qualitative Data Analysis

The interview/case study/observation data and questionnaire data were analysed using a Straussian grounded theory based Constant Comparative Method (CCM) (Scott and Glaser, 1967; Lincoln and Guba, 1985; Corbin and Strauss, 2008), using Atlas.ti software, version 8. Straussian grounded theory (SGT) differs from a traditional grounded theory approach in that it provides a structured process that relies less on researcher creativity than traditional grounded theory, through a set of analytical tools, potentially increasing validity and providing a clear audit trail for the qualitative analysis process (Corbin and Strauss, 2008; Rieger, 2019). The process involved open coding of all interview transcripts and reflective records. The coding was an ongoing, iterative process and each set of reflective record field notes/transcripts was coded through induction, deduction and then analysis (Corbin and Strauss, 2008), as recommended by Miles and Huberman (1994). The codes or 'units of analysis' were then grouped via a process of phenomenological reduction to coalesce into

categories or 'concepts' and then these were grouped into the themes (Corbin and Strauss, 2008). In line with the SGT approach, the shoot visits, interviewing, transcribing and subsequent coding took place during the same period, in parallel. When the interviews from the last two shoot visits were open coded no further codes emerged, indicating that the qualitative data analysis had reached saturation and no further data collection was required, further verifying the validity of the sampling method (Rieger, 2019). The use of CCM was appropriate for two key reasons: Firstly, other studies looking at social impact assessment had utilised this approach (Hazenberg, 2012; Paterson-Young, 2018) and secondly, CCM is an approach which involves triangulation with other data (McLeod, 1994) in line with the methodology of this thesis. The use of CCM improved both internal reliability of the data analysis conducted and the internal and external validity of the conclusions drawn from the research (Boeije, 2002).

Once all of the shoot visits had been completed, any differences between shoot size and type were analysed, in line with the research questions, as shown in Chapter 5.

4.8.3 Quantitative Data Gathering

The second stage data collection questionnaire shown in Appendix D was developed using the key themes identified during the qualitative data analysis stage. The questionnaire was piloted with ten responses from 12th March 2019 to 6th April 2019. This resulted in development of the final questionnaire, which was open from 9th May 2019 until 31st July 2019. A total of 2425 responses were received, spread across a wide range of participants within DGS and across the country as detailed in Chapter 6, section 6.3.

In order to minimise the risk of those against shooting accessing the questionnaire and disrupting the data, the questionnaire was not shared in large, open social media pages. Instead, the questionnaire was distributed in a number of ways:

The online link and email as shown in Appendix E was circulated to members of:

- National Organisation of Beaters and Pickers up (NOBS) (emailed approximately 8,000 members)
- British Association of Shooting and Conservation (BASC) (emailed 10,065 members)
- Scottish Association of Country Sports (SACS) (emailed approximately 8,000 members)
- Gamekeepers Welfare Trust (selected members, including printable hard copy, figures unknown)
- Greater Exmoor Shoots Association (GESA) (asking for them to forward the message on to beaters, pickers-up, guns and others they know via their shoots – this included a printable hard copy. Precise circulation unknown, but there are at least 65 large shoots within GESA membership)
- The researcher's contact list acquired during the first stage of data collection (a total of 178 individuals), asking those individuals to share via direct message or in small, closed social media groups only. Where a telephone number was held, these emails were followed with a telephone call. A reminder email was sent after one month. A printable hard copy was also included in this email with a return address, enabling contacts to share with those who did not have internet access.

A link was also sent to the Guns on Pegs mailing list as part of the 'game card' weekly circulation to approximately 10,000 subscribers and the researcher send the link via the newsletter subscription list of 168 individuals, with a reminder sent in July (see Appendix F).

In addition to the hard copy questionnaires printed out and shared by contacts, hard copy questionnaires were distributed at a number of countryside events attended by NOBS, the Rutland Country Show, the Scottish Game Fair and at several Game and Wildlife Conservation Trust (GWCT) events. Ten copies were left in the local gun shop. A total of 131 fully completed hard copies were received (included in the above total of 2425), some of which were scanned and returned to the researched via email, from which the data was added to the online system.

The researcher joined a number of small, closed Facebook groups related to driven game shooting with the assistance of key contacts, by confirming the study was bona fide and being carried out by a professional researcher. The researcher was careful to avoid any social media groups of a political nature. A total of 25 small, closed groups were joined, with the help of a few contacts made during the shooting season from August 2018 to February 2019 and/or via contacting the administrators of the groups with details of the study. The social media post was shared using a Canva (a photo to draw attention to the study and get people to fill out the questionnaire - see Appendix G) with a link to the survey and a short note above asking people not to share openly but to encourage friends and contacts to respond and thanking them for letting the researcher join the group. There were re-posts of this link and photo after a few weeks, when there were 9 days left and then finally on 30th July 2019, the day before the closing date. This approach was slow going but was fruitful in gaining a steady stream of responses and diversified them across the UK, particularly increasing beater and picker up responses. A breakdown of the focus of those groups and their membership numbers can be seen in Table 4.3, overleaf, however, it must be noted that some individuals may be members of more than one group.

A total of 68 people asked to receive a summary copy of the results in 2020. The researcher emailed them confirming they would be sent a copy of the results and included a link to the survey, asking them to share if they could, as shown in the email template in Appendix H.

Focus of Facebook Group (membership)	Approx. number of members
Beaters and Pickers up	5200
Beaters and Pickers up	12,000
Beaters and Pickers up	4,200
Beaters and Pickers up	2,900
Beaters and Pickers up	9,000
Beaters and Pickers up	3,200
County/region specific beaters and pickers up	428
County/region specific beaters and pickers up	296
Driven Game shooting community	5,800
Game shooting and countryside community	1,700
Game shooting and keepering	296
Game shooting and keepering	159
Gamekeeping	3,000
Grouse shooting community as a whole	644
Gundog owners	2,900
Gundog owners	7,000
Gundog owners	969
Gundog owners	11,000
Gundog owners	1,300
Lady working gun dog owners	2,100
Pheasant shooting community as a whole	394
Pheasant shooting community as a whole	13,000
Those engaged in Field Sports in the North	725
Those engaged in Field Sports UK wide	21,000
Those engaged in Field Sports UK wide	2,200

Table 4.3 Social Media Groups breakdown and membership

The questionnaire included a number of demographic, descriptive and opinion questions, including how individuals participate in DGS and what size and type of shoots they attend, to allow comparison between groups within DGS. The questionnaire was designed to assess the types of social capital within DGS and the potential social impact or returns on that social capital and as noted in section 4.6.2, it therefore included the Short Warwick Edinburgh Mental Well-being Scale to measure well-being and a question around loneliness aligned to the UK government health and well-being survey statistics, to allow comparison with a national dataset.

4.8.4 Quantitative Data Analysis

The accuracy, validity and reliability of the data was checked and data analysed using the Statistical Package for the Social Sciences (SPSS version 22) and Microsoft Excel (2016). The following tests were used by the researcher:

1. Sample distribution normality tests (normality curve and p-plots)
2. Univariate and multivariate outlier test (utilising stem and leaf box-plots)
3. Descriptive statistics
4. Cronbach's alpha (reliability measure to assess internal consistency with measurement scales)
5. Independent samples t-test
6. Correlation analysis

4.8.5 Control groups and bias

Due to the nature of the topic there are groups who are opposed to shooting for sport. This creates a difficulty in finding a control group, therefore as noted in section 5.6.2 national statistical data coupled with desk research was used to provide this comparative group, as any open survey would likely have attracted input from those vehemently against shooting and therefore may skew any results.

The researcher attempted to meet with a leading animal rights campaigner who had taken an interest in the study, with a member of the supervisory team present, offering several dates for a meeting at a location of his choice, but none were taken up. The researcher also attempted to contact the company that are no longer able to shoot on Ilkley Moor due to the banning of shooting there, but the company is no longer in operation on Companies House and alternative contacts could not be found. The limitations of the travel budget were also a factor in not being able to pursue these areas.

4.8.6 Triangulation

Case study/observational data, interview analysis and questionnaire results were triangulated. Triangulation can reinforce the validity of mixed method studies by corroborating results and can also identify conflicting and inconsistent results (Bryman, 1988; Miles and Huberman, 1994; Rao, 2002; Dudwick *et al.*, 2006). It has been suggested that including these outliers or people with different points of view in research can help avoid bias (Miles and Huberman, 1994). The results were then used to develop a potential process that could be adapted to fit a framework for measurement of social impact across different types/sizes of driven game shoots. Frameworks are regularly used in the measuring of social impacts to allow comparison and are considered good practice (Paterson-Young et al., 2017; Räikkönen et al., 2016; Rampersad and Troshani, 2013; Hazenberg and Bajwa-Patel, 2014; Hazenberg, 2018;).

4.9 Ethical Considerations

All research must include ethics as an integral part of its design. The researcher ensured all participants were aware of the research parameters and that their confidentiality was assured. Consent was handled differently for fieldwork collection/observation and interviews.

4.9.1 Fieldwork: Verbal Consent

The Institutional Review Board of the Institute for Community Research (ICR) recognise that obtaining signed consent forms during field observations is often intrusive, not realistic and makes no sense but still recognised a form of consent was required. The ICR verbal consent script, first used in ethnographic observation of drug use sites, is detailed below and this will be used for the purposes of verbal consent in this study:

- “Salutation and introduction of the researcher’s name and place of work.
- Name of the project and the researcher’s role in the project
- A brief explanation of the purpose of the study.

- The reason for the researcher's presence at the site
- What to expect of the researcher and what the researcher needs during observation.
- What will happen with the data and information about how to contact the researcher."

(LeCompte and Schensul, 2010, pp. 311–312)

To supplement this verbal consent, the researcher took copies of the Verbal Consent Script shown at Appendix C and gave cards giving researcher contact details to the shoot organisers and participants in the shoot to ensure participants were fully aware of how to contact the researcher if required.

4.9.2 Interviews: Written Consent

The researcher obtained informed consent from all participants including the organisation involved prior to commencing the semi-structured interview. A copy of the participant information sheet, containing a written copy of the verbal consent information, was provided to each of the interview participants, either by email or in person as appropriate. This is shown in Appendix A.

4.9.3 Anonymity, Confidentiality and Data Storage

The anonymity of participants is ensured by the researcher and all information will remain confidential. Participants had the right to stop interviews and/or withdraw from the research process at any time. Holmes (2004) recommends that to protect confidentiality of data, storage of participant's names and addresses on hard-drives should be avoided, identifier codes should be used in place of names and keys to transcript identifier codes should be stored separately and securely. Transcripts should not include names and should be stored in a locked cabinet (Holmes, 2004). Considering Holmes (2004) recommendations, whilst recognising all data was collected and stored electronically in this research, all data and information obtained for research was securely stored in a password protected computer

with personal details stored separately to research data to ensure the subjects anonymity is protected in the event of any security issues. To enable an easy process to find and remove personal data as necessary, information was stored on a searchable database. Full records were kept of data use (e.g. newsletter distribution logs). Only people who expressed an interest in being involved in the study received the newsletter. Initial recipients either completed an initial questionnaire or gave their details directly to either the student or the supervisors. A note of how their information was added to the database was made next to their details.

This data storage complied with the Data Protection Act (DPA) (1998) and the General Data Protection Regulations (GDPR) (2018) which replaced the DPA in May 2018 and broadly follows its principles. GDPR outlines 8 principles which must all be complied in the form of 8 rights for individuals:

- The right to be informed – organisations are obliged to provide "fair processing information", typically though a privacy notice and to be transparent over how they use personal data
- The right of access
- The right to rectification – of inaccurate data and to rectify any inaccurate dissemination of this data.
- The right to erasure - "the right to be forgotten" such that all personal data is either deleted or removed
- The right to restrict
- The right to portability
- The right to object
- The right not to be subject to automated decision-making

Organisations also need a lawful basis for processing data in the form of one of the following:

- Consent: Must be "freely given"; people should have an option to say no; must be 'Opt in'
- Necessary for contract

- Necessary to comply with a legal obligation
- Necessary to protect vital interests: e.g. emergency ambulance
- Necessary for a task carried out in the public interest: Universities are likely to be seen as 'public authority figures' and their research may be deemed as in the public interest / public functions requirements
- Necessary for legitimate interests.

In this study compliance in processing was achieved through consent (see appendices A, B, C) and by only using data for the legitimate interest of the study. In addition, all participants providing interview data gave informed consent (see consent sections 4.9.1 & 4.9.2 above). Participants in the observation section were given the opportunity to be excluded from the data. No sensitive data was collected at the interview stage. The wider questionnaire data, which was collected anonymously with the explicit consent of those completing the questionnaire, included special category data. Careful consideration was therefore given to ensure that the storage of the questionnaire data was completely secure and stored in an appropriate way, in line with GDPR requirements, as outlined above.

Appendix C, the verbal consent statement, represents the relevant consent under GDPR Article 14 (Information to be provided where personal data have not been obtained from the data subject), as in this instance personal data is not collected and stored. If at an observation visit an individual provided their email address they were provided with a copy of the participant information sheet including the privacy notice (Appendix A) and asked to sign a contact collection sheet. This enabled compliance with GDPR Article 13: Information to be provided where data are collected from the data subject. Appendix A: the participant information sheet including the privacy notice and the consent form represent the relevant documentation to comply with GDPR Article 13: Information to be provided where data are collected from the data subject. Personal details are kept for the sole purpose of the research. Personal data will be archived after 2 years and only accessible to the project team. It may be used to contact the participants if a future study in the area of DGS is considered. Participants were advised how to contact the team if they would like their details removed from the archive (see Appendix A: Participant Information Sheet). The research participants

involved in the interviews received a copy of the transcription to check this accurately represented their narrative. After the research was completed, all research participants had the opportunity to receive feedback and information on the results. In addition, if they wished, participants and other interested parties could receive the quarterly newsletter (Appendix I) which kept them up to date and engaged during the research process.

The importance of considering the impact of the research developments on the participants and organisations was understood by the researcher. The following were considered for all decision-making:

- Relevant issues were identified.
- The principles set out above provide the basis for reflection.
- All relevant stakeholders were consulted where necessary.
- The advantages and disadvantages of various courses of action for those likely to be affected were analysed.

The researcher recognised that as well as being defendable on ethical and moral grounds, all actions must be rigorous and valid in relation to methodology of the research.

4.9.4 Researcher Welfare

The welfare of the researcher was also considered. Shooting is a potentially dangerous activity. As part of the ethics approval process a health and safety risk assessment was completed and the researcher attended a clay shoot safety session. The researcher followed all health and safety guidance when attending shoots. All shoots had a health and safety briefing at the start of the day and appropriate protective equipment was provided as required. The researcher wore appropriate clothing and footwear, as well as ear protection when near to guns. The researcher ensured any field-based discussions with participants were held when walking between drives, not when a drive was taking place, to ensure all involved were fully focussed on staying safe during drives when firearms were being discharged.

4.9.5 Feedback

During the study a quarterly newsletter was used to maintain engagement with those interested in the study but not directly involved in the data collection. The limited budget and time frame of the research meant that not all shoots could be visited so the newsletter provided a feedback mechanism to ensure all interested partied were kept abreast of the progress of the study. To ensure effective feedback at the end of the research project to both research participants and those who expressed an interest in the project, the final research findings will be shared with the main national bodies associated with DGS and the leading press publications. The researcher has contacts for the following bodies and publications:

- British Association for Shooting & Conservation (BASC)
- Game and Wildlife Conservation Trust (GWCT)
- The Countryside Alliance (CA)
- The National Organisation of Beaters and Pickers up (NOBS)
- Fieldsports Magazine
- Guns on Pegs Magazine
- Shooting Times

4.9.6 Researcher Reflexivity & Bias

In any research it is important to consider the influence of researcher bias. The researcher has no connections to shotgun shooting of any kind, a criticism of previous research studies. No research can be value free (Bryman, 2001), however Miles and Huberman (1994) suggest a number of actions that can be taken to minimise researcher bias including staying on site for an extended period of time, using unobtrusive measures where possible, but also interviewing some participants off site and clearly explaining to participants what the research is for and how data will be used. Spending time away from the site to avoid 'going native', including outliers in your research, thinking 'conceptually' and finding background information providers, the use of well-developed research questions and a conceptual framework and triangulation are also suggested (Miles and Huberman, 1994). The researcher incorporated all of these suggestions into the methodological design. For this study, bias was particularly pertinent as all recent existing research into social impacts of

shooting has been accused of bias as it was sponsored and/or commissioned by either those for or against shooting (Public and Corporate Economic Consultants (PACEC), 2012, 2014a; Cormack & Rotherham, 2014; British Association for Shooting & Conservation (BASC), 2016).

4.10 Conclusion

The chapter considered the researcher's ontological and philosophical approach and how this relates to the topic being studied, including which methods were considered most appropriate for this approach. Having identified a critical realist approach be taken, a suitable methodology was outlined, in line with critical realist studies in other areas and existing social impact studies, whilst also bringing together the most effective elements of the existing, limited studies considering the social impact of shooting. These methods were considered and the data analysis approach outlined. Finally, ethical considerations including ensuring participant confidentiality and anonymity, gaining consent, researcher welfare and bias were explored.

Table 4.4 summarises the philosophical and methodological approached to this research.

Methodological Aspect	Approach
Research Paradigm	Critical Realism
Methodology	Mixed-method
Research Approach	Comparative
Research Aims	1. To develop a cross-sectional, mixed methods approach in line with recognised GECES social impact assessment guidelines, suitable for identifying the social impacts of driven game shooting 2. To use this methodology to formulate a way of measuring social impacts across driven game shooting in future
Quantitative Research Tools	Questionnaires
Qualitative Research Tools	Semi-structured interviews Observation – journal and reflective notes Informal discussions – journal and reflective notes
Sample	Qualitative: 7 shoot visits and 45 semi-structured interviews Quantitative: 2425 questionnaire responses

Table 4.4 Epistemological and Methodological Overview

Chapter 5 - Stage 1 Shoot Visits Data Analysis

This chapter analyses the qualitative and quantitative data collected from the sampled Shoots[21]. The different types of Shoot attended are described, the sampled interviewees and the process followed to analyse the qualitative interview data to develop key themes are then explored. This is supplemented by analysis of the quantitative data collected from interview participants. As noted in Chapter 4, the concepts and themes identified during qualitative data analysis were utilised to develop a questionnaire for wider distribution, the responses from which were analysed using statistical quantitative analysis methods and descriptive statistics analysis as detailed in Chapter 6. A number of hypotheses were developed during the analysis, to be tested using the wider questionnaire data, and these are shown at the relevant points in this chapter.

This chapter also seeks to address two of the three research questions

- To what extent does DGS create social impact through the creation of social capital and reinforcement of identity?
- How does the type and size of Shoot mediate social capital and identity development?

The third and final research question is answered in Chapter 8.

- How can these social impacts be valued and compared in the future?

[21] For clarity of understanding, when 'shoot' is being used as a noun to describe a type of activity it is capitalised within this chapter as Shoot.

5.1 The Sampled Shoots

The Shoots sampled in line with the methodology detailed in section 4.7 of Chapter 4 covered a range of types and sizes across England. The Shoots all offered unfettered access to their shooting days and were welcoming and open regarding the study, although some participants at the large and medium Shoots were warier about the researcher's presence having recently been harassed by anti-shoot protestors. The researcher wrote a reflective record at each Shoot visited which was also analysed during the qualitative data analysis stage. Tables 5.1 and 5.2 show sampled Shoot details.

Commercials: Commercial Shoots sell shooting days to individuals or teams of individuals at a rate per bird, based on the expected 'bag' size. The bag size is based on the number of birds expected to be shot within the time provided and the number of 'drives[22]' allowed for.			
Sampling Classification	Large Commercials	Medium Commercial	Small Commercial
Location	Exmoor (2 locations)	North Yorkshire Moors	South Yorkshire
Quarry (birds)	Pheasant and partridge	Grouse	Pheasant
Cost per day	£25,000	£30,000	£2500
Bag size	500 birds	200-300 birds	100 birds
Additional information	Shooting on every available date from the start of the partridge season in September until the pheasant season ends on 1st February.	Shooting about 20 driven grouse days each year (part of a larger estate which also shoot pheasant on the low ground).	Pheasant Shoot 'boundary day[23]'. One of three tenant Shoots on a larger estate offering a mix of driven days with 200 bird bags and smaller boundary days.
Staffing and rewards	Several keepers and under-keepers employed by the estates. All beaters and pickers-up were paid. Catering: Mid-morning food and drinks. Hot, two-course lunch for all beaters and pickers-up.	Employ four keepers along with mainly part-time beaters drawn from the local area for the estate's pheasant and grouse shooting. All beaters and pickers-up were paid. Catering: No lunch or snacks were provided.	The guns attending were a roving syndicate. The estate employed a single gamekeeper and an underkeeper. All beaters and pickers up were paid. Catering: No lunch or snacks provided.

Table 5.1 Sampled Commercial Shoots Information

[22] drives is the name for the process where birds are flushed over the guns.
[23] a boundary day is a smaller bag size day, where the drives take place along the boundaries of the estate where less pheasants are found. It provides a way to move an estate's pheasant back into the main shoot estate area and offer cheaper driven game shooting days.

Syndicates: All of the syndicates were 'not-for profit'. Syndicates are a club where members pay an annual subscription as a gun (a person who shoots) and in return are able to engage in a specified number of days shooting throughout the season. Some offer 'full-gun' and 'half-gun' memberships. Full guns shoot on every day the syndicate Shoots, whereas half guns shoot on alternate shooting days in the season. Some syndicates include 'gun' working parties to raise the pheasants and maintain the landscape for the Shoot. Most syndicates require guns to attend for an annual 'beaters' day' – where the guns beat to allow the beaters to shoot for free at the end of the season.			
Classification	Larger Syndicate	Smaller Syndicate	Smaller Syndicate
Location	East Midlands	Hampshire	Oxfordshire
Quarry	Pheasant and partridge	Pheasant	Pheasant
Syndicate Type	Single location based	'Beat – Stand', single location based[24]	Single location based
Gun working parties?	Yes, frequently	Not usually	Not usually
Annual cost(s)	Full gun: £3600 Half gun: £2000	Full gun: £2800 Half gun: £1500	Full gun £1300 per annum – annual estimate[25]
No of days shooting	10 days, including a family day just after Christmas.	10 main days, 3 'boundary' days. Keepers/beater's day.	5 plus beater's day.
Staffing and rewards	Employ a full-time keeper who lives on the estate. Have some paid beaters and pickers-up and some volunteers. Catering: Mid-morning drinks with shortbread biscuits. Hot lunch with wine, beer or soft drinks.	Employ a part-time keeper. Have a few paid beaters and pickers-up. The keeper is helped voluntarily by two beaters, the Shoot organiser, his son two of their friends. Catering: Home-made scotch eggs, sausage rolls and drinks mid-morning.	All staff including the keeper are volunteers. Some beaters are heavily involved in the raising of the pheasants and land management. Catering: Drinks, soup and snacks at mid-morning. . Hot meal at the end of the day.
Other information	Beaters often asked take a gun slot on one of the ten days as a rear gun, providing them with a day's shooting free of charge.	Land rented. Lease requires vermin control on the estate. Sell a few days to cover cost. Offer a shooting day for other people who have helped out.	No rent paid. The beater's and pickers up provide the workforce for a few days shooting for land-owner. The syndicate funds/raises the pheasants.

Table 5.2 Sampled Syndicate Shoots Information

[24] Beat - stand syndicate having eight drives per day. Each gun shoots four drives and is a member of the beating team for four drives.

[25] May be slightly more if unforeseen site works required, as shoot surplus not allowed under land use terms.

5.2 The Interview Participants

Quantitative data from the interview participants was analysed using SPSS. A total of 45 participants were interviewed across the different Shoot types/locations, of which 73% were men and 27% women. Table 5.3 shows the age range of participants. The mean average age of participants was 56 years (median age of 57 years). The minimum age was 17 years and the maximum was 79 years.

	Mean	N	Std. Deviation	Minimum	Maximum	Range
All participants	56.07	45	16.04	17.0	79.0	62.0
Commercial Shoots	55.29	24	19.01	17.0	77.0	60.0
Syndicate Shoots	56.95	21	12.19	35.0	79.0	44.0

Table 5.3 Interview Participant Age Ranges

The breakdown of respondents by Shoot type and role is shown below in Table 5.4. Guns from commercial Shoots were not interviewed, as the researcher spent time with the beaters and pickers up who did not mix with the guns at this type of Shoot when visits took place.

	Primary Role						Total
	Beater	Driver	Game-keeper	Gun	Picker-up	Syndicate Organiser, Gun	
Commercial	17	1	1	0	5	0	24
Syndicate	5	0	0	9	5	2	21
	22	1	1	9	10	2	45

Table 5.4 Interview participants by Shoot type and role

Rural and village dwellers were more prevalent than urban (town and city) dwellers for both Shoot types as shown in Table 5.5.

	Commercial	Syndicate	Totals
Rural	7	3	10
Village	14	12	26
Town	2	5	7
City	1	1	2
Totals	24	21	45

Table 5.5 Where interview participants reside. Split by Shoot Type

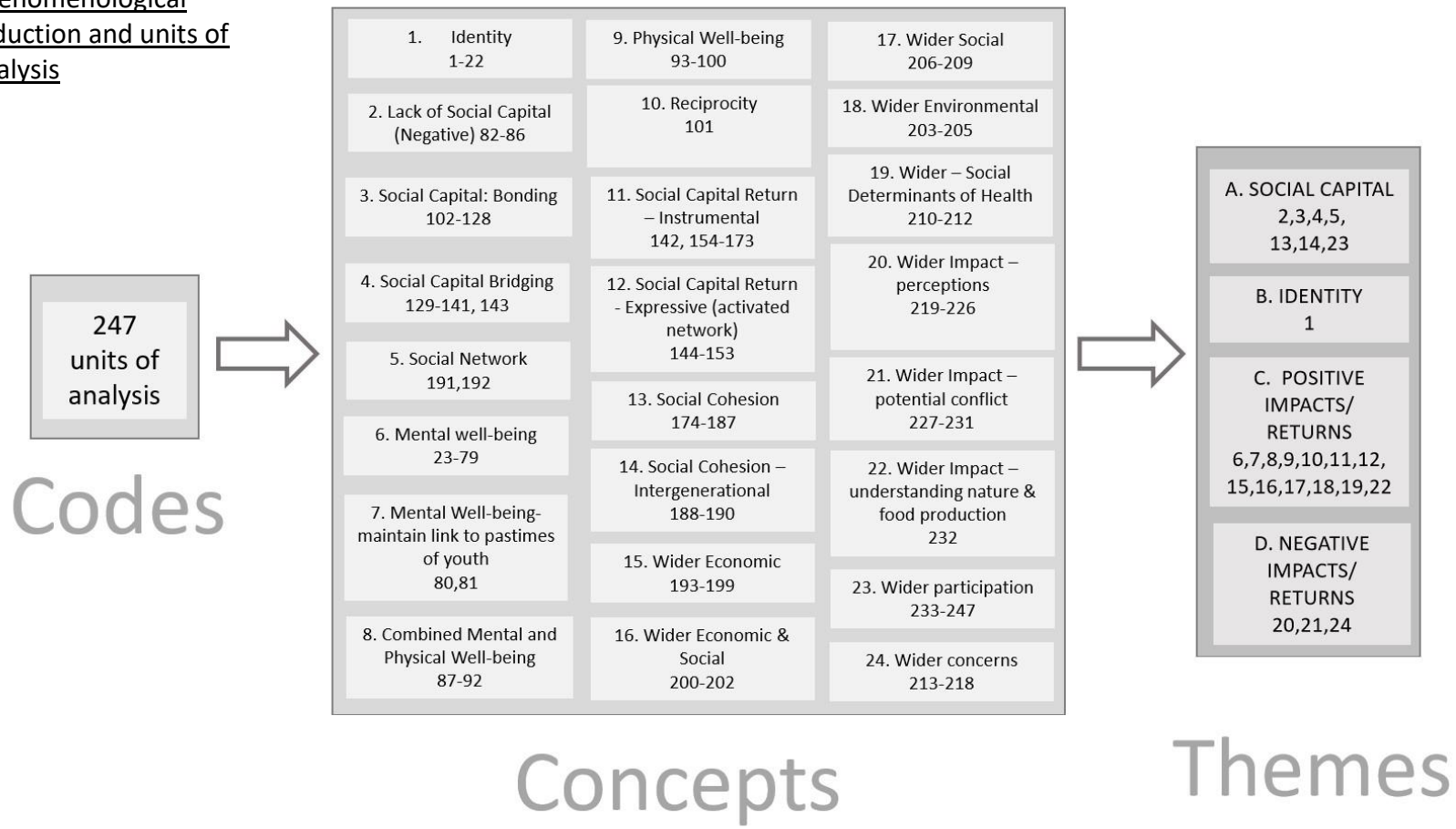
Half of the participants from commercial Shoots were retired or semi-retired, as shown in Table 5.6. At the syndicate Shoots there was only one retired gun, the others were still working, but the pickers-up and beaters were mix of four retired/semi-retired individuals and six individuals that work.

			Primary Role						Total
			Beater	Driver	Game-keeper	Gun	Picker up	Syndicate Organiser, Gun	
Commercial	Working	N	7	1	1		3		12
	Retired or semi-retired	Y	10	0	0		2		12
	Total		17	1	1		5		24
Syndicate	Working	N	3			8	3	1	15
	Retired or semi-retired	Y	2			1	2	1	6
	Total		5			9	5	2	21

Table 5.6 Retired and working interview participants by role and Shoot type

Qualitative data from the interviews and the reflective records of Shoot visits recorded by the researcher was analysed using a Straussian grounded theory based Constant Comparative Method (CCM), following the iterative approach detailed in Chapter 4. This approach allowed analytical concepts and themes to emerge from the data by starting with open coding and then following a process of phenomenological reduction to identify key themes (Strauss and Corbin, 1990). During the immersion stage 247 units of analysis were identified. Further analysis after the immersion stage led to the formation of 24 concepts during the categorisation stage. The final stage of phenomenological reduction led to the emergence of four key themes – 'social capital', 'identity', 'positive impacts/returns' and 'negative impacts/ returns'. The qualitative analysis process is outlined in Figure 5.1 where the numbers in the concept boxes relating to the relevant units of analysis detailed in Appendix J and the numbers in the theme boxes corresponding to the relevant concepts.

Figure 5.1
Phenomenological reduction and units of analysis



5.3 Social Capital and Identity

The focus of the study is on social impacts and social networks. Putnam's classifications of Bonding, Bridging and Linking social capital (Putnam, 2000; Claridge, 2018a), as detailed in Chapter 2, section 2.1 have been used as a basis for identifying social capital within DGS. The data collected from the semi-structured interviews showed both bonding and bridging social capital was apparent as explored in sections 5.3.1 and 5.3.2.

5.3.1 Bonding Social Capital and Identity

Bonding social capital, sometimes referred to as horizontal social capital, refers to the ties within the same group, often families, local communities or groups where members have the same interests (Coleman, 2000), where lots of people know each other and there are strong norms and trusts (Claridge, 2018a). Identity, shared values and sense of belonging, explored in Chapter 2, section 2.2 are inextricably linked and are also key indicators of bonding social capital (Claridge, 2018b).

Several participants spoke of support and being like a family and expressed reflections of strong relationships.

> *"I've got good friendship with people, a good family*[26] *you know"*
>
> *P32 (beater, commercial, small)*

> *"Yea it's good I mean the Shoot really does sort of try and look after its people and keep its people together and as you probably got the impression its very much an extended family type of set up."*
>
> *P9 (picker-up, commercial, large)*

> *"…. we do plant the odd tree. We plant the odd tree for people that die actually to remember them."*
>
> *P30 (gun, syndicate, larger)*

[26] This beater was referring to the friends at the shoot as 'family'. Observations and discussions on site confirmed this feeling for many beaters.

Many participants had been involved for over a decade and some 20 years or more.

> *"I've done …….. a lot of beating and that but I've done 15 years tractor driver on that particular Shoot where you came."*
>
> *P24 (driver, commercial, medium)*

> *"I was what 16, I'm 39 so what's that twenty-three years."*
>
> *P25 (beater commercial, medium)*

> *"I've been beating on and off, because obviously work used to get in the way and obviously getting days off work for over, probably just over twenty years I've beat on the estate."*
>
> *P36 (beater, commercial, small)*

> *"I have been on that Shoot for most of my 30 years on and off……dad's been many other places but we've always been on (sampled syndicate Shoot)."*
>
> *P42 (picker-up, syndicate, smaller)*

> *"As far as (sampled syndicate Shoot) goes I've known the syndicate organiser and the syndicate for nearly twenty years"*
>
> *P44 (gun, syndicate, smaller)*

From both observations by the researcher and interviews, across all sizes and types of Shoot it was apparent that for some DGS was a way to maintain seasonal friendships and for others they were evidence of meeting up outside of the shooting season.

> *"Yeah I am going out with one person [I see outside of the shoot season] tonight. We are going to the speedway."*
>
> *P15 (beater, commercial, large)*

> *"I meet up with people from the Shoot out of the shooting season. Well a lot of friends, from the point of view if I am shooting with friends on other Shoots, they're friends so it's a common pastime with links between seasons."*
>
> *P27 (gun, syndicate, larger)*

"Yeah [we meet up outside the shoot season]. We have evenings out things like that sort of stuff."

P31 (picker-up, syndicate, larger)

"[If I couldn't do it anymore] I'd be very sad because I've got a lot of friends. It's not just a shooting syndicate it's a group of friends. I would miss them if I couldn't go out with them. It would leave a gap in my life"

P30 (gun, syndicate, larger)

"I had my 70th birthday and invited all the serious keepers, gamekeepers, then, a lot of people that I shoot with so I know when we had our golden wedding there was loads of people we asked who had been involved in our lives and quite a few were involved in the shooting world"

P10 (beater, commercial, medium)

"[I meet up out of the season with] some of them but again it's sort of generally you know it's like a sort of split in the year and people go their separate ways. I meet some of them again through fishing in the summer, which always sort of some people have that common interest so you do see a few people. But generally, as a general rule, a lot of them you'll see then at the start of the shoot season and that's the first time you've seen them since the first of February sort of"

P48 (gun, syndicate, smaller)

Many participants spoke of camaraderie and the time spent with the beaters/pickers up and the fact they knew each other well was apparent through observation when spending time with them in the beaters/pickers-up trucks.

"I like the companionship and the banter and kind of working as a team really as well."

P21 (beater, commercial, large)

"being with a group of friends that you've developed over the years….I suppose we've all got a common interest in the country side, accept country sport …and it's just nice to meet people with a common interest in an

environment you enjoy….I enjoy [spending time with] most of the people I beat with."

P23 (beater, commercial, large)

"I enjoy that way of life, I enjoy camaraderie and social life that goes with it"

P24 (driver, commercial, medium)

The above section shows clear evidence of strong, long-term relationships between participants in DGS at the sampled Shoots from both the observations of the researcher and from the interviews. The data analysed in section 5.4 also supports this assertion. This finding is similar to that of the BASC (2016) study which found that meeting people and building and maintaining friendships would suffer if respondents were unable to continue to participate in shooting and consequently their social life would be poorer. In this study, most participants at both commercial and syndicate Shoots spoke of meeting people and the social aspect. Some participants at commercial Shoots were also part of smaller, syndicate or family driven game Shoots, highlighting the importance of the pursuit in their social life.

Almost all participants spoke about enjoying spending time with like-minded people, an indicator of shared understandings, which also featured highly in the BASC (2016) report, as noted in Chapter 3, section 3.4. There was an expression of rural identity from all participants, indicating that participation was part of a rural way of life which many involved had been participating in since childhood and through the generations, a clear example of strong bonding social capital:

"I have always been a country person brought up on a farm, never lived in a village or anything rather live out in the sticks sort of thing……..I was brought up to it actually, father and brother. My father and my brother were always into their shooting, rough shooting really on the farm and I sort of always tagged along behind, a little kid, sort of happy to carry the game"

P16 (picker-up, commercial, large)

"Well I'm from a farming background, obviously had a Shoot on the farm that I was raised on so I've been shooting since I've been knee high to a grasshopper"

P22 (beater, commercial, large)

"I'm 35 ……. I've been involved in and around country sports and farming and stuff since I was about 15. I've got a horse, I've got dogs that I work and I'm just a general country person."

P38 (beater, syndicate, larger)

People returning to their roots, reinforcing their identity and sense of belonging to previous familial generations or early family life, was also a feature:

"when I was really young, my family [back home] some of them were farmers so I suppose I'd always been in and around farms. When I came to Devon to live with my father he lives in the countryside. Then I moved to somewhere slightly bigger, a town, it was completely away from any agricultural aspect, but when I moved back and I was 25, it just slowly feeds back in again"

P20 (beater, commercial, large)

Others expressed that DGS maintains a link to their country roots, even though they work in a different environment:

"I enjoy being outside and it's a complete contrast from what I do in that my working life I spend twelve and a half hours inside so it lets me kind of get back to that country part of my roots"

P21 (beater, commercial, large)

The rituals around shooting, the common attire and its etiquette were both observed by the researcher and commented on by participants out in the field and although many of the procedures followed are for safety purposes, they also contribute to the experience of being involved in a driven game Shoot (Hillyard and Burridge, 2012), as noted in section 3.4.

"it's a thing if you look at your friends, the vehicle you drive, the clothes you wear is all around the shooting aspect. I've got a 4x4 vehicle, I need a 4x4 vehicle. I wear moleskins, I've got a checked tattersall shirt on as we speak,

so your clothing, you know also sometimes what you eat I mean we have pheasant sometimes on a Sunday so the whole, all these areas all come down to, it makes you in a sense"

P36 (beater, commercial, small)

The observed and perceived common language, the common attire, spending time with 'like-minded people', the expressions of 'camaraderie', the exchanged remarks in a good-humoured, teasing way, the understanding of how a well-trained gun dog performs and a well-executed 'drive' is completed contribute to shared understandings that evoke a sense of belonging and therefore build bonding social capital (see Chapter 2, section 2.2). As Cohen (1982) notes:

> "These are the nebulous threads which are felt, experienced, understood, but almost never explicitly expressed. They provide a subterranean level of meaning which is not readily accessible to the cultural outsider….they are 'what it means to belong'…They are what binds members to their culture so closely that they take from it the means by which to make the world known to themselves and to make themselves known to the world"
>
> Cohen (1982) p. 9-10

Another indicator of the 'bond' between individuals emerged as participants expressed working together for a common goal and as a team, often as a replacement for team sports played in their younger days. Those concerned that DGS may be banned suggested alternative country pursuits were not as social.

"it sort of builds a bit of a team as well while you are doing the drives"

P12 (beater, commercial, large)

"[If DGS was banned] It'd be a shame but I'm sure I would find some sort of other pursuit, I'd go fishing or something but it's much more social than fishing where you're just standing on the shore line casting in the sea and whatever. There's more people there, as you saw, it's quite a large community really you're talking 40 odd people plus."

P22 (beater, commercial, large)

There appeared to be a wider impact on rural social life in general, particularly through the winter months, increasing sense of belonging. In particular, at the larger commercial Shoots in the South West the Shoots provided lots of events for those who were involved, including quizzes, baking competitions at lunch time, a summer BBQ and Christmas party. However, the syndicates also offered annual beaters' days and social events such as a bowling night or pub meal, at which the guns, beaters and pickers-up mixed together – as noted in section 5.3.2: Bridging social capital.

That wider sense of community and belonging could be seen both in the way people accessed DGS, usually via word of mouth/friends and in their loyalty to their particular Shoots with people being proud of 'their' estate. This loyalty was reflected at both commercial and syndicate Shoots, where liking the Shoot was valued above financial reward at the smaller commercial Shoot and many said they were not doing it for the money.

> *"In general, it's just the community side of it and then being part of something. I think people are proud to be part of it because of the way it runs."*
>
> *P08 (picker-up, syndicate, smaller)*

> *"I think (sampled Shoot) are about the worst payers in the area. I mean I could go on, there's a Shoot on (a nearby moor) that have asked me to go and they pay £50, you know and when you pick up on grouse you're talking £70, £80. But you know I don't do it for the money."*
>
> *P37 (picker-up, commercial, small)*

Working indoors and wanting to be outdoors and thereby 're-connecting with nature', coupled with having an understanding of nature and food production and an appreciation of the countryside and its management appeared to be a key part of the participants' rural identity.

"I know animals are bred for eating, 'cause I eat meat, I wanted to make sure they had the best life right up until the end, so understanding how things went was something I was quite keen to find out."

P20 (beater, commercial, large)

"We're all very keen observers of nature so we enjoy that side of it."

P29 (gun, syndicate, large)

"We also help preserve the area. There's quite a few head of deer on the (the large syndicate Shoot visited) Shoot. I find it very comforting to think that there's a decent sized mammal able to live wild in the British countryside"

P30 (gun, syndicate, larger)

"the countryside and seeing things that you wouldn't normally see in your normal working day's life. You know, seeing the deer run out of the woods when you're beating through, it's everything"

P45 (gun, syndicate, smaller)

Identity theory suggests that people adjust their behaviour to conform with group behaviour (Burke and Cantwell, 2010) and there was evidence of this adjustment in behaviour in people newly moving to a rural area being accepted into a community. As noted in Chapter 2, section 2.2, Burke argues that in a group or category based identity the process of verifying identities allows people to create and maintain the social structures in which the identities are embedded (Burke, 2007), this would indicate that bonding and bridging social capital and the creation of social networks is strongly linked to identity. This adjusted behaviour to fit in had previously been noted by Heley (2010, 2011) looking at the impact of newcomers to the countryside. The data revealed newcomers to rural areas had adjusted their behaviour and immersed themselves in country life, being accepted within a social network, through the building of bonding social capital:

"I just love the fact I'm being accepted and doing, and living…I moved to the country, I was born in London, I've moved to the country and absolutely

immersed myself in country life. And absolutely, you know, if you're not going to join them don't come…….and it's really, really lovely. Really lovely."

P19, (beater, commercial, large)

The data collected confirmed that bonding social capital was apparent in both commercial and syndicates Shoots, with long-term friendships that often continued outside of the shooting season and social support networks identified across all sizes and type of Shoot. The clear sense of a rural identity expressed, whether that be through historic family connections or having lived in a rural community now or during childhood, reinforced participants' sense of belonging when taking part in what they classified as a rural pursuit and often a way of life:

"I think it's an endemic way of life. If you've grown up with it, it's part of your DNA" P48 (gun, syndicate, smaller)

5.3.2 Bridging Social Capital

Bridging social capital has been defined as:

> "ties between individuals which cross social divides or between social groups"
>
> (Claridge, 2018a, para. 3)

An analysis of the demographic data of participants in terms of occupations, or former occupations if retired or semi-retired, for both the commercial and the syndicates, indicated they came from a range of occupational backgrounds as shown in Tables 5.7 and 5.8.

National Statistics Socioeconomic Classification (NS-SEC)	Beater	Driver	Game-keeper	Picker up	Total
1. Higher Managerial, administrative & professional occupations.	1	0	0	2	3
2. Lower Managerial, administrative & professional occupations.	4	0	0	0	4
3. Intermediate Occupations	3	0	0	1	4
4. Small Employers and own account workers	3	0	0	0	3
5. Lower Supervisory & technical occupations	2	0	1	2	5
6. Semi-routine occupations	3	0	0	0	3
7. Routine Occupations	1	1	0	0	2
Totals	17	1	1	5	24

Table 5.7 Occupations or former occupations of commercial Shoot interview participants

However, at the commercial Shoots there was clear division between the pickers-up and beaters and the guns, with little or no contact between the groups. Whilst there was bridging social capital between beaters and pickers-up at the commercial Shoots, there was a 'them and us' division between those who have high disposable income levels and are buying the very exclusive shoot day for several thousands of pounds and those who are working on the shoot. This negative or lack of social capital, between wealthy and less wealthy individuals at the large and medium sized Shoots was observed by the researcher and interviews indicated there was clear division, with beaters and pickers-up not mixing at all with guns.

> *"Not the guns. Our lot tend to live in the rarefied and it's a bit like serfs and the rest and they all come in in their helicopters and their posh cars and things*

so I don't know what they got out of it I sometimes think it's just something you do if you can afford to do it and you do it at the best places and {the sampled Shoot] is one of them, you stay in big mansion and you brag about it and name drop but us lesser mortals just get the pure fun out of it really and that's what we do it for in the main"

P9 (picker-up, commercial, large)

Some syndicate guns, who had taken part in beating when younger, indicated their distaste for division and the attitudes of some guns:

"I learned from the beating side of it, how it works and why you do it, and how to meet the guns and how some of them are so far up their own arses you wouldn't want to meet them again and others are really nice people (laughs)"

P49 (gun, syndicate, larger)

The smaller commercial Shoot differed from the medium and large commercial Shoots as participants noted the estate owner often came out beating with them and was a 'good laugh' and 'involved in the banter', with participants referring to him by his first name, indicating a closer relationship than they would otherwise have expected between people from very different backgrounds. The smaller syndicate Shoot in Oxfordshire mentioned that this also was the case for their Shoot and an individual from a syndicate who also bought days in Scotland referred to this being common practice at Shoots he visited:

"*So the…I don't know what his title is…his dad's the lord so he's probably sir or something..he is quite often beating, just being there with people"*

P08 (picker-up, syndicate, smaller)

" when you meet the teams that you go to you never know who's going to be on the beating line - it could be the Laird of the land, it could be the local agent, it could be the postmaster it could be the policemen…you meet all cross sections in shooting absolutely all of them and the people that come out and the girls that come out with their dogs to pick up they can be retired businessmen, they can be local people that have been there forever, local farmers come out sometimes if they agree with the Shoot that's on their land

– everybody you can meet a whole cross section, that's the great thing about shooting it's the variety of people."

P49 (gun, syndicate source speaking about commercial Shoot)

Division was not apparent at the syndicate Shoots, with far stronger bridging social capital between guns and beaters/pickers-up. Table 5.8 shows the range of occupations/former occupations within syndicates. It also shows the participation of guns from all backgrounds – something that the syndicate model allows due to the lower cost.

	Beater	Gun	Picker up	Syndicate Organiser, Gun	Total
1. Higher Managerial, administrative & professional occupations.	1	4	2	1	8
2. Lower Managerial, administrative & professional occupations.	1	3	1	1	6
3. Intermediate Occupations	2	1	0	0	3
5. Lower Supervisory & technical occupations	0	1	2	0	3
6. Semi-routine occupations	1	0	0	0	1
Totals	5	9	5	2	21

Table 5.8 Occupations or former occupations of syndicate Shoot interview participants

At the large syndicate Shoot there was no division between beaters, pickers-up and guns. Some beaters and pickers-up were paid and others were not but all spent 'elevenses' (mid-morning refreshment break) and lunch together, with the lunch paid for by the guns. The syndicate members recognised the friendly and integrated nature of this Shoot and the guns were keen to express that the lack of division was a core part of the ethos of the Shoot:

"It's basically the social aspects of it. ……..at the end of the years where I've been bush beating there. You're always invited to the Shoot dinner. I would think there were about 60 people there last year. Nice pub that you go to you get a good quality high class meal…… No expense spared, they would not take a penny for it - there must have been twenty beaters and your

wives are included in this as well so ..you know if that tells a little bit about the generosity and the hospitality the guys at (sampled syndicate Shoot) provide for you. Wonderful. It's a lovely Shoot that is.

P40 (beater, syndicate, larger)

There was evidence that syndicate beaters and guns mix outside the season as well:

"We have a friendly syndicate there, we are all very good friends there's a very nice social aspect outside the shooting day and it's not just the guns it's the whole team that's there. ……[I meet up] with most of (the other syndicate members) [outside the shoot season]. We are also very keen fly fishermen two of us and the keeper is as well and two of the beaters, we also go pigeon shooting and there's social occasions …we have mutual friends so we often meet."

P29 (gun, syndicate, larger)

At the beat stand syndicate it was difficult to ascertain who were the paying guns and who were the beaters in the waggon at the first drive, perhaps a reflection of the integrated nature of the syndicate and bridges between people from different backgrounds. Some individuals noted they met people they would never otherwise meet and be friends with if they were not involved in DGS. This could be an indicator of developing bridging social capital perhaps leading to stronger, bonding social capital.

"Again talking to people about it the other day you know you kind of make a new circle of friends. I've got friends now I would never of met had I not gone beating now, they'll be friends for life"

P38 (beater, syndicate, larger)

Wider participation in DGS than only those who had a history of engagement and a rural background was also evidenced, as almost all participants got involved in DGS via word of mouth, with some never having been involved in shooting previously and just coming along due to their 'social capital' contacts bridging the gap between those within and outside of the

shooting community. The vast majority of overall participants, 80.0%, lived in villages or rurally, as shown in Figure 5.2 and in Table 5.5 on page 141.

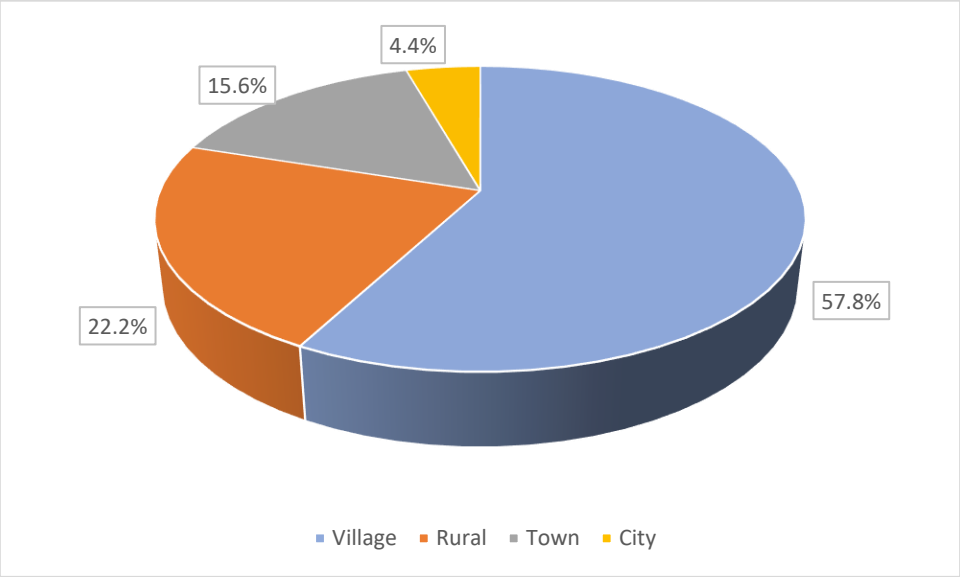


Figure 5.2 Percentage of interview participants living in each area type

Those that now lived in towns and cities found that taking part in DGS was a practical way to engage with rural life and that connection to nature and the rural identity identified earlier in this chapter.

> *"I've got an affinity with the countryside from the way I was brought up early on, house had a big vegetable patch and fruit trees then you just go out. I finally talked my wife into letting me have a gun dog, ……so I got invited onto Shoots to pick up. I didn't even know what a driven Shoot was up until then so that was my in…my entrée …and from then on it has become a practical way of me being out in the country in that sort of balance where we need to know….it grounds me really, tells me what really is important, animals and the balance of nature and the landscape etc ……My ideal might be a walk and stand type of Shoot …… so it is like a compromise really … as I live on a housing estate it's not practical ….I don't have my own land or anything…and if I did I'd have people keep on walking over it anyway so in the end it's a very practical way of me keeping myself in balance with nature and seeing what really is important and what sort of isn't."*
>
> *P08 (picker-up, syndicate, smaller)*

Whilst there were individuals coming to commercial Shoots from cities and towns through word of mouth, most participants lived locally in villages or rurally. Figure 5.3 shows greater participation from those in cities and towns in syndicate Shoots. Syndicates appear to facilitate greater opportunities for engagement for people living in non-rural areas, with over a quarter of syndicate participants, 28.6%, not living in traditional, rural areas.

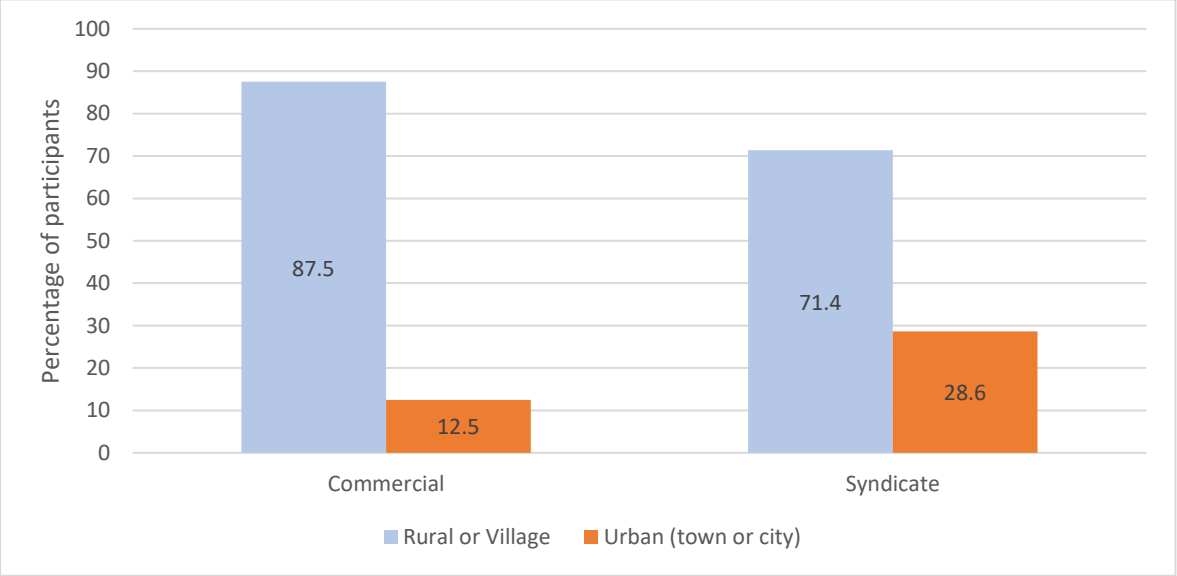


Figure 5.3 Comparison of interview participants from syndicates and commercial Shoots residing in urban or rural areas

This wider participation is reflected in the spread of different types of involvement in DGS across syndicates from both urban (towns and cities) and rural (rural and villages) areas as detailed in Table 5.9.

		Primary Role						Total
		Beater	Driver	Game-keeper	Gun	Picker up	Syndicate Organiser, Gun	
Commercial	Village	11	1	0		2		14
	Town	2	0	0		0		2
	Rural	3	0	1		3		7
	City	1	0	0		0		1
	Total	17	1	1		5		24
Syndicate	Village	2			7	2	1	12
	Town	2			0	2	1	5
	Rural	1			1	1	0	3
	City	0			1	0	0	1
	Total	5			9	5	2	21

Table 5.9 Where interview participants reside, split by role and Shoot type

Bridging social capital plays a key role in social cohesion. Social cohesion can be thought of as the glue that keeps communities together (Larsen, 2014) and includes common values, vision and sense of belonging and positive relationships, strong social networks and social capital (Kearns and Forrest, 2000; Local Government Association, 2002; Robinson, 2005). The contribution that DGS makes to socially cohesive communities, particularly in the more rural locations, was evident both from the social activities put on by the larger commercial Shoots detailed under section 5.3.1: Bonding Social Capital and the fact that participants expressed much of the local community was connected to the local Shoot in some way:

> *"[It] is a very small community and everyone in one way or another would be involved in the Shoot in one way or another, or family involved it."*
>
> *P46 (picker-up, commercial, large)*

Having a thriving community requires a mix of people from all backgrounds and across all age groups. Intergenerational social activities like DGS not only provide work in local areas, enabling working age people to stay living in an area, but also allow social contact across the generations. At all of the Shoots the researcher found 'intergenerational' guns, beaters, and/or pickers-up coming out together and many participants spoke of their keen-ness to involve the younger generation, bridging the differences between people of different age groups within a community. Children were only involved at the syndicate Shoots, not in the shooting of birds, but in accompanying the beaters and pickers-up as they walked through the woodland and countryside, observing wildlife and also learning about nature, the cycle of life and how food is produced whilst also just enjoying being outside with the family

> *"….. it helps with the education of my daughter so she is learning about trees and flowers and birds and death and life, how to feed them, so it's pretty much a family event going out to the shoot…….My daughter's seven. She goes out beating not all the time just occasionally. She does like walking through the woods bashing nettles with a stick. She's got her own stick now, she keeps leaving them behind in the woods though…so there you go stick making that's the other thing (laughs).*
>
> *P28 (beater, syndicate, large)*

The sharing of knowledge and skills pertinent to rural life and an understanding of nature between generations was particularly pertinent at syndicate Shoots, re-enforcing the membership of the particular game shooting culture and continuing tradition, a rural practice highlighted by Cohen in his work which did not specifically look at game shooting but considered identity and social organisation as a whole in British rural cultures (Cohen, 1982).

> *"I enjoy the fact that it's something that the rest of my family enjoy partaking in as well and that it's almost a generational gathering of different ages and people of different backgrounds and interests."*
>
> *P26 (gun, syndicate, larger)*

> *"There are two or three couples that come regularly and when their kids were younger the kids would come too so I think there's a sort of a family element but particularly for the younger kids there's sort of an educational element about wildlife and animals and things like that that they would probably miss out on."*
>
> *P51 (gun, syndicate, smaller)*

One younger beater, aged 17, valued the special connection she had with her grandad in their DGS participation, noting the bond with her grandad as a key reason for participation whilst also valuing the other intergenerational contact:

> *"when I met all the older people that went it's no different really, it's nice to have that support there because if there's anything wrong like that they're all like my grandads in a way and they look after me"*
>
> *P34 (beater, commercial, small)*

The data indicated that bridging social capital exists in both commercial and syndicate Shoots, with people from all backgrounds beating and picking-up. However, the ties appeared to be stronger with a wider range of people from different backgrounds regularly mixing and socialising together in syndicate Shoots. There was also a complete absence of division in the syndicate Shoots in contrast to the large and medium commercial Shoots, where the guns and other 'staff' never mix. The small commercial Shoot had less division in this regard, with

mixing between guns and other 'staff' sometimes taking place, but it was not as integrated as the syndicates. This is also explored in the quantitative data analysis in Chapter 6, section 6.4.

To attempt to support the above qualitative findings with quantitative data analysis the hypotheses shown in Table 5.10 were developed to be tested using data collected during the second stage wider questionnaire:

Hypotheses: Social Capital and Identity
1a: People who are in syndicates will have stronger friendships deriving from participation in DGS than non-syndicate member participants.
1b: Syndicate members will express a stronger link to heritage as a reason for participation than non-syndicate members.
1c. People who grew up in a rural area (village or rural) are more likely to participate for heritage reasons than those who grew up in an urban area.
1d: There will be no significant difference between rural and urban dwellers in the prevalence of people who participate because they feel a connection to the countryside and rural life.
1e. People who currently live in rural areas (village or rural) are more likely to participate in DGS because it is a pastime regularly practised in the area in which they now live, than those who live in urban areas.
1f: Regular paying guns who are members of syndicates are less likely to agree with the separation of beaters and pickers-up from guns for meal breaks, indicating stronger bridging social capital within syndicates.

Table 5.10 Social capital and identity hypotheses to test using wider questionnaire data

The opportunities for returns from the bonding and bridging social capital identified from the research, along with other social impacts, are explored in the sections 5.4.1 & 5.4.2.

5.4 Impacts/Returns

5.4.1 Social Capital returns

As noted in Chapter 2 in Table 2.3, social capital has been linked to several studies relating to health and well-being. Both Bourdieu (1986) and Coleman (1999) suggest social capital can be used to increase power and achieve goals, whilst Putnam, 2000 believes the decline in social capital is contributing factor to many societal problems, because people are less connected than they once were and social structures that used to provide support to individuals in times of need have disintegrated. These 'returns' on social capital were conceptualised by Lin (2008) as instrumental in the form of wealth, power and reputation – impacting directly on the individual and expressive, in the form of physical and mental health and well-being and life satisfaction, potentially having wider societal impacts, the area of key concern in this study of 'social impacts'. Life satisfaction can be defined as "an endorsement of or positive attitude toward one's life overall" (Hall, 2014, p. 157). It has been suggested that subjective well-being consists of two components: the emotional affective (emotional) and cognitive (judgmental) (Diener, 1984; Veenhoven, 1984) and it has been argued that the judgmental component can be conceptualized as life satisfaction (Andrews and Withey, 1976). High levels of self-reported life satisfaction have been strongly associated with self-reported good mental health (Lombardo *et al.*, 2018) and so can be closely correlated to well-being.

One aim of this study was to ascertain if the social capital element of DGS encourages participation and therefore receipt of the social capital returns, and clear evidence of this was found. Many participants said that participation was a reason to go out in all weathers and that they would, otherwise, be at home watching television.

> *"The other thing that obviously is a big attraction for myself and just about everyone I know is the social aspect because the very fact that you are doing something that isn't run of the mill means that you are actually working with a group of people all of whom have similar interests and ability so it's a sort of natural selection process really …..and why do I do it when it's wet and horrible."*

P18 (beater, commercial, large)

"Everybody cheers you on, come on you know you're getting on a bit now …we all give a lot and take a lot really. I mean I don't rate getting up at six o'clock in the morning to go out beating a great idea this time of the year, you know but when it's snowing it's even worse (laughs) but I never say no"

P10 (beater, commercial, medium)

The data revealed a number of positive and negative impacts/returns which are explored in more detail in sections 5.4.2 and 5.4.3.

5.4.2 Positive Impacts/Returns

There were a number of examples of positive impacts on both physical and mental well-being, something that would be described as an expressive social capital return by Lin (2008), as explored in Chapter 2, section 2.2.3. In particular, there were two participants at the large commercial Shoots who had dealt with mental health conditions and involvement in DGS had helped them manage and/or overcome their condition, one of whom mentioned this in the field and one in their interview.

"*Yeah sure, so with all jobs come stresses but I realised that I wasn't willing to take the stresses in that line of work (former job), …… It started to really affect my health as well, the constant stress and strain and so I feel…well I am a different person now to how I was four, five months ago that's for sure. I would wholeheartedly say this has given me a fantastic routine …… I was on a steep downward track and then this has just picked me right up again, it's been amazing you know the social interaction with others, I mean, most of them are pensioners but there's a wealth of experience there you know just the social interaction. You're not just staring at your screen at social media watching what your friends are doing you are actually out there.*"

P17 (beater, commercial, large)

Others commented on the risk of loneliness in rural areas when retired and the need to not just stay indoors. At the commercial Shoots sampled, 50% of the beaters/pickers-up were retired or semi-retired, at the sample syndicate Shoots, 40% of the beaters/pickers-up were retired or semi-retired. Several retired individuals noted DGS gave them a sense of purpose in retirement (also explored in Chapter 7, section 7.2.3), which many recognised is important in maintaining good mental well-being:

> *"I think it's just, it gives a sense of purpose especially if people are retired and got nothing else to do. It's certainly not for the money we're not talking big bucks. I think it's for the friendship and getting out in the fresh air doing something meaningful."*
>
> *P41 (beater, syndicate, large)*

> *"My top reason (that I take part in DGS)…. I'd get bored at home. Can't watch the telly all day long."*
>
> *P11 (beater, commercial, medium)*

As noted under section 5.3, the larger commercial Shoots provided a lot of social events and appeared to be a large part of people's rural social life, helping to avoid loneliness and maintain life satisfaction and personal, mental well-being.

There was evidence of people who would otherwise find it difficult to make friends being able to make those connections through DGS:

> *"I've met loads of friends from it, it's really good socially. Especially I'm one of these, I struggle speaking to normal people, school mums or people like that, 'cause I feel like they all judge you, I feel like people look down at you and talk about you. Beating you can just be yourself. There are people there that are just like you and understand your hobby and interests."*
>
> *P32 (beater, commercial, small)*

This statement is interesting; as noted earlier the BASC (2016) study found that a majority of respondents stated if they could no longer shoot they would find meeting new people harder

(68%) and making new friends even harder (63%). This study also noted that maintaining friendships would be harder (62%) than it currently is with their involvement in shooting and their social life would be poorer (77%) (see also Table 3.3 in Chapter 3). As noted in section 5.3.1, many felt DGS maintained seasonal friendships and people would drift apart if they did not have the structure to the year that the shooting season provides. This would seem to indicate that DGS has an impact on both creating friendships and social networks and maintaining them, which has been shown to have positive benefits of mental well-being as shown in Table 2.3 in Chapter 2.

A support network activated in a time of need was identified at syndicate Shoots for three specific individuals one due to major illness of a partner and the other two due to bereavement. One also identified there were others in the same situation:

> *"I tell you a thing that is interesting in my particular case I think as you'll remember I lost my wife about, last year, and it's having the Shoot and the comradeship and the necessity to keep involved else the thing will fall over when we put the pheasants in if they don't get any water or food…things are vital…that has actually seen me through a difficult period that is a specific social impact …… there's no doubt that the fishing and shooting commitment which I couldn't get out of once I've volunteered was in fact the driver for me to you know pull your socks up and get on. You can't generalise about that cause very few people will be in that position I dare say but we've had a couple of beaters in that position and they've said oh I like coming out cause there's a lot of company and contact and chat and banter so they've carried on whereas the temptation is to stay at home and watch telly."*
>
> *P43 (syndicate organiser, syndicate, smaller)*

Personal, subjective, well-being and happiness featured highly in the reasons for participation, also in line with the BASC (2016) report findings of areas that would be negatively impacted if participants could no longer take part in shooting and reasons for taking part. Spending time in fresh air and open spaces, a pastime that has been shown to

be beneficial to health and well-being in previous studies, enhancing the benefits of physical activity participation (J. Pretty *et al.*, 2005; Jules Pretty *et al.*, 2005; Countryside Recreation Network, 2006; Thompson Coon *et al.*, 2011; Loureiro, Veloso and Veloso, 2014; Frühauf *et al.*, 2016), was indicated as a key reason for taking part in DGS. The findings of the BASC (2016) report that 91% people would spend less time outdoors in nature if they could no longer be involved in shooting appears to support that involvement in DGS facilitates time spent outdoors. Escaping the stresses of working life was noted particularly by guns, most of whom had stressful jobs with long hours, also evidenced by the need to call them after 7.30pm for interviews– some were still in the office at this time when the researcher called.

The UK government measures mental well-being using the Short Warwick Edinburgh Mental Well-being Survey (SWEMWBS) in its national well-being survey. The sample size was too small to make any overall assumptions about well-being across DGS participation overall. However, to try and ascertain the impact of engagement in DGS on mental well-being and to assist in the design of the second stage questionnaire, a statistical well-being analysis was carried out with the 44 of the 45 interviewed participants that answered the SWEMWBS questions (one participant declined to answer). This data was then aggregated into age bands using SPSS that aligned to the national SWEMWBS dataset from the national well-being survey (Office For National Statistics, 2018b). The test for normality showed a slight negative skew as shown in Figure 5.4, due to the higher age range of participants. Therefore, it was deemed necessary to compare age groups rather than overall SWEMWBS scores.

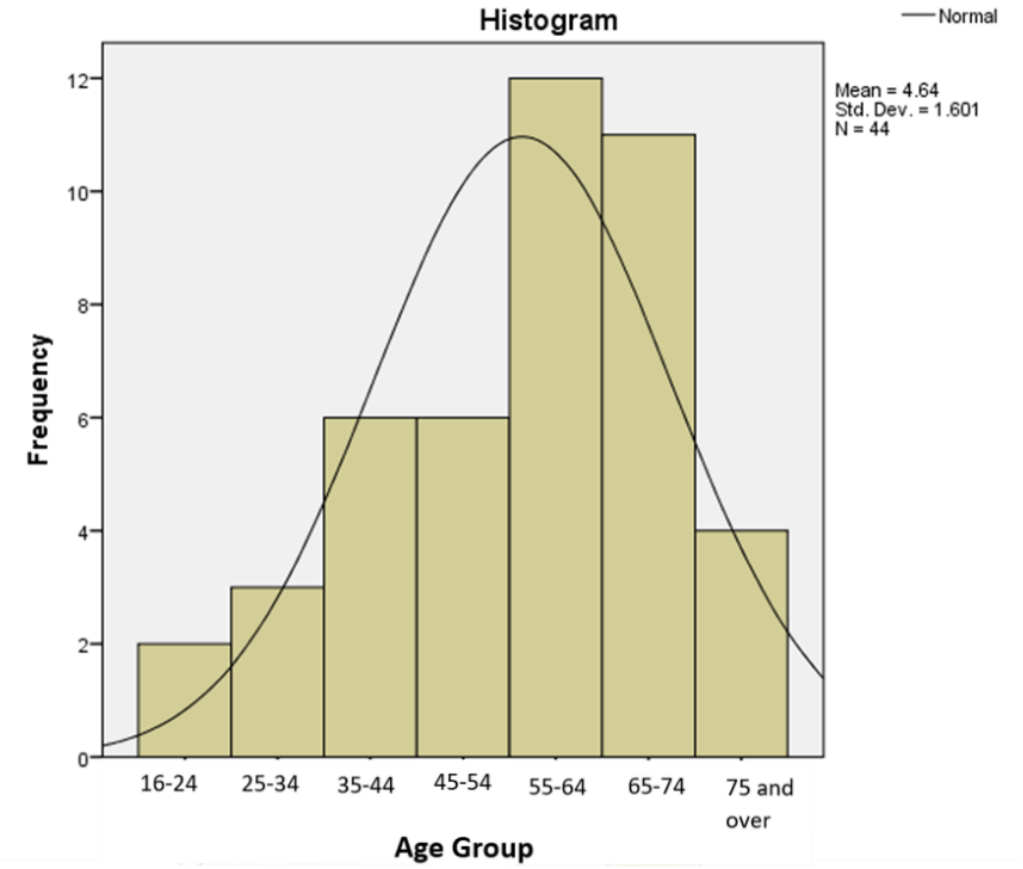


Figure 5.4 Age groups distribution of interview participants giving SWEMWBS scores

When compared to the national dataset as shown in Table 5.11, there was a clear difference in scores. The dataset is too small to make valid and reliable assumptions, especially in the 16-24 and over 75 age groups, but in all age groups except for those under 25 the well-being of participants was considerably higher than the national average. However, only two individuals in the 16-24 band were interviewed.

	Number of participants	Respondents mean SWEMWBS	Understanding Society Wave 7 2015-2016 national dataset	Difference in mean
16 to 24	2	24.00	25.27	-1.27
25 to 34	3	30.67	25.07	5.60
35 to 44	6	29.67	24.99	4.68
45 to 54	6	29.00	25.01	3.99
55 to 64	12	29.17	25.35	3.82
65 to 74	11	30.83	26.43	4.30
75 and over	4	29.67	26.01	4.24

Table 5.11 Difference between national dataset SWEMWBS means by age group interview participants' mean SWEMWBS

It is only possible to compare commercial and syndicate participants' well-being scores across four of the age bands as shown in Table 5.12, due to the lack of participants in other age bands for syndicates. However, this small sample indicated that membership of a syndicate had a slightly greater impact on well-being scores that commercial Shoots for participants aged 45 and over, whereas commercial Shoot participation had a greater impact on well-being for those between 35-44, in the case of these sampled shoots.

	Commercials mean SWEMWBS	Syndicate mean SWEMWBS
35-44	31.00	29.00
45-54	28.00	29.5
55-64	28.83	29.5
65-74	29.20	32.0

Table 5.12 Difference between commercial and syndicate Shoot interview participants' mean SWEMWBS

The mean average interview participant SWEMWBS for commercial and syndicate shoot participants was compared to the national dataset Understanding Society Wave 7 2015 – 16 (UK Data Service, 2017) as shown in Table 5.13. It is inadvisable to do independent t-tests on sample sizes ≤5 as with sample sizes this small, there is a high probability of a type II error (non-rejection of a false null hypothesis) and therefore a risk of a false results entering the scientific literature (Cohen, 1970; Rossi, 1990). As the sample sizes for nine out of the eleven age banded results for the full interview participants dataset fell within these criteria, no statistical testing was carried out on this limited sample. Instead, this indicative trend was used to develop the wider questionnaire for distribution to a larger sample and to develop the hypotheses shown in Table 5.15.

Commercial or Syndicate	Age Group (Calc)	N	Interview participants mean SWEMWBS	Understanding Society Wave 7 2015-2016 national dataset	Difference in mean
Commercial	16-24	2	24.00	25.27	-1.27
	25-34	3	30.67	25.07	5.60
	35-44	2	31.00	24.99	6.01
	45-54	2	28.00	25.01	2.99
	55-64	2	28.83	25.35	3.48
	65-74	5	29.20	26.43	2.77
	75 and over	4	30.25	26.01	4.24
Syndicate	35-44	4	29.00	24.70	4.30
	45-54	4	29.50	24.80	4.70
	55-64	6	29.50	25.20	4.30
	65-74	6	32.00	26.40	5.60

Table 5.13 Difference between national dataset SWEMWBS means by age group and Shoot type and interview respondents mean SWEMWBS

Participants mentioned the increasing non-acceptance of country pursuits, as we move to a more urbanised society that does not understand or value rural ways and country pursuits. Considering this observation, participants' sense of belonging could be described as the 'culture' of a group of individuals (Cohen 1982) in a peripheral community marginalised from the politico-economic centre. Younger participants expressed concern around lack of ability for participants to effectively challenge these views through modern, social media channels:

> *"I think that a lot of people feel very threatened. You know like the sand timer is ticking and time is running out on the sport. I sort of feel that way as well, it seems to be, I don't know whether it's the media, swinging in the favour of everyone who is anti-shooting and anti-eating meat and that sort of thing……I think a lot of the people which would just, you know be ticking along into retirement going out beating they don't have much of a shouty voice, they're not on social media, they don't complete surveys they slip under the radar"*
>
> *P17 (beater, commercial, large)*

Confidence in using online communication methods is also discussed in Chapter 6, section 6.6.1 and Chapter 7, section 7.3.1.

As noted in section 5.2, Table 5.5, half of the participants (all pickers-up and beaters) from commercial Shoots were retired or semi-retired and at syndicate Shoots, the pickers-up and beaters were mix of four retired/semi-retired individuals and six working individuals. Having a purpose in retirement seemed to be a key feature, a reason to go out, not just to earn money.

> *"Obviously now with a lot more time on my hands being retired I look forward to going beating. This week would have been three days a week if I'd gone yesterday so obviously 2 or 3 days a week, get you out the house, get you in the fresh air"*
>
> *P36 (beater, commercial, small)*

> *"It's certainly not for the money we're not talking big bucks…but I think it's for the friendship and getting out in the fresh air doing something meaningful"*
>
> *P41 (beater, syndicate, larger)*

Contributing to a good day's shooting could be linked to this sense of purpose, particularly for pickers-up and beaters who owned gun dogs and who felt pride at receiving positive comments on the work of their gun dogs.

> *"I get a pleasure out of watching my dog work. I've had her, I bred her the fox red lab, but I've had her since sort of March and this is my first full season of doing it properly with a dog. It's quite nice to be able to see any dog do something, but a dog that you've bred, cause I've got the mum as well, do something and it helps contribute to the guns and everyone having a good day."* *P38 (beater, syndicate, larger)*

> *"Then there's the let days, you know they could be a group of judges, we have an elderly team and they're all sort of ex-judges and they're so lovely, you know they complement how the dogs work, yeah it's good."*
>
> *P37 (picker-up, commercial, small)*

This appreciation was only apparent and noted by beaters and pickers-up at the small commercial day and the syndicates, as observed by the researcher and noted by a participant who had formerly picked-up on a larger commercial Shoot but now solely volunteered on a syndicate Shoot:

> *"the appreciation is there…it's at a level where if a bird gets picked people will remember it, sort of thing rather than it's a three or four hundred bird day then nobody really has kept a track much of what's been getting shot etc so there's more focus on the birds so therefore you feel more relied upon, more responsible to find the bird and for your dog to do well and then people will know that you've found an awkward bird or something so it's a different level of everything. Everything matters that little bit more you know."*
>
> *P08 (picker-up, syndicate, smaller)*

Physical health positive impacts were also evident. Being in the fresh air and exercising outside has been shown to have positive impacts on health in a number of studies (Countryside Recreation Network, 2006; Barton and Pretty, 2010; Loureiro, Veloso and Veloso, 2014; Frühauf *et al.*, 2016). Most participants suggested exercise and fresh air as being two key reasons why they engaged in DGS.

The distances walked were also considerable and often on difficult terrain, especially at the medium commercial on the Moors as noted in Table 5.14.

Shoot	Distance walked measured by researcher	Distance participants claimed to walk
Large Commercial 1	8.0 km	8-14 km
Large Commercial 2	9.0 km	8-14 km
Medium Commercial (NYM)	15.0 km	Up to 20 km
Small Commercial	8.0 km	8-10 km
Larger Syndicate	9.0 km	8-10 km
Smaller Syndicate 1	10.0 km	10-12 km
Smaller Syndicate 2	8.5 km	8-10km

Table 5.14 Distances walked by Shoot type/size

At commercial Shoots, the older participants were given shorter distances to walk, with younger beaters walking much further and often over steeper terrain. Average participation of twice a week was noted, which could have a large impact socially in maintaining good physical health.

There were people who enjoyed being part of a team, several of whom said they used to play rugby, football or cricket but could no longer manage this now, so this was a good form of exercise with a team participation element. One gentleman was specifically doing beating to help recovery after his hip replacement. Another individual, a picker-up at the medium commercial Shoot, had recovered faster than expected from major surgery, something he, and his doctors according to the participant, had thought had been due to him being physically fit. Another at NYM had recovered from a stroke a few years previous and had now been moved to the easier flanking line (only walking 8km), he was at the Shoot when it happened and the keeper made sure he got home safely:

> *"I mentioned yesterday that I had had a heart bypass. Well I was slowing down and everybody was noticing and saying 'oh he's knackered now that sort of term…he better not be coming out' then all of a sudden I ran out of puff and I went off to hospital and got sorted. That was, 2013 got that sorted then I went and had a couple of mini-strokes and I had a fairly big operation to sort that, that's within the same year. I was actually at the Shoot, waiting to go beating at 9 o'clock and sort of felt a bit rough and went home, followed by one of the keeper's keeping his eye on me to make sure I got home. But I went to the doctor's surgery and finished up in hospital and had an operation. I didn't even know they were following me. They sent one of the lads to follow me home, to make sure I got home. And that's the sort of friendship you get."*
>
> *P10 (beater, commercial, medium)*

This physical well-being link is in line with the BASC (2016) finding that 80% of shooters, which included all types of shooters not just those involved in DGS, were likely to be undertaking physical activity for or related to shooting. This study also found that if they could no longer be involved in shooting, just over 70% said their physical activity and engagement in sport

would decrease (British Association for Shooting & Conservation (BASC), 2016). This evidence, coupled with comments from interview participants, almost all of whom said they would do less exercise if they did not participate in DGS, indicates that engagement in the activity encourages more physical activity than the individuals would otherwise complete. This overall positive impact on mental and physical health and its wider social impact is discussed further in Chapter 7.

There was evidence of what would be termed 'instrumental' social capital returns by Lin (2008), in relation to free advice, from builders or IT consultants for example. This was particularly apparent at syndicate Shoots, where there appeared to be less division between people from a very wide range of occupational backgrounds and that had very different knowledge and skill sets. One picker-up spoke of dental work he had received free of charge due to his DGS connections he would not otherwise have had access to. One beater at a commercial Shoot spoke of receiving commissions to paint portraits of gun dogs, a small business she had set up. Almost all beaters and pickers up built up their work within the DGS community via word of mouth – 'social capital' facilitating a financial return for those paid for their services. It could be argued that the 'thank you' beaters' days provided at the end of season allowed people who could otherwise not afford to shoot driven game, due to the cost of taking part in DGS as a Gun, to participate in a driven game shoot.

There was evidence of bridging social capital allowing someone to make the contacts to change careers:

> *"I've moved from a job in the pharmaceutical industry and a promising career towards working outdoors and the first step being beating and making some good contacts doing so."*
>
> *P17 (beater, commercial, large)*

A wider impact on the local economy was also indicated. Improved social cohesion can be facilitated by enabling a thriving local economy to reduce wealth disparities (Kearns and

Forrest, 2000). The contribution of DGS to local economies is not within the remit of this study, however there was evidence that money earned by beaters in rural areas remained in those communities with, several of the paid beaters/pickers spending their money locally to buy goods and even services such as craft classes.

Discussions in the field and subsequent interviews revealed several individuals who were proud of the positive impact that DGS had on the environment, whether that be through their self-management of a syndicate Shoot or by the particular Shoot or Shoots they were associated with. These environmental impacts were discussed more fully in Chapter 3, section 3.6. In particular, those working at commercial Shoots, but also several syndicate guns, were keen to point out the economic impacts, which had also be noted in a number existing reports (Public and Corporate Economic Consultants (PACEC), 2012, 2014a), although disputed by those against shooting (Cormack & Rotherham, 2014). Economic benefits such as employment can have an indirect impact on health, having been identified as one of the social determinants of health by Dahlgren and Whitehead (1991).

Reciprocity was another area of interest, with Putnam (2000, p.19) defining social capital as "connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them". Clear examples of reciprocity, the practice of exchanging things with others for mutual benefit, was only seen in syndicate Shoots, indicating stronger bonding social capital ties. In terms of the larger syndicate Shoot, the guns spoke of letting friends use their 'gun' on the syndicate while they worked the beating line and in return they would go and shoot on another Shoot elsewhere in the country. There was a cash free economy apparent in both the smaller syndicate Shoots. This Shoot also distributed game dealer prepared, oven ready pheasants to local needy residents. The smaller Shoot in Oxfordshire did not pay rent for the land, instead they just provided a day's driven shooting for the landowner and his friends once per season.

One particular positive return, which clearly showed strong bonding and bridging social capital, was highlighted by a picker-up whose dog had been injured at the Shoot:

> *[My dog] was working one day and she went over a log and a bramble went over her leg and acted like a noose and pulled her hip out of the socket and it dis-located and it wouldn't go back in and unfortunately we had to make the decision to operate, one of the hardest decisions I've ever, ever made and you really learn about people that are shooting when they all band together and they help you out and they help you with the cost of the operation. That's what shooting's about, good people. Everybody banded together, we're like a family on our Shoot, they all banded together, no hesitation and all contributed towards getting [my dog] back onto where she is now."*
>
> *P42 (picker-up, syndicate, smaller)*

As noted earlier, Lin, (2008) identified social capital returns can be instrumental in the form of wealth, power and reputation. In section 5.3.3 it was indicated that most people at Shoots gained access via word of mouth, especially for commercial Shoots, gaining paid work via social capital links. At commercial Shoots in particular, especially in the medium commercial Shoot in the North Yorkshire Moors, several beaters said it was their only source of income that fitted in with the other seasonal work they received over the summer months. This is in line with the PACEC reports (2012, 2014) that found shooting provided employment and training opportunities that were particularly of impact in rural areas where work can be seasonal or low skilled. As noted above, employment is one of the social determinants of health as identified by Dahlgren and Whitehead (1991) and in rural areas where tourism is the main form of employment, work through the winter is much more important, having a greater social impact, allowing working age individuals to live in an area all year round.

To attempt to support the above qualitative findings with quantitative data analysis the hypotheses shown in Table 5.15 were developed to be tested using data collected during the second stage wider questionnaire:

Hypotheses: Positive Impacts – Mental Well-being
2: Participants in DGS have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than the national average.
2a: Participants in DGS who are members of syndicates have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.
2b: Participants in DGS aged 55 and over who are members of syndicates have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.

Table 5.15 Hypotheses to test positive impacts/returns using wider questionnaire data

In terms of social capital increasing the power of individuals to collectively work to facilitate change, participants felt that they were unable to efficiently work together, and thereby increase their power to affect decision making, to promote the positive aspects of their sport to society as a whole, particularly on social media due to their lack of skills in this area. They expressed being a quiet minority, with many feeling victimised by 'outsiders' telling them what they can and cannot do. This has the potential to cause conflict, an identified negative impact explored in next section 5.4.3.

5.4.3 Negative Impacts/Returns

Whilst Lin (2008) identified positive returns, negative returns were not considered in his model. Identity theory suggests that there are negative aspects to 'in-group' and 'out-group' identity which can result in conflict, as discussed in Chapter 2, section 2.2.1.

There are some individuals who are vehemently opposed to shooting for sport and therefore the risk of conflict between those for and against an activity must be recognised. The impact of negative publicity such as that identified in Chapter 3 (Milmo, 2015), from Shoots not operating in a respectful and ethical manner was highlighted in particular by syndicate Shoot participants, concerned with the negative impact of large commercial Shoots and 'big bag days' on the continued existence of their pastime:

> *"The actual etiquette of shooting and the moral side of shooting is something that we were brought up to shoot what you needed and then it turned commercial and then it shot nearly everything you could shoot at from a commercial, corporate point of view which was disgusting and still is to some extent but …way back in Victorian times they used to be double gunning and shooting a thousand bird days or two thousand bird days which is just mass slaughter and totally ridiculous in any farming, right minded conservationists viewpoint…….. What you're shooting at is a live bird, it's got a life, a right to some sort of life and some sort of despatch in a fair rather than just ignored as a target in the sky like a clay pigeon."*
>
> *P49 (gun, syndicate, larger)*

Whilst the commercial Shoots visited for this study had clear processes in place to ensure no wastage and put all meat into the food chain, in line with the aim of the British Game Alliance (British Game Alliance, 2018), the sustainability of large commercial Shoots offering very large 'bird bag' days, has been questioned by those inside the community (Starkey, 2018a), as well as those outside (Milmo, 2015).

Newcomers to the countryside with no 'rural' identity and strong views against shooting can come into conflict with locals. Participants expressed concern about 'city folk' who do not understand country life coming and telling them what to do and being against what, in the eyes of the participants, has been a local tradition in an area for generations.

> *"Although I would say now we live in … It's a national park this now, and over last I would say 30 -35 years or even 40 years there's so many people that weren't bred and born here through generations that have moved in and we have a lot of what you might call antis round about now as well … you know there's a chap in the next village, a mile away, ……. he came …a good lot of years ago…… and he would ban grouse shooting. He has ever so many stand up arguments in pubs that I hear about with people. He would ban grouse shooting and he's heavily against it …….. so I asked him what in your wildest dreams made you make the biggest purchase of your life, which is your house, right in the centre of one of the biggest estates in North Yorkshire if you don't like grouse shooting? And he wasn't very pleased with that idea but I thought well it's a crazy idea to come and live in the middle of something you hate."*
>
> *P24 (driver, commercial, medium)*

> *"[If DGS were stopped] Well I mean I'd be quite angry in that respect. I'm very much a person who live and let live. I don't want other people coming around…the townies of this world coming along and giving me direction as to what I should be doing with my life, no thank you, bugger off sort of thing."*
>
> *P40 (beater, syndicate, larger)*

> *"myself and guns like me really enjoy going into towns, cities, especially cities and we like what we see we don't try and alter. What's so frustrating for us is that the cities and town people want to come to the countryside and change it. As my grandfather used to say to me, a little intelligence is dangerous and that's how we view people that say what we do isn't towards the best interest of the countryside. I beg to differ because if they did understand, it's people putting their money in, not just coming to look at the fields and throwing bloody litter all over the place."*
>
> *P33 (beater, commercial, small)*

This perceived lack of understanding by those outside of the countryside of the positive aspects of DGS – land management, conservation and economic benefits – was mentioned by a large number of participants. Also a perceived lack of understanding of how DGS works and that, particularly in syndicates, all the game meat was used by the participants and their friends. Many also believed people against shooting had a lack of understanding of food production, with people happy to buy a film wrapped chicken for example from a supermarket but unhappy to eat free-range, wild reared game.

> *"they're bound to be people that I chat to they think you take pheasants out and blast the living daylights out of it but I would always argue a pheasant's got more chance than a chicken in a chicken house"*
>
> *P22 (beater, commercial, large)*

> *I think people who are not involved in it …… I think they have quite a distorted view on what driven shooting is about …they just see it as the innocent slaughter of thousands of birds. They don't see the financial side of things or you know the social impact it has on a lot of people in the country so …I never used to live in the country, I'm semi-rural now and there's far too many people that judge without knowing the full facts. It's the old saying never judge a man until you've walked a mile in his shoes.*
>
> *P41 (beater, syndicate, larger)*

> *I wish more people understood exactly what went on. A lot of people are quite ignorant of that and they saw 'your dog kills a bird', No, they think the dogs go out and find the birds and kill them, without being shot, it's just people's ignorance not knowing what actually goes on.*
>
> *P50 (picker-up, syndicate, smaller)*

Conflict was also witnessed by the researcher between walkers and beaters on the Yorkshire moors, with a walker refusing to wait for safety reasons, being verbally aggressive and walking through a drive - although the beaters said this was unusual and most walkers were happy to wait for a drive to be completed before moving on with their walk. There is particular conflict on the moors with a number of prominent campaigners seeking to ban driven grouse shooting

completely (Avery, 2016). This in group/out group issue, where people strongly identify with one group and there is a group with strongly opposing views, is a negative impact of strong identities (Tajfel and Turner, 1986). Several participants expressed concern for their safety at wearing shooting attire on public transport or in some areas of the country, and some spoke of an earlier era when they could take pheasants into the office in London, perhaps illustrating the changing attitudes in wider society to acceptance of country pursuits.

> *"I'm going back to when I was working for a company in London. There were probably only about three or four people that shot, you know it's …you wouldn't want to be seen as in the old days some people were. They'd go into work in London in the city on a Monday morning with an armful of pheasants…you wouldn't want to be seem walking through the streets of London like that today. You'd cause a minor riot I think, you'd certainly get abuse."*
>
> *P30 (gun, syndicate, larger)*

Some syndicate members in particular expressed support for some kind of licensing, along with a need to maintain respect for birds and run Shoots in an environmentally sensitive way with no meat wastage, highlighting the positive environmental benefits and ensuring safety of participants, in order to encourage 'common values' (Kearns and Forrest, 2000), which are a key part of social cohesion and 'a sense of belonging' (Local Government Association, 2002), for all individuals in areas where pro and anti-shooters live, rather than conflict.

> *"It's a whole conservation programme on the moors and the woods and everything is laid out for it, and it must be preserved and to do that we much make sure we're not looked at as if we're a bunch of evil hooray Henry's whipping around with a sloe gin at 11 o'clock, and not worrying about what we do with the meat that we're despatching and making sure we also pick up and collect that wounded stuff very quickly and despatch it properly and give it some respect and I think that's important, that bits gotta come across a little more maybe, and not let people be afraid of it thinking you're just a gun toting hooligan in the countryside, you're not at all."*
>
> *P49 (gun, syndicate, larger)*

Some participants raised concerns about wider negative environmental impacts due to the large amount of lead shot being used and the impact on neighbours of large commercial Shoots. Many syndicate members expressed concern during conversations in the field that some larger, commercial enterprises were not in balance with nature.

> *"If you're doing this perhaps to give it a balanced view you ought to talk to people that live in a shooting area that are not involved in shooting and see how they feel about it, I don't know. It's very easy to give a one sided view of things because I am sure there are people that are not really keen on it at all. I must be honest I live somewhere where there's no real Shoot around. The only shooting that gets done on my ground is me taking out a gun and having a potter around sometimes. But the same could be said for clay pigeon shooting so I think it's more to do with the shooting than necessarily what you're shooting at."*
>
> *P22 (beater, commercial, large)*

One limitation of the study was the inability to ask those not involved in DGS who live in an area where it takes place about the impact on them, due to the limited budget and time-frames of the study and the risk of skewed results from anti-shoot interest groups impacting on an open survey. Whilst there are many positive impacts of DGS, there are also negative impacts to be considered, as noted in this section, and these are included in the future measurement Chapter 8.

To explore further the above qualitative findings, the hypotheses shown in Table 5.16 were developed to be tested using data collected during the second stage wider questionnaire. The use of descriptive statistics supplements this wider questionnaire data analysis.

Hypotheses: Negative Impacts - Wider perceptions and perceived conflicts
3a: People living in urban areas are less likely to agree that people in towns and cities don't understand DGS is a part of rural life.
3b: Regular paying guns who are members of a syndicate will be more concerned that 'big bag days' can present shooting in a bad light compared to non-syndicate members.

Table 5.16 Hypotheses to test negative impacts – wider perceptions using wider questionnaire data

5.5 Conclusion

This chapter has explored the social capital within DGS and has shown that both bonding and bridging social capital exist across all types of Shoot and this social capital is strengthened by a keen sense of identity amongst those that participate. Larger commercial Shoots appeared to have weaker bridging social capital than syndicates due to the lack of mixing between guns and beaters/pickers up.

A sense of strong rural identity was identified amongst most participants, which has been shown to engender a sense of belonging and improve self-esteem. There was evidence of a social support network, that had been activated in times of need for several of those interviewed, helping to avoid loneliness and poor mental health. It was clear that engagement in DGS was a key factor in life satisfaction for all those interviewed. As noted in Chapter 2, It is important to note that around one third of all respondents to the wider questionnaire surveyed were retired (see figure 6.3 in Chapter 6) and research has shown that satisfaction with recreation activities rather than frequency of recreation activities, has a significant and positive relationship significant positive relationship to life satisfaction in retirement (Russell, 1987), an important factor when considering the social impact of a seasonal activity like DGS. There was clear evidence of positive impacts to physical health in encouraging participation in regular, moderate, and sometimes strenuous, exercise. Employment and social networks, identified as social determinants of health by Dahlgren and Whitehead (1991) were found. Other positive impacts identified by participants included individual financial returns and other 'instrumental' returns as identified by Lin (2008), the environmental conservation benefits of managing shooting estates and the economic benefits to communities, encouraging social cohesion.

There were also some negative impacts identified including division between guns and others at commercial Shoots and concerns about big bag days and how they impact on wider society's perceptions of DGS, meat wastage and negative environmental impacts. The negative consequences of strong identities were also identified, which risk exacerbating potential conflict between those for and against shooting in rural communities, especially

between newcomers to an area and those with historic, place-based connections and strong rural identities.

Figure 5.5 shows how social capital and identity explored in section 5.3 can lead to the creation of social structures/networks which then can result in impacts/social capital returns explored in section 5.4 when activated, perhaps through a sense of belonging and identity which encourages participation in a particular group activity, in the case of this study DGS.

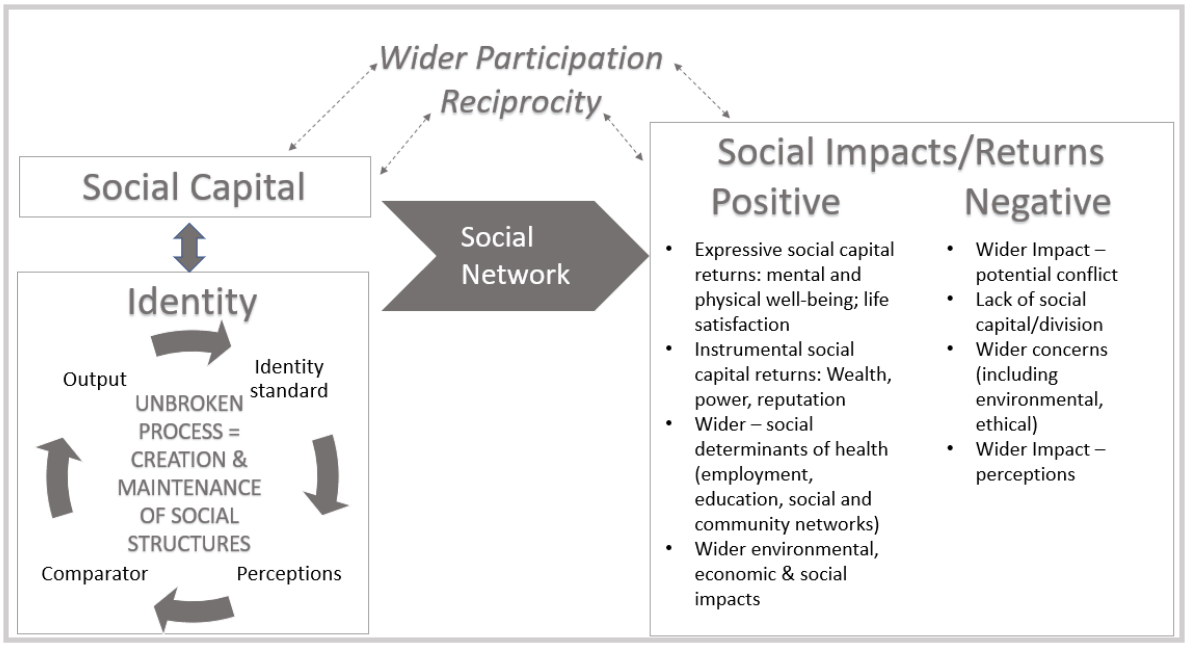


Figure 5.5 Diagramatic summary of qualitative research analysis results.

Chapter 6 - Questionnaire Data Analysis

As noted in Chapters 4 and 5, the concepts and themes identified during qualitative data analysis were utilised to develop a questionnaire for wider distribution, as shown in Appendix D. This chapter follows the methodology outlined in Chapter 4, and outlines the range of respondents and the processes followed to analyse the quantitative data. However, first an overview of the questionnaire and its distribution methods is given, along with an explanation of the hypotheses to be tested and the comparative datasets used for the study. The chapter then analyses the reliability of the short Warwick-Edinburgh mental well-being scale (SWEMWBS) used in the research, and describes the processes followed to ensure reliability and validity of the data analysis. The chapter then details the quantitative data analysis, first examining social capital and the role of identity within DGS, concluding with an assessment of the social impacts of participation in the 'social network' based activity of DGS. An in-depth discussion of these results in relation to the prior literature and data gathered in this study as a whole is presented in Chapter 7.

6.1 The questionnaire

The questionnaire shown in Appendix D was distributed between May and July 2019 in hard copy, via email through a range of shooting organisations and using social media, as described in Chapter 4. A total of 2,425 responses were received. The data was analysed using SPSS v22.0 and Microsoft Excel 2016.

The questionnaire consisted of a set of questions which all participants were requested to answer, and a choice of questions, depending on whether respondents answered yes to regular participation in DGS in the following roles:

- Individuals who regularly participate in DGS as a beater/picker-up
- Individuals who regularly participate in DGS as a paying gun
- Individuals who regularly participate in DGS as subscribing members of a syndicate, either roving or location-based

This structure enabled the data to be analysed according to forms of participation, so as to broaden the analysis frame, particularly when looking at bridging social capital between guns[27] and beaters/pickers-up and considering if DGS role affected any social impact. As respondents completed the survey they were asked if they took part regularly as a beater or picker-up, a paying gun and whether or not they were members of a syndicate. Respondents that were regular beaters and/or pickers up, regular paying guns and/or members of a syndicate were asked extra, specific questions in relation to their form of participation. Several participants fell within more than one potential analysis category, as they participated in DGS in a number of different ways and therefore answered multiple sections.

Paying guns and beaters and pickers-up were also asked what type of shoots they attended, classified as follows:

☐Family Shoot (A shoot not created for commercial purposes and primarily used for friends and family that occasionally sells individual shooting days)

☐Small Syndicate (Syndicate costing £,3000 a year or less for a full gun[28])

☐Large Syndicate (Syndicate costing over £3,000 a year for a full gun)

☐Small Commercial (A shoot day of 150 birds or less)

☐Larger Commercial (Shoots offering days of over 150 birds)

The question about shoot types attended was included to explore if there was a difference in impact between shoot sizes and type. However, many beaters and pickers-up and guns attended a wide range of shoot sizes and type. Therefore, when analysing the wider dataset, syndicate membership was used to look at variation between shoot size and type, as syndicates offered a different type of participation in more of a 'club' or association format. In addition, location-based syndicates are usually smaller in size, shooting fewer days than commercial shoots and operate on a not for profit basis, providing a different type of engagement in DGS. A syndicate consists of a group of people who regularly shoot together

[27] Guns are the people who pay to shoot within the syndicate

[28] Guns in syndicate can be full guns, which enables them to shoot on every day the syndicate shoots, for example ten days and half guns shoot on half the days that the syndicate shoots. In practice this works much like a 'job-share' so in the case of a ten shooting day syndicate, a full gun would be able to shoot on ten days and a half gun would shoot on five days, with another half gun shooting on the other five days in the season.

and therefore may have stronger friendships and this hypothesis is tested in this chapter. The syndicate members split the costs of either sharing a shoot day, as part of a 'roving' syndicate going to different shoots; or 'location based', where they manage an area of land to raise quarry and then shoot a certain number of days as part of the syndicate, often sharing beating and shooting duties on the shoot day or on alternate shoot days.

6.2 Statistical analysis and comparative datasets

Statistical analysis was undertaken of the data collected from the questionnaire distributed to participants in DGS and two national datasets accessed via the UK Data Service (UK Data Service, 2019), as noted in Chapter 5. For mental well-being, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), the comparison dataset used was survey number 6614 Understanding Society: Waves 1-8, 2009-2017 (UK Data Service, 2017)[29], which is the dataset used to calculate the age-banded average SWEMWBS as part of the national well-being survey. This contains the most up to date dataset from 2015/16. For Loneliness the comparison dataset used was survey number 8478 Community Life Survey, 2017-2018 (UK Data Service, 2018).

This chapter seeks to answer the first two research questions as shown below:

- To what extent does DGS create social impact through the creation of social capital and reinforcement of identity?
- How does the type and size of shoot mediate social capital and identity development?

[29] Only those respondents within the Understanding Society Wave 7 2015-16 dataset that had given an age and SWEMWBS value, not a proxy value, were used as the comparative dataset (Data selected for inclusion in comparative dataset using following in SPSS: age>=1&SWEMWBS>=1)

The DGS participant data was analysed to assess the types of social capital within DGS and how this is influenced by identity. Descriptive statistics and statistical testing[30] of hypothesise 1a-e are used for this purpose. This was followed by an evaluation of the social impacts of taking part in DGS on participants' mental health and well-being (loneliness and SWEMWBS) and whether this is affected by membership of a syndicate shoot[31] via statistical[32] testing of hypothesise 2, 2a and 3, using the specified national data as a comparator dataset. Hypotheses are shown in Table 6.1. Statistical testing[33] of hypotheses 3a and b was used to explore potential negative impacts. Discussion of these statistical results is combined with descriptive statistical analysis. The results from the wider questionnaire and the qualitative interviews are combined with literature review findings in the triangulation Chapter 7.

[30] Independent t-tests were used to compare means as the data was normally distributed.
[31] Syndicate shoots tend to be smaller than commercial shoots. They are a type of 'club', which would suggest stronger ties between participants and stronger bonding social capital, and bridging capital, as tested via hypothesis 1a-c.
[32] Independent t-tests were used to compare means as the data was normally distributed.
[33] Independent t-tests were used to compare means as the data was normally distributed.

Hypotheses	Results Location (Page)
Hypotheses: Social Capital and Identity	
1a: People who are in syndicates will have stronger friendships deriving from participation in DGS than non-syndicate member participants.	203
1b: Syndicate members will express a stronger link to heritage as a reason for participation than non-syndicate members.	208
1c. People who grew up in a rural area (village or rural) are more likely to participate for heritage reasons than those who grew up in an urban area.	208
1d: There will be no significant difference between rural and urban dwellers in the prevalence of people who participate because they feel a connection to the countryside and rural life.	209
1e. People who currently live in rural areas (village or rural) are more likely to participate in DGS because it is a pastime regularly practised in the area in which they now live, than those who live in urban areas.	210
1f: Regular paying guns who are members of syndicates are less likely to agree with the separation of beaters and pickers-up from guns for meal breaks, indicating stronger bridging social capital within syndicates.	216
Hypotheses: Positive Impacts – Mental Well-being	
2: Participants in DGS have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than the national average.	219-220
2a: Participants in DGS who are members of syndicates have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.	221
2b: Participants in DGS aged 55 and over who are members of syndicates have statistically significantly higher mental well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.	223
Hypotheses: Negative Impacts - Wider perceptions and perceived conflicts	
3a: People living in urban areas are less likely to agree that people in towns and cities don't understand DGS is a part of rural life.	235
3b: Regular paying guns who are members of a syndicate will be more concerned that 'big bag days' can present shooting in a bad light compared to non-syndicate members.	238

Table 6.1 Hypotheses for statistical testing and test results location in chapter

6.3 Sample Data, Instrument Reliability, Outliers and distribution testing.

6.3.1 Sample Data

A total of 2,425 responses were received. However, after checking for outliers, one response was found to be inconsistent and was therefore removed entirely from the dataset as detailed in section 6.3.2. This left a DGS respondent dataset of 2,424, of which 2,392 provided their ages. A comparison of the broad characteristics of the DGS Dataset with the comparator datasets for statistical testing is shown below in Table 6.2.

		SWEMWBS	Age
Understanding Society Wave 7 Dataset 2015-16	Mean	25.38	48.11
	N	37,469	37,469
	Standard Deviation[34]	4.91	18.45
	Minimum	7	16
	Maximum	35	101
	Median	25	46
DGS Participants Dataset 2019	Mean	28.21	54.57
	N	2,392	2,392
	Standard Deviation	3.94	14.54
	Minimum	7	14
	Maximum	35	90
	Median	28	57

Table 6.2 Comparison of characteristics of National and DGS datasets

Table 6.2 shows that, as would be expected in large datasets, the range of SWEMWBS scores is the same for both datasets, between the lowest (7) and highest (35) possible SWEMWBS scores. The mean age range is slightly higher for DGS participants, with both groups containing a broad range of ages of participants, which is in line with the normality testing for the age range of both qualitative interview participants (as shown in Chapter 5 Figure 5.4) and the wider DGS survey participants (Appendix N), that also found a skew towards the higher age groups. An independent t-test between the mean ages of the two groups found that the differences in ages of respondents was significant (p<.05). However, a scatter-graph showed no significant correlation between age and SWEMWBS for both datasets with an R^2 of 0.005, as shown in Figure 6.1, enabling the data to be used as a comparative dataset.

[34] Standard Deviation is a measure that tells you the dispersion of a dataset relative to its mean value. The higher the standard deviation, the further the data points are spread out from the mean and the greater the variation in the data values.

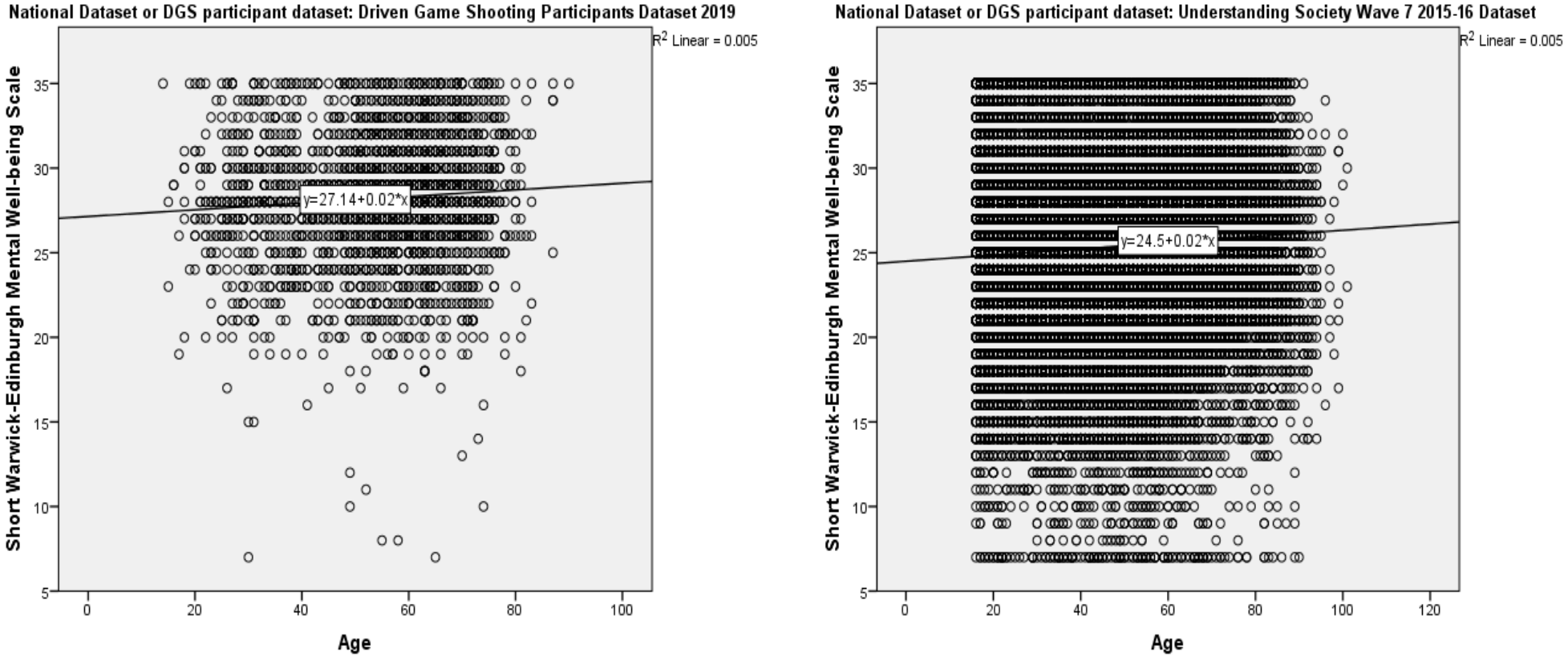


Figure 6.1 Comparison of scatterplots with line of best fit between comparative national dataset 'Understanding Society Wave 7' and DGS participants' dataset, indicating no significant correlation between age and SWEMWBS

There was no individual age data for the loneliness measures recorded in the Community Life Survey. Instead, ages are banded into either 25-64 or 16-24 and 65+. The comparison between the DGS dataset and the national community life dataset is shown below in Figure 6.2, indicating similar percentages for both age bandings, with 4.2% difference between them. In the national dataset 34.5% of the respondents were 16-24 or 65+ as opposed to 30.3% of the DGS respondents, a difference of 4.2% less. Those aged 25-64 represented 69.7% of the national dataset and the DGS dataset was 4.2% lower at 65.5%.

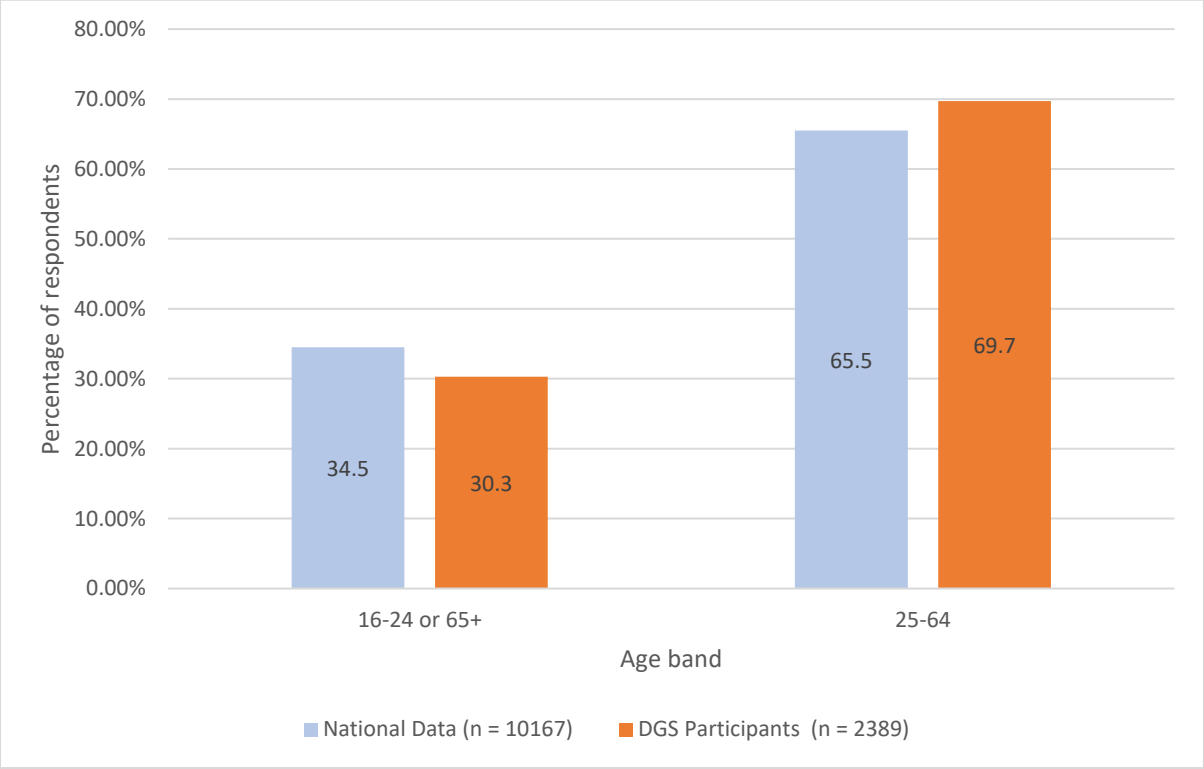


Figure 6.2 Comparison of age bandings percentage respondents for DGS and national datasets

In terms of gender, 86.7% of participants were men and 13.1% women, with 6 participants or 0.2% not indicating a gender.

Figure 6.3 shows around one third of participants in the DGS dataset across all forms of participation were retired or semi-retired.

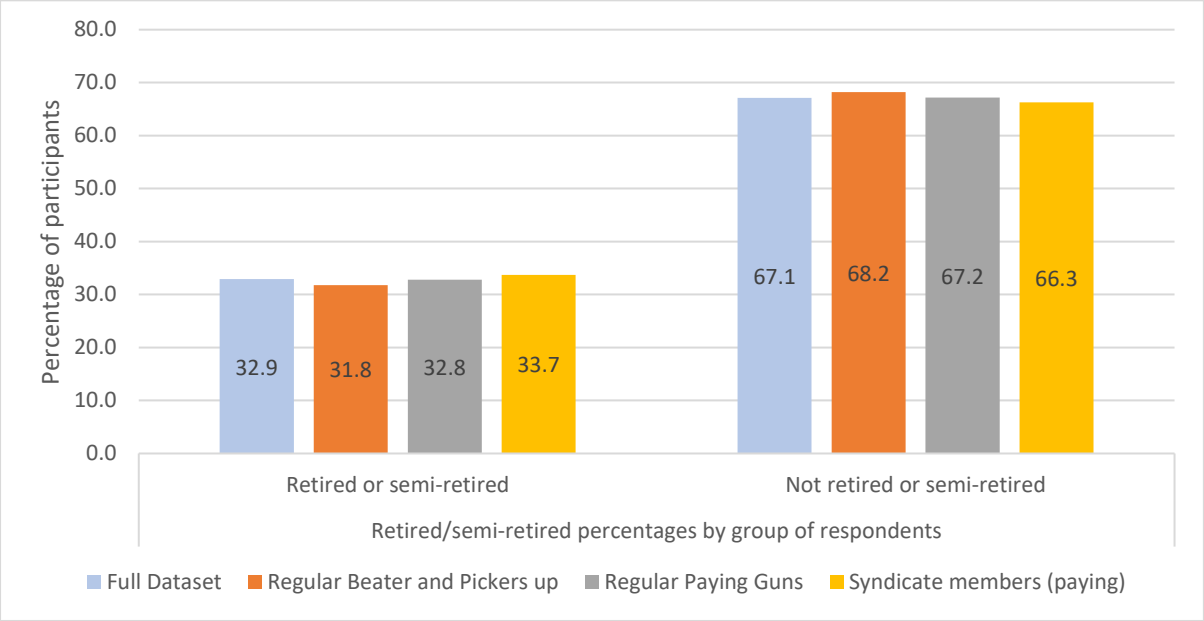


Figure 6.3 DGS participant's retirement status by form of participation

Figure 6.4 shows where respondents to the questionnaire resided. It can be seen that 74.1% of participants lived in rural areas (rural and villages) and 25.9% of participants lived in urban areas (towns and cities).

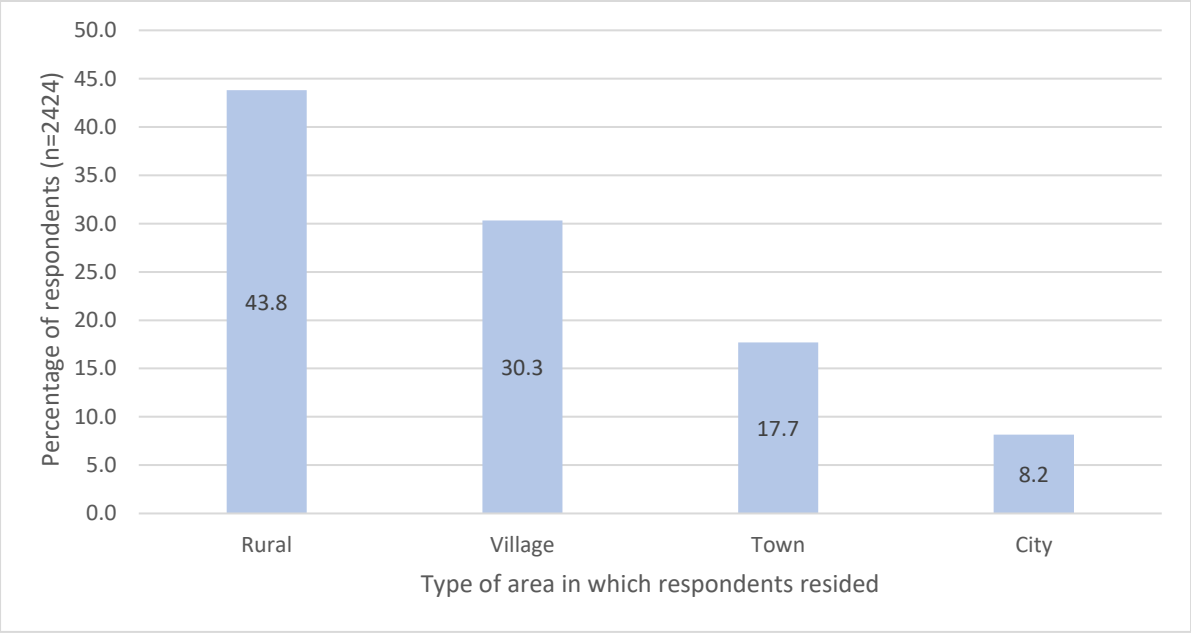


Figure 6.4 Current residence of questionnaire respondents (percentages)

The background and current residence of each of the 2,424 respondents was also analysed using a cross-tabulation. The results are shown in Table 6.3 below.

			Area grew up: rural or urban	
			Rural (rural or village)	Urban (town or city)
Area resides currently: rural or urban	Rural (rural or village)	Count	1264	533
		% within Rural or urban dweller	70.3	29.7
	Urban (town or city)	Count	278	349
		% within Rural or urban dweller	44.3	55.7

Table 6.3 Comparison current residence and where participants grew up.

Further calculations using the data from Table 6.3, as detailed in Table 6.4, show that 85.6% of participants in DGS have rural residence links meaning they either currently live in a rural area or were brought up in a rural area, whilst only 14.4% have no rural connections in terms of former or current residence, indicating the strong rural link apparent within DGS participation.

Rural residence links	Combination and number of participants	Total	% of total participants (n=2424)
Rural residence links	Rural Dweller, Rural Heritage[35] 1264 Rural Dweller, Urban Heritage[36] 533 Urban Dweller, Rural Heritage 278	2075	85.6%
No rural residence links	Urban Dweller, Urban Heritage 349	349	14.4%

Table 6.4 Summary of participant's rural residence links (currently or when growing up)

Rural identity, its importance to participants and links to social capital within DGS is explored in Chapter 7, section 7.1.

[35] Rural Heritage = grew up in a rural area (village or rural)
[36] Urban Heritage = grew up in an urban area (town or city)

The interview data analysed in Chapter 5 was from England only. The DGS questionnaire responses received were spread widely across the UK as shown in Figures 6.5 and 6.6 below, with numbers of responses increasing in density in rural areas and areas such as Exmoor and Yorkshire, where there is a greater incidence of DGS.

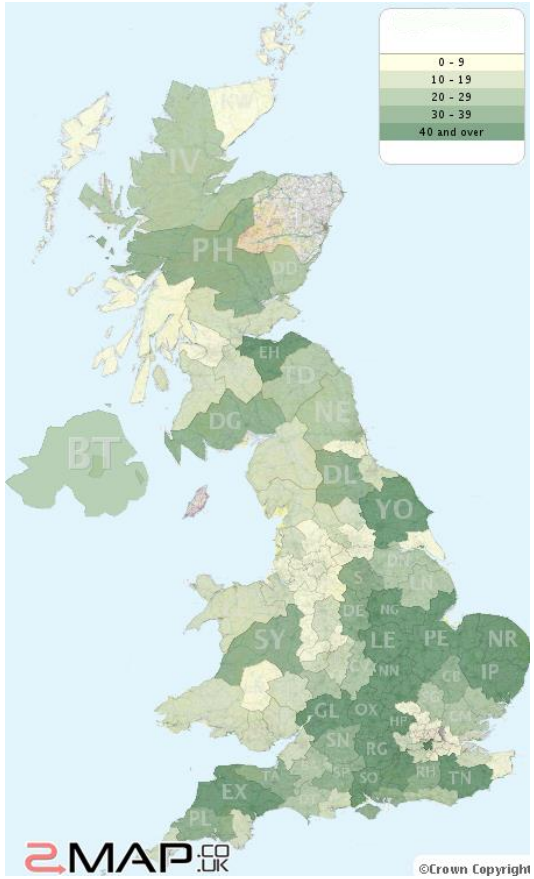


Figure 6.5 Density of responses UK-wide (*2 Map.co.uk*, 2019)

Figure 6.6 Distribution of responses UK-wide (Doogal, 2019)

A summary of the key features of the DGS participant dataset is shown in Table 6.5 below.

DGS participants sample: key features	
Overall sample size	2,424
AGE n = 2392 (Age not given by 32 participants representing 1.3% of total sample)	
Age Range	14 to 90
Standard Deviation[37]	14.54
Mean	54.57
Median	57
SWEMWBS	
Mean	28.21
Standard Deviation	3.94
Median	28
Other key data	
Retirement status	32.9% Retired or Semi-retired 67.1% Not Retired
Gender n=2418 Gender not given by 6 participants (0.2%)	86.7% Male 13.1% Female
Current residence	74.1% Rural (rural or village) 25.9% Urban (town or city)
Rural connection	85.6% Rural connection (current residence or residence where grew up) 14.4% No rural connection

Table 6.5 Key features of wider questionnaire DGS participants' sample

[37] Standard Deviation is a measure that tells you the dispersion of a dataset relative to its mean value. The higher the standard deviation, the further the data points are spread out from the mean and the greater the variation in the data values.

6.3.2 Outliers

An outlier is an observation that falls outside the pattern of a distribution overall (Moore and McCabe, 1999). A summary of outliers identified in the key data-sets for statistical analysis of age and SWEMWBS is shown in Table 6.6 below. These were reviewed within the dataset and a single respondent entry was found to be an outlier for both age and SWEMWBS (extreme outlier[38]). Further investigation found that this multivariate outlier had inconsistencies within the responses and was removed from the dataset[39]. Other respondent entries were reviewed and, although their SWEMWBS responses were low, the other responses appeared genuine and consistent across the questionnaire so were retained. These outliers represented less than 1% of the dataset and to remove them could falsely represent the data. It has been noted by other researchers that, whilst the removal of obviously false outliers (caused by respondent error or impossible value entry for example) is recommended (Orr, Sackett and Dubois, 1991; Osborne and Overhay, 2004), on average, 1% of subjects will be outliers (Osborne and Overhay, 2004) and in large datasets, outliers have not been found to be a substantial source of validity variance (Orr, Sackett and Dubois, 1991). In this study it was particularly important not to apply bias to the dataset due to the controversial nature of the topic. If the lower scores within the range of SWEMWBS within the results had been removed, the study could have been accused of falsely overstating the well-being levels within the study population. For outlier summary/boxplots see Appendix K.

	Original dataset size	Standard outliers[2] found	Extreme outliers[2] found	Outliers removed	Final dataset size	Outliers left in data-set	% represented by outliers DGS dataset
Age	2393	5	0	1[40]	2392	4	0.17%
SWEMWBS	2425	16	5	1[4]	2424	20	0.80%

Table 6.6 Summary of outliers identified, removed and retained for age and SWEMWBS

[38] In SPSS boxplots, cases falling over 1.5 box lengths from the lower or upper hinge of the box are identified as 'standard' outliers; 'extreme' outliers are identified when they fall over 3 box lengths from either hinge. The box length is the central 50% of cases dispersed around the median value.

[39] The single, multivariate outlier was removed because the responses given did not make sense. The respondent noted that they walk 0 km as a beater...this is not possible. Even though they noted they did not also shoot in the 'beaters and pickers-up' section they say they are a member of a syndicate shooting 100 days a season at total cost £6500. This number of days and cost is unlikely if not impossible. The age, ethnicity, type of area they grew up in and current home location were also inconsistent, particularly in light of other responses within the questionnaire.

[40] The outlier removed for both SWEMWBS & age is the single response referred to in section 7.3.2.

6.3.3 Instrument Reliability

The Short Warwick Edinburgh Mental Well-being Scale (SWEMWBS) was used to gather data on well-being, which consists of seven items shown in Figure 6.7, including the format in which the question is asked.

'Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks'

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5

Figure 6.7 Short Warwick Edinburgh Mental Well-being scale

The SWEMWBS data obtained using the questionnaire was subjected to Cronbach's α test, which tests internal reliability of the scale by measuring the average agreement between items, and for which a score of 0.7 or higher is needed for a scale to be considered suitable for use in research (McLeod, 1994) and a score over 0.8 is considered good (Gliem and Gliem, 2003). The results of the Cronbach's α tests for the full dataset and the split datasets indicated are shown in Table 6.7. The values all exceed 0.8 or higher, complying with best practice and the SWEMWBS is widely used in other surveys, including the national Understanding Society UK survey (UK Data Service, 2017). No individual question removal makes the value greater than the Cronbach's alpha of the whole scale. Full details of the Cronbach's alpha analyses can be found in Appendix M.

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Full Dataset (2424 responses)	.845	.848	7
Beaters and pickers-up only (1530 responses)	.844	.848	7
Syndicate Members only (1289 responses)	.843	.848	7
Paying Guns Only (1459 responses)	.846	.850	7

Table 6.7 Cronbach's alpha scores for SWEMWBS data

The high Cronbach's α scores shown in Table 6.7 across the dataset indicate that the responses provide a reliable dataset with a high level of internal consistency (McLeod, 1994), strongly supporting the validity of the research results.

6.3.4 Tests for normality

Tests for normality assess whether the sample data has been drawn from a normally distributed population (Field, 2012). This is important as ascertaining the distribution of the data ensures the correct statistical test is utilised, either parametric or non-parametric[41]. The use of the incorrect test type can lead to invalid results and the conclusions from any study made using those results could be mis-leading (McCrum-Gardner, 2008). Normality plots (p-plots and histogram bell curve as shown in Appendix N) were used to assess distribution. Some of the datasets assessed were skewed[42]. However, in large samples it has been put forward that normality can be assumed due to central limit theorem[43] and that skewness and kurtosis[44] should be disregarded (Field, 2012). In addition, it has been suggested in sample

[41] Parametric tests make assumptions that the sample data is normally distributed approximating a bell curve with samples evenly distributed around a central mean, whereas non-parametric tests do not make such specific assumptions.

[42] Skewness describes asymmetry in the data, rather than a symmetrical bell curve the number of responses is higher at the right end of the graph (negatively skewed) or the left hand of the graph (positively skewed). Skewness impacts the mean data score so can impact statistical testing, but, this may be as a result of valid responses, particularly in larger datasets so some skewness is acceptable (Kim, 2013)

[43] Central Limit theorem provides that when a sample size is over 100, normal distribution can be assumed, whatever the shape of the distribution curve (Mishra *et al.*, 2019).

[44] Kurtosis refers to the tallness or flatness of the peak in a normal distribution curve. If kurtosis is outside the expected normal range it can impact on statistical testing scores, however, in larger datasets, some skewness and kurtosis is acceptable. (Kim, 2013)

sizes over 300 an absolute skewness of over 2 and an absolute kurtosis of over 7 should indicate non-normality[45] (Kim, 2013) and the skewness and kurtosis scores for the data gathered in this study suggest normally distributed data following these guidelines (see Appendix Q). Therefore, the use of parametric tests was appropriate on those variables displaying normal distribution with some skewness within the suggested ranges (Kim, 2013).

When responses using a five point, ordinal, Likert scale were used, this data was assessed for distribution as a continuous variable for statistical testing, in line with the common assumption that Likert or ordinal variables with five or more points can be used as continuous without harm to the analysis (Johnson and Creech, 1983; Zumbo and Zimmerman, 1993; Norman, 2010; Sullivan and Artino, 2013). If the data was found to be normally distributed, a parametric test was used, otherwise a non-parametric alternative was applied (McCrum-Gardner, 2008; Field, 2012). Table 6.8 overleaf summarises statistical tests used. Normality test charts can be found in Appendix N.

[45] "For sample sizes greater than 300, depend on the histograms and the absolute values of skewness and kurtosis without considering z-values. Either an absolute skew value larger than 2 or an absolute kurtosis larger than 7 may be used as reference values for determining substantial non-normality." (Kim, 2013) p.53

Response Details	Response type	Tests used	Parametric or non-parametric
Age (national and DGS datasets)	Scale variable	Independent samples t-test Pearson's Correlation	Parametric
SWEMWBS (national and DGS datasets)	Sum of 7 x five-point Likert scale responses	Independent samples t-test	Parametric
SN1 If I needed help, I can rely on my friends from within the shooting community	Five-point Likert scale variable	Independent t-test Pearson's Correlation	Parametric
SN2 Friendship and camaraderie are key reasons for me to participate in DGS	Five-point Likert scale variable	Independent t-test	Parametric
SN3 I have made some close, long-term friends from my involvement in DGS	Five-point Likert scale variable	Independent t-test Pearson's Correlation	Parametric
I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me	Five-point Likert scale variable	Independent t-test	Parametric
I participate in DGS because shooting is a past time regularly practised in the area in which I now live	Five-point Likert scale variable	Independent t-test	Parametric
I participate in DGS because I feel a connection to the countryside and rural life	Five-point Likert scale variable	Independent t-test	Parametric
People in towns and cities don't understand DGS is a part of rural life.	Five-point Likert scale variable	Independent t-test	Parametric
I am concerned that 'big bag' days can present shooting in a poor light.	Five-point Likert scale variable	Independent t-test	Parametric

Table 6.8 Summary of data used for statistical tests and type of test used

6.4 Social Capital and Identity

As detailed in Chapter 2, this study uses a theoretical underpinning of social capital and identity theory, having followed a recognised social impact assessment methodology to gather the data required to assess the social impacts of participation in DGS, particularly in relation to mental health and well-being. This section analyses the wider questionnaire dataset to assess the types of social capital present amongst participants in DGS, the role of identity and the social support networks created by the social capital within DGS.

6.4.1 Bonding Social Capital

Bonding social capital refers to the ties within the same social group, for example in local communities or groups where members have the same interests (Coleman, 1999). The social network opinion questions within the survey were designed to assess the strength of bonding social capital within DGS, via an assessment of the strength and longevity of the friendships built through taking part, the potential availability of support in times of need from friends made via DGS and the importance of friendship as a reason to participate for the individuals involved. All participants were asked to rate how far they agreed/disagreed with the statements shown in Table 6.9. The five-point Likert scale responses to the three social network questions were treated as a continuous variable (Johnson and Creech, 1983; Norman, 2010; Sullivan and Artino, 2013; Zumbo and Zimmerman, 1993).

To what extent do you agree/disagree with the following statements:	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
SN1 If I needed help, I can rely on my friends from within the shooting community	1	2	3	4	5
SN2 Friendship and camaraderie are key reasons for me to participate in DGS	1	2	3	4	5
SN3 I have made some close, long-term friends from my involvement in DGS	1	2	3	4	5

Table 6.9 Social Network Questions

The results are shown in Figure 6.8 regarding social networks and friendship.

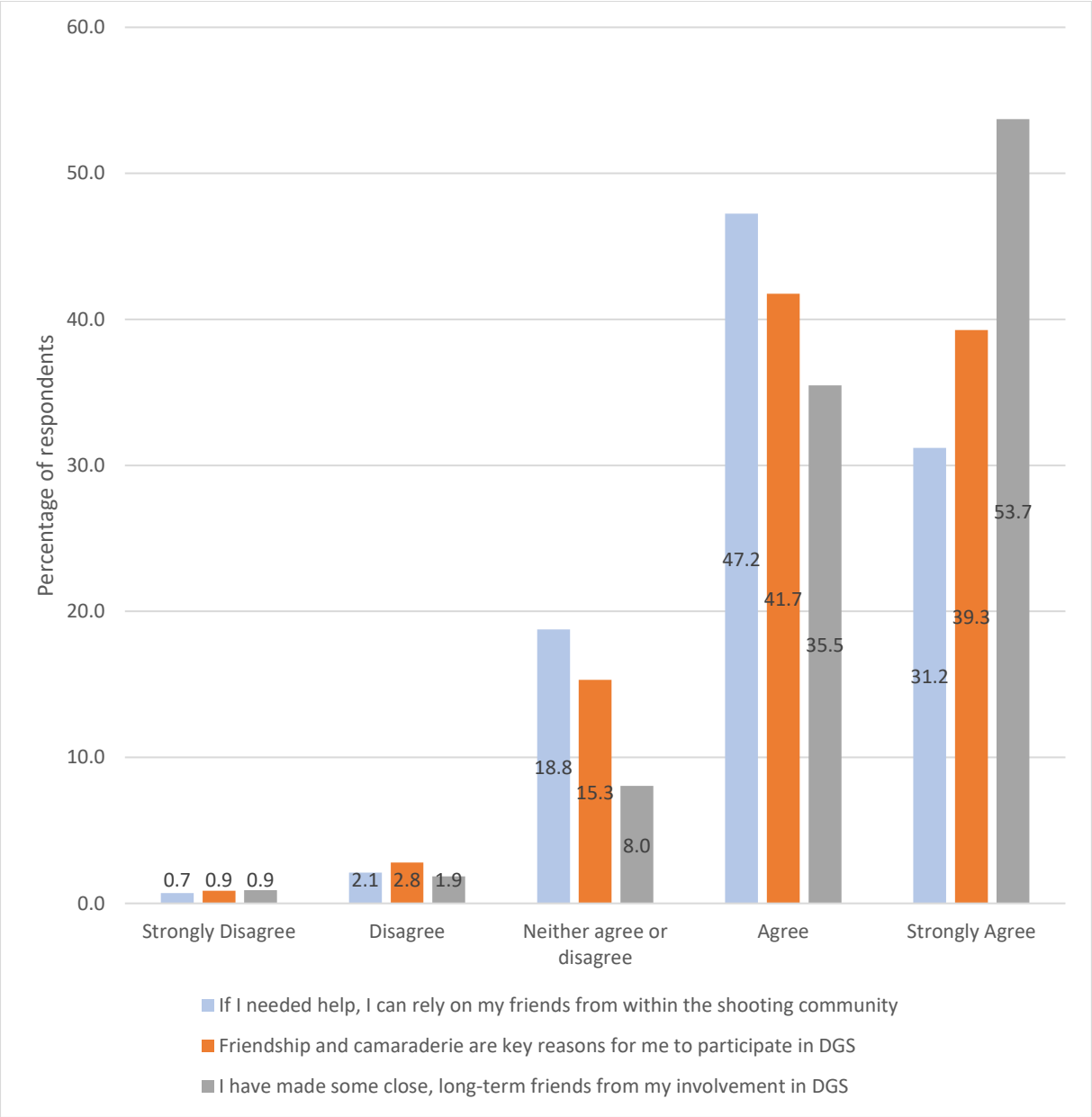


Figure 6.8 All participant's responses to social network opinion questions

As noted in section 6.1 of this chapter, a syndicate consists of a group of people who regularly shoot together and hypothesis 1a was designed to test whether or not these longer term associations are reflected in stronger friendships, which could indicate stronger 'bonding' social capital and social networks.

Hypothesis 1a: People who are in syndicates will have stronger friendships deriving from participation in DGS than non-syndicate member participants.

An independent t-test was completed for each of the five-point Likert scale questions SN1, SN2 and SN3, with the results shown in Table 6.10:

	Syndicate members			Non-syndicate members					
	N	Mean	SD[46]	N	Mean	SD	T	Df	Cohen's effect size d
SN1	1289	4.16	.77	1135	3.95	.83	**6.31*** **	2422	.26
SN2	1289	4.24	.81	1135	4.06	.87	**5.14*** **	2422	.21
SN3	1289	4.51	.71	1135	4.26	.86	**7.88*** **	2197.11	.32

***=<.001

Table 6.10 Independent t-test results for hypothesis 1a

The results of the t-test revealed a statistically significant difference (p<.001) for all three social network questions with a small effect size for SN1 & SN2 and a small to moderate effect size for SN3 (SN1 d=.26, SN2 d=.21, SN3, d=.32)[47], indicating that the null hypothesis can be rejected and participants in syndicate in DGS have higher strength of friendships and social networks than non-syndicate members. Cohen's effect size value[48] at d=.26 and d=.21 for the first two social network questions, relating to relying on friends in the shooting community and friendship and camaraderie being key reasons to participate in DGS, suggested a small to moderate practical significance. For the question relating to long-term friendships, Cohen's effect size value (d=.32) suggested a small to moderate practical significance. This could indicate that membership of a syndicate facilitates stronger relationships and stronger bonding social capital, particularly in relation to longer-term friendships, than participation via non-syndicate membership. This finding reinforces that of the qualitative data analysis as shown in section 5.3.

[46] SD = Standard Deviation. Standard Deviation is a measure that tells you the dispersion of a dataset relative to its mean value. The higher the standard deviation, the further the data points are spread out from the mean and the greater the variation in the data values.
[47] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)
[48] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

A Pearson correlation was run to determine the relationship between respondent levels of agreement with question number SN1 'if I needed help, I can rely on my friends from within the shooting community' (mean 4.06, SD .80) and question number SN3 'I have made some close, long-term friends from my involvement in DGS' (mean 4.39, SD 0.78). There was a strong, positive correlation between agreement with these two statements, which was statistically significant (r = .601, n = 14, p = .000), indicating that the longer term friendships made through DGS, the more likely people are to be able to rely on their friends within the shooting community if they needed help, evidence of a social network ready to be activated in a time of need. The mean score of above 4 for both statements indicated a high prevalence of agreement with those participating in DGS being able to rely on their friends made within DGS in times of need.

The qualitative stage of research revealed that shoots often laid on social activities for their beaters and pickers up, which many participants found to be an essential part of their social life in rural areas in particular. Beaters and pickers up were asked the question shown in Table 6.11 in the wider survey.

If applicable, please define the type of shoots you attend that arrange the following events:					
	Family Shoot	Small Syndicate/ Club	Large Syndicate /Club	Small Commercial	Larger Commercial
Annual, subsidised 'beaters' shooting day	☐	☐	☐	☐	☐
Christmas and/or end of season party	☐	☐	☐	☐	☐
Summer BBQ or similar	☐	☐	☐	☐	☐
Competitions and social activities during the shoot day (e.g.at lunch time)	☐	☐	☐	☐	☐

Table 6.11 Question asked to regular beaters and pickers-up regarding social activities provided by shoots

The data was analysed based on the types of shoots attended by different respondents as a beater and picker-up (these sample sizes are indicated on the graph Figure 6.9 and Table 6.12) and what activities they reported were provided. Figure 6.9 shows that the social activities that beaters and pickers up have access to at the shoots they attend do not vary enormously by shoot size and type. However, smaller sized, non-commercial family shoots and small syndicates appear most likely to hold competitions and social activities during the shoot day and end of season or Christmas parties are least likely to occur at small commercial shoots. A summary of the data is shown on Figure 6.9 and in Table 6.12 overleaf.

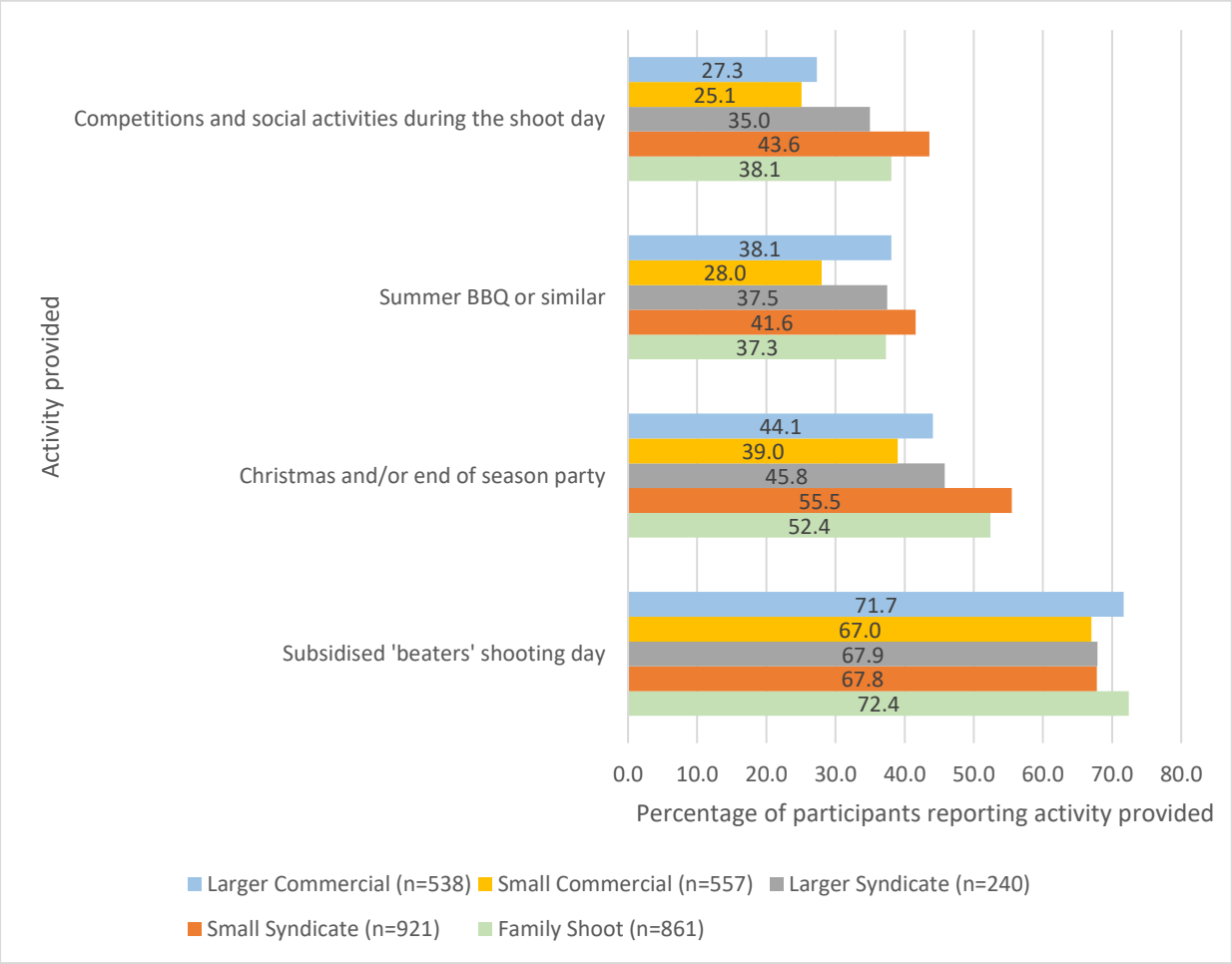


Figure 6.9 Percentage of shoots attended by beaters and pickers-up offering different social activities

		Percentage of shoots attended offering activities specified			
Type of shoot attended as a beater or picker-up	*n*	Subsidised 'beaters' shooting day	Christmas and/or end of season party	Summer BBQ or similar	Competitions and social activities during the shoot day
Family Shoot	861	72.4 (%)	52.4 (%)	37.3 (%)	38.1 (%)
Small Syndicate	921	67.8 (%)	55.5 (%)	41.6 (%)	43.6 (%)
Larger Syndicate	240	67.9 (%)	45.8 (%)	37.5 (%)	35.0 (%)
Small Commercial	557	67.0 (%)	39.0 (%)	28.0 (%)	25.1 (%)
Larger Commercial	538	71.7 (%)	44.1 (%)	38.1 (%)	27.3 (%)

Table 6.12 Participant reported social activities offered by shoot type (number of respondents confirming activity offered)

The data in Table 6.12 and in Figure 6.9 shows that there were additional social activities available at a percentage of shoots, in addition to the time spent together during the shoot day participating in DGS, offering further opportunities to strengthen bonding social capital and social networks. This is discussed further in Chapter 7, section 7.1.

6.4.2 Identity

Identity, shared values and sense of belonging, explored in Chapter 2, section 2.2 are inextricably linked and are also key indicators of bonding social capital (Claridge, 2018b).

The qualitative data revealed a number of reasons why people participated in DGS, including a link to family heritage and a feeling of a rural or countryside identity (section 5.3 Chapter 5). In the wider distribution questionnaire, participants were asked the questions shown in Figure 6.12 to ascertain if participation was influenced by either a link to family heritage, a feeling of rural identity and connection to the countryside or because DGS is a pastime regularly practised in the area in which they now live. The five-point Likert scale responses to these identity questions were treated as a continuous variable (Johnson and Creech, 1983; Zumbo and Zimmerman, 1993; Norman, 2010; Sullivan and Artino, 2013) with values as shown in Table 6.13.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
ID1. I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me	1	2	3	4	5
ID2. I participate in DGS because I feel a connection to the countryside and rural life	1	2	3	4	5
ID3 I participate in DGS because shooting is a past time regularly practised in the area in which I now live	1	2	3	4	5

Table 6.13 Question to ascertain influences for participation in DGS

The qualitative stage of data revealed many people citing a link to heritage as a reason for participation, particularly in syndicates (section 5.3, Chapter 5). To test whether or not the wider questionnaire dataset supported hypothesis 1b that syndicate members felt a stronger heritage identity, which influenced their participation in DGS, an independent t-test was carried out comparing those who were members of a syndicate with those who were not.

Hypothesis 1b: Syndicate members will express a stronger link to heritage as a reason for participation than non-syndicate members.

The results of the independent samples t-test analysis are shown in Table 6.14 below:

	Syndicate members			Non-syndicate members					
	N	Mean	SD	N	Mean	SD	t	Df	Cohen's effect size d
ID1	1289	3.04	1.33	1135	2.78	1.33	**4.74*** **	2422	0.20

***=<.001

Table 6.14 Independent t-test results for hypothesis 1b.

The results of the t-test revealed a statistically significant difference (p<.001) with a small effect size (d=.20)[49], indicating that the null hypothesis can be rejected and participants in DGS within syndicates have a stronger link to heritage as a reason for participation than non-syndicate members.

Participants were also asked where they grew up, as shown in Table 6.3, 1542 or 63.6% of individuals grew up in a rural area (village or rural). To test whether or not the wider questionnaire dataset supported hypothesis 1c, an independent t-test was carried out comparing those who grew up in a rural (rural or village) area with those who grew up in an urban (town or city) area. The results are shown in Table 6.15.

Hypothesis 1c: People who grew up in a rural area (village or rural) are more likely to participate for heritage reasons than those who grew up in an urban area.

Grew up rural area			Grew up urban area					
N	Mean	SD	N	Mean	SD	t	Df	Cohen's d effect size
1542	3.18	1.31	882	2.45	1.24	**13.84*** **	1912.01	.57

***=<.001

Table 6.15 Independent t-test results for hypothesis 1c

[49] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

The results of the t-test revealed a statistically significant difference ($p<.001$) with a moderate to large effect size ($d=.57$)[50], indicating that the null hypothesis can be rejected and participants in DGS who grew up in a rural area (village or rural) are more likely to participate for heritage reasons than those who grew up in an urban area. This confirms that those who grew up in a rural area participate in DGS because their family did so in the past and maintaining a link to heritage is important to them. This was highlighted at the qualitative stage by many participants, some of who had now moved away to urban areas but came home to the areas they grew up in to participate (see section 5.3), believing that DGS participation forms part of their intangible cultural heritage (see also section 3.4).

In the wider questionnaire, overall, 91.3% of participants agreed or strongly agreed that a rural identity, a connection to the countryside and rural life was an influencing factor on participation. At the qualitative stage of data analysis, many participants said DGS was a way to maintain a connection to rural life and the countryside, even though some of them now lived in an urban area. To statistically assess whether this was also the case in the wider dataset, an independent t-test was carried out comparing those who live in rural areas (villages or rural) with those who live in urban areas (towns or cities) for hypothesis 1d:

> **Hypothesis 1d There will be no significant difference between rural and urban dwellers in the prevalence of people who participate because they feel a connection to the countryside and rural life.**

After running an independent t-test, there was no significant difference between the scores for rural ($N=1797$, $M=4.48$, $SD=0.73$) and urban ($N=627$, $M=4.42$, $SD=0.77$) dwellers ($t(2422)=1.93$, $p>0.05$), confirming that participation in DGS that is influenced by a feeling of a connection to the countryside and rural life is not dependent on residence in a rural area. This result reflects the findings of the qualitative interview stage, when almost all participants cited a feeling of connection to the countryside or a country identity as a reason for participation (see section 5.3).

[50] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

The idea of DGS as a common 'rural pastime', as indicated at the qualitative data analysis stage was investigated by considering the if more people who lived in rural areas participated in DGS because it was a pastime in the area in which participants now lived. The majority of DGS participants lived in rural areas (village or rural), however of these 29.7% grew up in an urban area. To test whether or not the wider questionnaire dataset supported hypothesis 1e, an independent t-test was carried out comparing those who live in rural (village or rural) and urban (town or city) areas:

> **Hypothesis 1e: People who currently live in rural areas (village or rural) are more likely to participate in DGS because it is a pastime regularly practised in the area in which they now live, than those who live in urban areas.**

The results of the independent t-test analysis are shown in Table 6.16.

Individuals who live in rural areas (rural or village)			Individuals who live in urban areas (town or city)					
N	Mean	SD	N	Mean	SD	t	Df	Cohen's d effect size
1797	3.55	1.04	627	2.87	1.11	***13.73	2422	0.64[51]

***=<.001

Table 6.16 Independent t-test results for hypothesis 1e.

The results of the t-test shown in Table 6.16 revealed a statistically significant difference ($p<.001$) with a moderate to large effect size ($d=.64$[52]), indicating that the null hypothesis can be rejected and rural dwellers are more likely to participate in DGS than urban dwellers because it is a pastime that takes place in the area they live in now, perhaps confirming the need for people moving to rural areas to 'fit in' with local pastimes and reflecting the social cohesion and wider participation elements of DGS participation which are discussed further in section 7.1 of Chapter 7.

[51] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)
[52] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

6.4.3 Bridging Social Capital

In considering the extent of bridging social capital within DGS, a number of factors were considered including gender, age, educational background, profession and opinions towards spending time with different participants within DGS. Whilst participation was skewed towards older individuals, the age range of participants stretched from 14 to 90 years, indicating intergenerational communication and socialisation within the activity. In terms of gender, previous studies have found shooting to be a predominantly male sport (Public and Corporate Economic Consultants (PACEC), 2014a), with most female participants beating or picking-up (Public and Corporate Economic Consultants (PACEC), 2012) and the wider questionnaire responses reflect this, with the highest level of female participants being beaters and pickers up (18.6%). Figure 7.10 shows that 86.7% of participants were men and 13.1% women, with 6 participants or 0.2% not indicating a gender. A comparison between the percentages of male and female participants by participation type is also shown on the graph Figure 6.10.

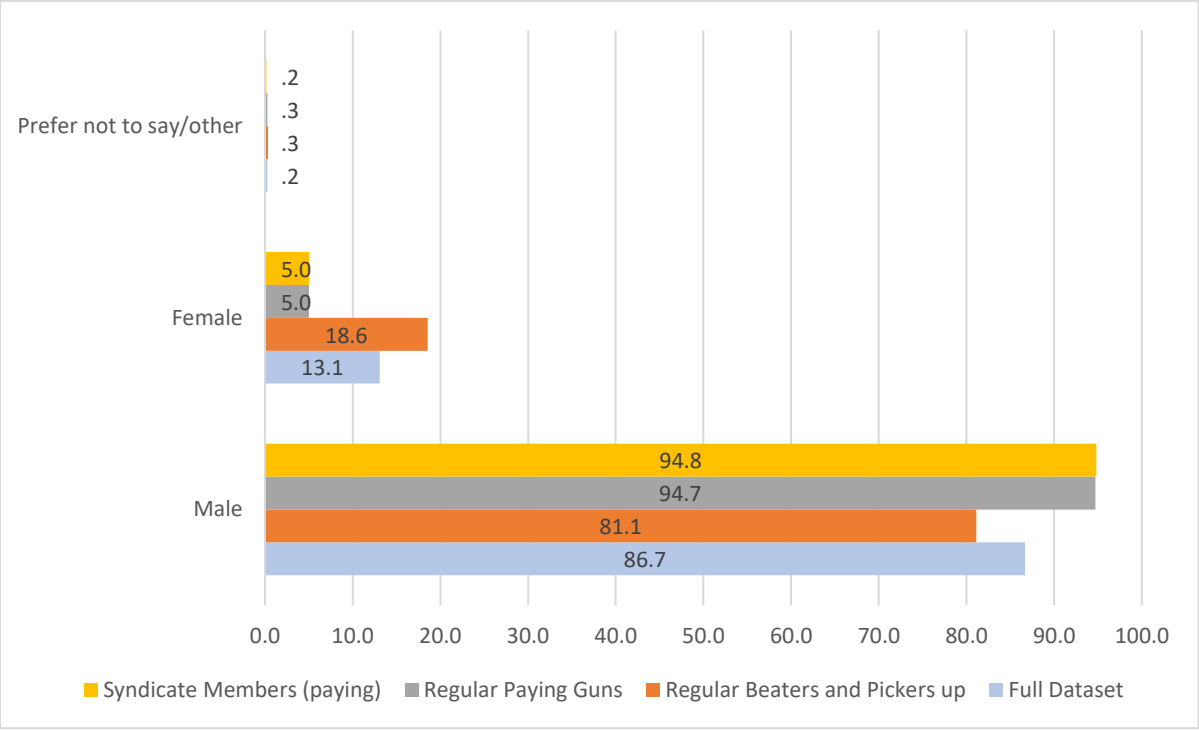


Figure 6.10 Gender of participants by type of participation (percentages)

In order to better ascertain the mix of individuals involved in DGS, participants were asked a number of demographic and additional questions. These included indicating their highest level of qualification from the list shown in Table 6.17 below:

No Qualifications
Level 1: Examples: 1 - 4 O levels /CSEs /GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level1, Foundation GNVQ, Basic Skills
Level 2: Examples: 5+ O levels (passes) /CSEs (grade 1) /GCSEs (grades A*-C or 9-4), School Certificate, 1 A level / 2-3 AS levels /VCEs, Higher Diploma. NVQ Level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First /General Diploma, RSA Diploma
Level 3: Examples: 2+ A levels /VCEs, 4+ AS levels, Higher School Cert, Progression /Advanced Dip, NVQ L3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National
Level 4-5: Examples: Foundation Degree, NVQ Level 4 -5, HNC, HND, RSA Higher Diploma, BTEC Higher Level, Certificate or Diploma of higher education, Higher Apprenticeship
Level 6: Examples: Honours Degree (e.g. BA (hons), BSc (hons)), degree apprenticeship, graduate diploma/certificate
Level 7-8: Examples: Higher degree (for example MA, PhD, PGCE)

Table 6.17 Highest level of qualification options in questionnaire

The percentage of each of the participant groups having qualifications at each NVQ level (and their equivalent qualifications as shown in Table 6.9 above), are shown in Figure 6.11. This indicates that whilst paying guns (including syndicate members) had the highest percentage of qualifications at level 6 and above at 37.5%, participants in all groups indicated a wide range of qualification levels. It should be noted some participants fell into more than one category of participation. Bridging social capital can be increased if people from different educational backgrounds socialise together.

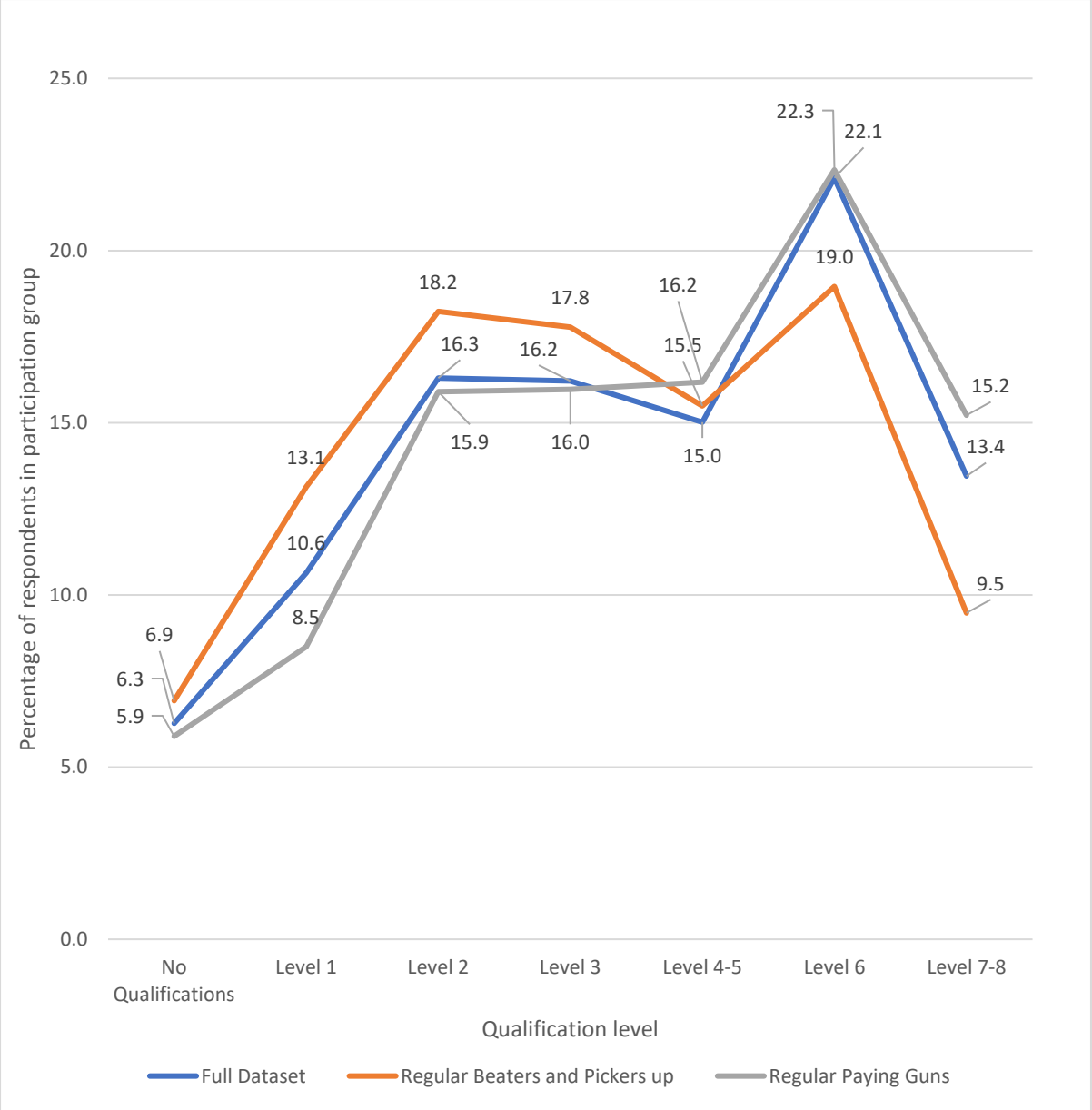


Figure 6.11 Comparison of qualification levels by percentage of group participants

Bridging social capital can also be strengthened through people who work in different occupation levels mixing together. Participants were asked to select their occupation or former occupation group from the National Statistics Socio-economic Classification (NS-SEC), which is the official socio-economic classification in the United Kingdom that was used in the 2011 Census. Figure 6.12 shows a comparison of the percentages of each participation group within occupation classification. It indicates that whilst paying guns (including syndicate members) had the highest occupation levels (50.1% higher managerial, administrative and professional occupations), there was a wide range of occupation levels and groups within all participation groups.

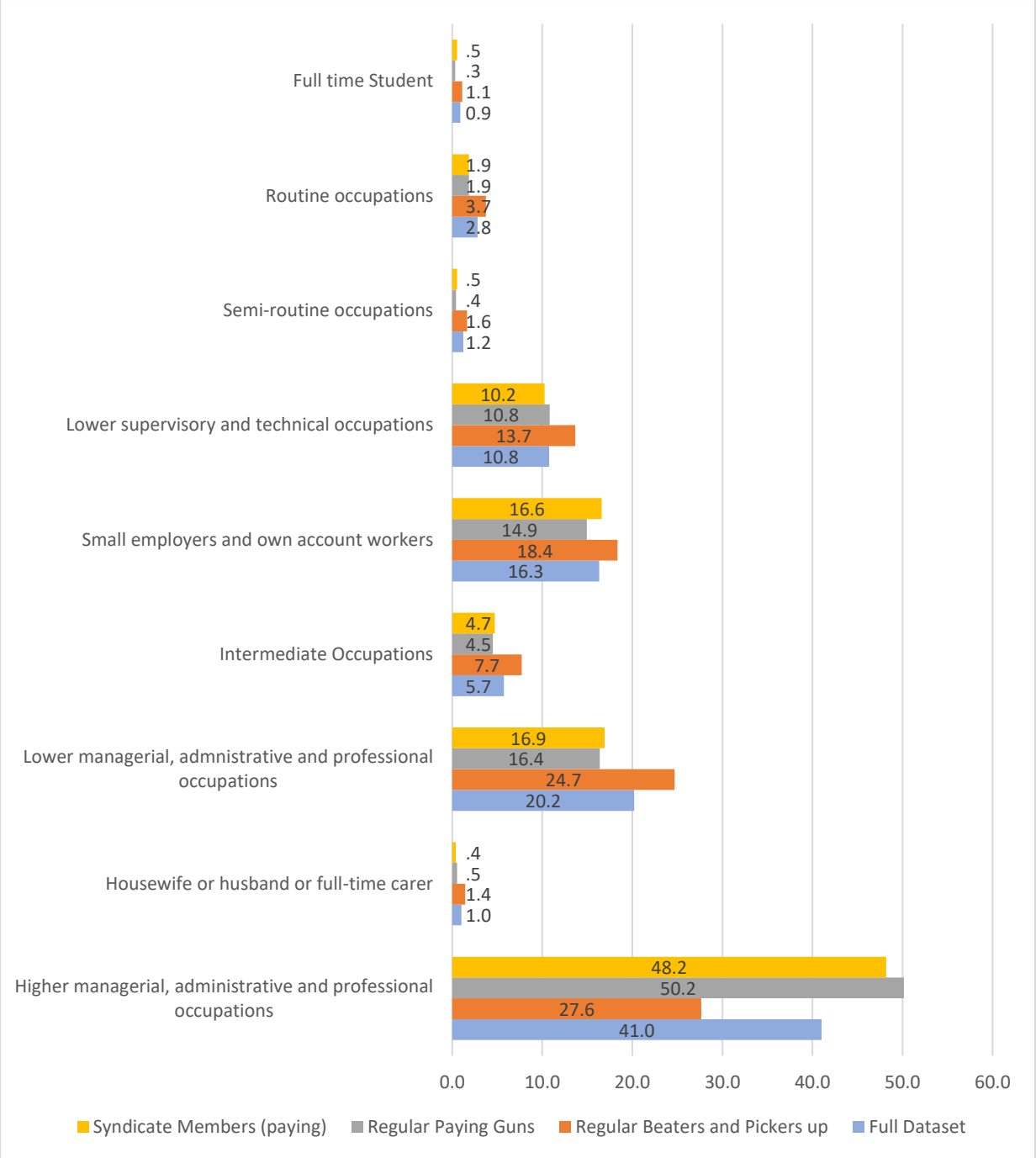


Figure 6.12 Comparison of occupation (or former occupation if retired) by percentage of participants – all participant groups and full dataset

Further questions were asked to assess bridging social capital between guns (who had the overall highest percentage level of occupation and education) and beaters and pickers-up including the question shown in Table 6.18 below. All regular gun participants were asked to rate how far they agreed/disagreed with the statements shown in Table 6.18. The five point Likert scale responses were treated as a continuous variable (Johnson and Creech, 1983; Norman, 2010; Sullivan and Artino, 2013; Zumbo and Zimmerman, 1993).

How far do you agree/disagree with the following statements	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I prefer to eat lunch with other guns only rather than with beaters and pickers-ups	1	2	3	4	5

Table 6.18 Question asked to guns regarding mixing with beaters and pickers-up

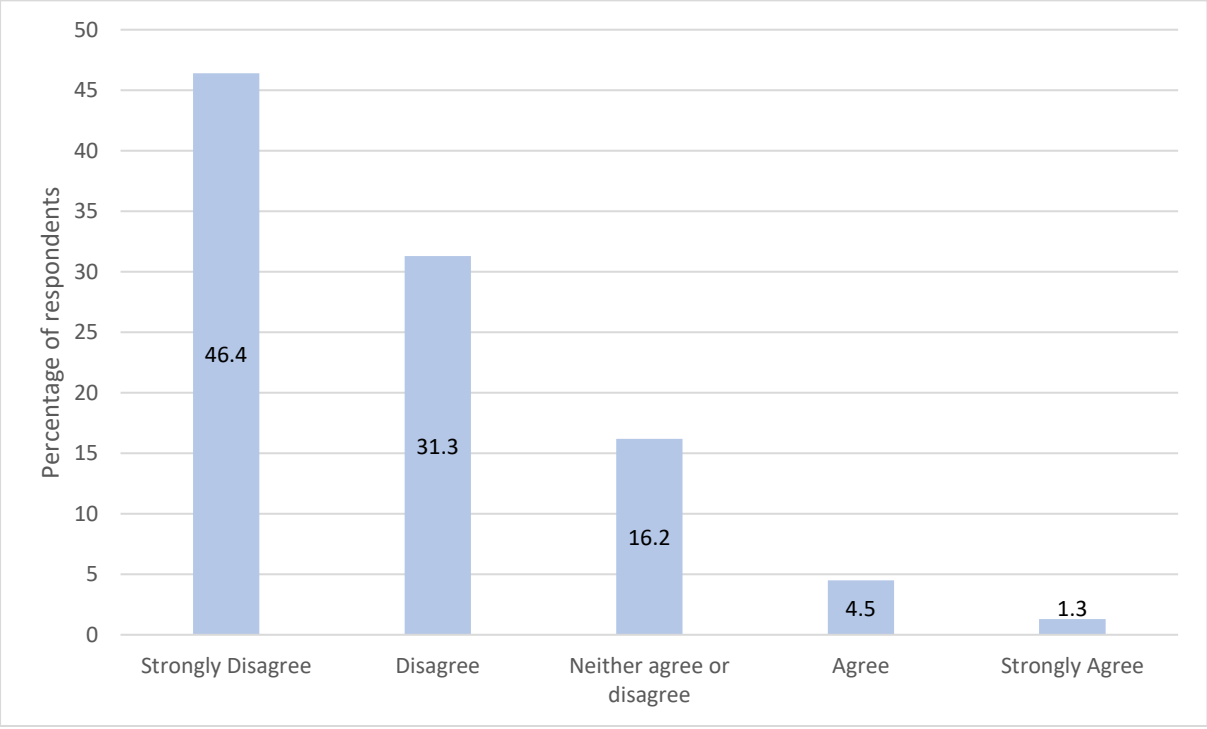


Figure 6.13 Response to question how far do you agree with the statement 'I prefer to eat lunch with other guns only rather than with beaters and pickers-ups'

It can be seen in Figure 6.13 that a total of 77.7% of paying guns disagree or strongly disagree that they prefer to eat lunch with other guns rather than with beaters and pickers-up, indicating a lower level of division and elitism within DGS than has previously been assumed (Hillyard and Burridge, 2012) and a higher level of potential bridging social capital. The analysis of qualitative data found that bridging social capital was stronger in syndicates than at commercial shoots. To ascertain whether the wider dataset supported this finding, hypothesis 1f was tested using an independent t-test, to compare syndicate and non-syndicate paying guns.

> **Hypothesis 1f: Regular paying guns who are members of syndicates are less likely to agree with the separation of beaters and pickers-up from guns for meal breaks, indicating stronger bridging social capital within syndicates**.

The results of the independent t-test analysis are shown in Table 6.19

	Syndicate members			Non-syndicate members					
	N	Mean	SD	N	Mean	SD	t	Df	Cohen's d effect size
	1120	1.78	0.93	335	1.99	0.98	-3.48***	1453	0.22[53]

***p<.001

Table 6.19 Independent t-test results for hypothesis 1f

The results of the t-test revealed a statistically significant difference (p<.001) with small effect size (d=.22)[54], indicating that the null hypothesis can be rejected and that syndicate members are less likely to be in favour of separation of guns and beaters/pickers-up to eat lunch than non-syndicate members, reflecting slightly higher levels of bridging social capital within syndicates, in line with the findings at the qualitative stage (section 5.3.2).

To explore the bridging social capital within syndicates further, syndicate members were asked the question shown in Figure 6.14.

[53] Cohen's d effect size d=.2 small, d=.5 moderate, d=.8 large
[54] Cohen's d effect size: d= d=.2 small, d=.5 moderate, d=.8 large

Do all shoot participants in the syndicate shoot, including beaters, picker-ups and guns etc have breaks, drinks, lunch together and socialise at the end of the day?	☐Yes ☐No

Figure 6.14 Question assessing syndicate bridging social capital

Of the 1,265 syndicate members who responded to the above question in Figure 6.14, 81.5% confirmed that all shoot participants in the syndicate shoot, have breaks, drinks, lunch together and socialise at the end of the day. This increased to 85.4% for location-based syndicate members, further indicating that bridging social capital is stronger within syndicate shoots than commercial shoots. A total of 1,289 respondents reported being members of one or more syndicates, either roving or location based. Individuals are often members of more than one type of syndicate and a breakdown of syndicate membership type is shown in Table 6.20.

	Frequency	Percentage of overall syndicate members
Syndicate Member - Roving Syndicate	363	28.2 (%)
Syndicate Member - Location Based Stand Only	626	48.6 (%)
Syndicate Member - Location Based Stand/Beat	626	48.6 (%)

Table 6.20 Syndicate membership types (individuals can be members of more than one type)

Whilst many syndicates employ a part-time gamekeeper or have a volunteer gamekeeper, of the 1,071 location based syndicate respondents 82.1% said that all or most of their members were involved in maintenance of the syndicate sites; for example, in building fences and pens. This additional time spent together can also increase the bonding social capital between syndicate members and increase bridging and bonding social capital.

Some guns also beat or pick up on their syndicate, which means they not only spend time with the syndicate gun members they know, but also the beaters and pickers up. This regular mixing of guns and beaters when guns beat on their syndicate provides a means of increasing bridging social capital and reducing division, whilst also increasing the size of the social network within syndicates to include beaters, pickers-up and guns together. Of the 1,071 location based syndicate members, 67.5% also sometimes beat and/or pick-up on their syndicate[55].

Bonding social capital, identity, bridging social capital and the social networks they can create are discussed in more detail in section 7.1 of Chapter 7.

[55] For example, as part of a stand-beat syndicate (where guns take it in turns to shoot on one drive then beat on the next on the same day), or the syndicate member pays for a half gun, meaning they shoot every other shoot day in the season and come and beat on non-shooting weekends or you they choose to beat and let a guest take their peg on some or all occasions.

6.5 Positive Impacts of Participation

As detailed in Chapter 2 section 2.2.3, positive social impacts of participation within a group activity that involves the acquisition of social capital can be described as expressive social capital returns in the form of positive impacts on physical and mental health, well-being and life satisfaction (potentially having wider societal impacts explored in Chapters 7 and 8). In addition, these impacts can be viewed as instrumental returns if they relate to the acquisition of money, wealth and power for individuals (Lin, 2008). Section 6.5 looks at these potential impacts or returns.

6.5.1 Positive impact: Mental Well-being

This section considers the level of mental well-being amongst DGS participants, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), comparing them to both national comparative data and within the dataset and explores potential reasons for any difference in scores found. Firstly, to see if participants in DGS had a higher level of mental well-being than average, indicating a positive social impact of participation in DGS, a comparison of mental well-being measured using SWEMWBS between the overall DGS participants dataset and the national comparison dataset was tested via hypothesis 2.

> **Hypothesis 2: Participants in DGS have statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS) than the national average.**

The results of the independent t-test analysis are shown in Table 6.21

Understanding Society Wave 7 2015-16 National Dataset			DGS Participants dataset, 2019					
N	Mean	SD	N	Mean	SD	t	Df	Cohen's effect size d
37469	25.38	4.91	2392	28.21	3.94	**-33.61*** **	2866.85	0.64

***=<.001

Table 6.21 Independent t-test results for hypothesis 2

The government also publishes national well-being data by age-band. The data gathered in this research was coded along the same age bands and an independent t-test analysis between the two samples was carried out (see Table 6.22):

	Understanding Society Wave 7 2015-16 National Dataset			DGS Participants dataset, 2019					
Age Group	N	Mean	SD	N	Mean	SD	t	Df	Cohen's effect size d
16-24	4876	25.27	5.13	62	27.92	3.60	**-5.71*** **	64.18	.60
25-34	5005	25.07	4.94	241	27.75	4.32	**-9.35*** **	271.02	.58
35-44	6388	24.99	4.84	256	27.74	3.71	**-11.48*** **	291.04	.64
45-54	7072	25.01	4.84	490	28.06	3.90	**-16.50*** **	598.69	.69
55-64	5947	25.35	4.90	679	28.35	3.87	**-18.62*** **	946.24	.68
65-74	5023	26.43	4.71	534	28.42	4.02	**-10.67*** **	698.33	.45
75 and over	3158	26.01	4.83	127	29.16	3.79	**-9.06*** **	143.02	.73

***=<.001

Table 6.22 Independent t-test results for age bands relating to hypothesis 2

The results of the t-test in Table 6.22 show that the difference was found to be significant (p<.001) across all of the age bands. However, the effect size was largest (d=.73)[56] in those 75 and over, at the higher end of the moderate effect size, indicating that the greatest impact on well-being scores through DGS participation, measured using the SWEMWBS and compared to the national dataset, can be seen in those aged 75 and over. All other age bands showed a moderate to large effect size[57] of between d=.58 and d=.69, with the exception of those aged between 65-74, where only a small to moderate effect size was apparent (d=.45).

[56] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)
[57] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

This study looked at the impact of social capital and the social networks created by it on health and mental-well-being. Social networks have been recognised as one of the wider determinants of health (Dahlgren and Whitehead, 1991), with strong social networks having a positive impact on mental health and well-being and lack of social contact potentially having a negative impact (Carpiano, 2006, 2007; Sarracino, 2010; Sirven and Debrand, 2012; Hinder and Greenhalgh, 2012; Klein, 2013; Knapp, 2015; Jetten *et al.*, 2017; Bian, Hao and Li, 2018; Valtorta *et al.*, 2018; Gale, Westbury and Cooper, 2018; O'Connor *et al.*, 2019). It was found in section 6.4.1 that the data indicated stronger bonding social capital within syndicates and therefore, the next hypothesis 2a investigates whether or not there is a higher statistically significant difference between the mean SWEMWBS for syndicate and non-syndicate members.

Hypothesis 2a: Participants in DGS who are members of syndicates have statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS) than non-syndicate members.

An independent t-test was completed comparing syndicate and non-syndicate members' SWEMWBS. The results of the independent t-test analysis are shown in Table 6.23.

	Syndicate members			Non-syndicate members					
	N	Mean	SD	N	Mean	SD	T	Df	Cohen's effect size d
	1269	28.37	3.85	1123	28.03	4.04	**2.11***	2422	0.09

*=<.05

Table 6.23 Independent t-test results for hypothesis 2a

The results of the t-test revealed a statistically significant difference (p<.05) with a very small effect size, lower than that said to show a small effect by Cohen (d=.09)[58], indicating that the null hypothesis can be rejected and participants in DGS who are members of syndicates have statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS) than non-syndicate members. However, the difference in mean scores are also very low (28.37 and 28.03), indicating practically that there

[58] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

is very little difference between syndicate and non-syndicate members' levels of mental well-being measured using SWEMWBS.

Further analysis of the DGS sample revealed syndicate members over the age of 55 showed the highest SWEMWBS in comparison with national average scores, as shown in Figure 6.15.

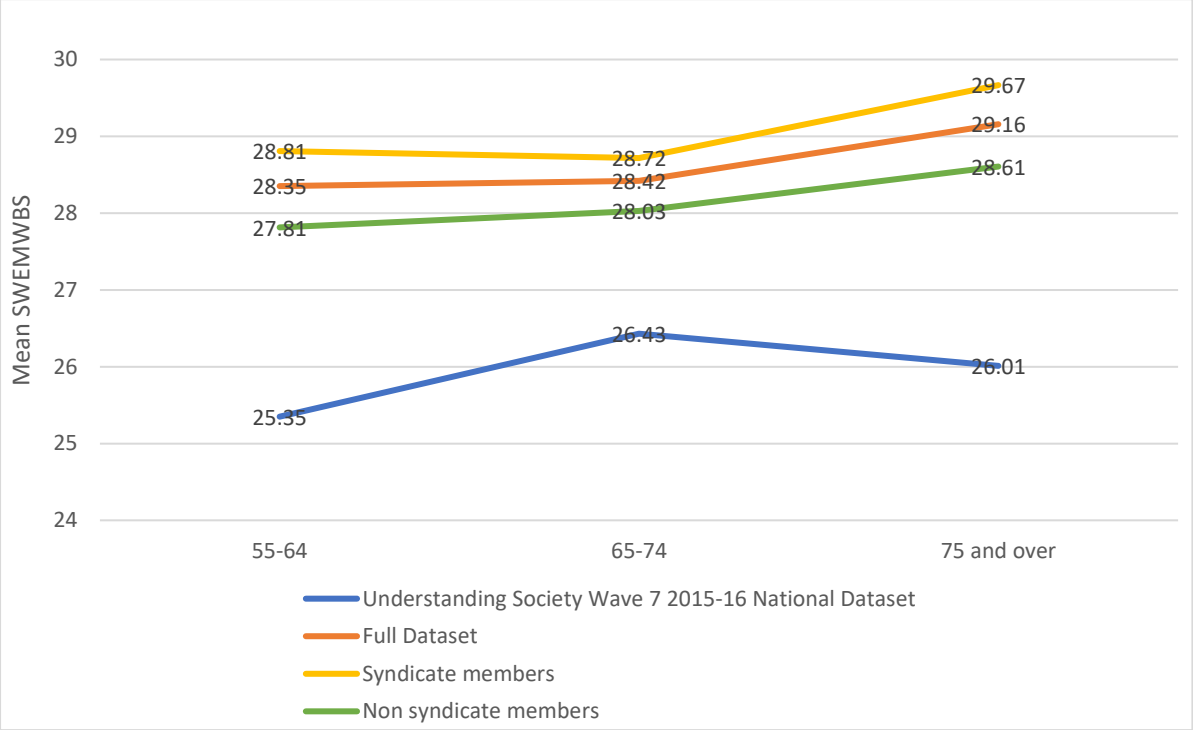


Figure 6.15 Comparison of average DGS participant SWEMWBS scores (full dataset and split into syndicate and non-syndicate members) with national average SWEMWBS for those aged 55 and over.

To assess if the difference between syndicate and non-syndicate members SWEMWBS was statistically significant for those aged 55 and over, an independent t-test was completed for hypothesis 2b:

> **Hypothesis 2b: Participants in DGS aged 55 and over who are members of syndicates have statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.**

The results of the independent t-test analysis are shown in Table 6.24

Syndicate members			Non-syndicate members					
N	Mean	SD	N	Mean	SD	t	Df	Cohen's effect size d
737	28.85	3.61	603	27.98	4.23	**4.01*** **	1188.73	.22

***=<.001

Table 6.24 Independent t-test results for hypothesis 2b

The results of the t-test revealed a statistically significant difference (p<.001) with a small effect size (d=.22)[59], indicating that the null hypothesis can be rejected and participants in DGS aged 55 and over who are members of syndicates have statistically significantly higher well-being scores, measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS), than non-syndicate members.

Sections 6.5.2 to 6.5.6 consider possible reasons for this increased level of well-being recorded using SWEMWBS of DGS participants[60] compared to the national average.

[59] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)

[60] In any social impact study alternative attribution or other factors that may influence positive impacts in addition to the intervention or activity being considered must be taken into account. Caution must be applied in interpreting the data, as the study compared the results of participants with a national dataset rather than with a genuine control group. As participants has often been taking part in DGS for many years, feeling it is an integral part of their lives and identity (see section 5.3.1 and 6.4.2) deadweight factor, representing what would have happened anyway, and drop-off, reduction in the benefits resulting from an intervention over time, are not of high relevance in this study.

6.5.2 Positive impact: Avoiding Loneliness

One reason for the increased SWEMWBS in DGS participants compared to the national average may be related to both the level of bonding social capital, explored in section 6.4.1 and a reduced level of loneliness compared to the national average. To explore this, the data collected in the study was compared to national data. The comparator dataset used was the Community Life Survey 2017-2018.

Whilst both the national dataset and the DGS questionnaire ask the same question: How often do you feel lonely? The national question gives answers on a five-point ordinal Likert scale whereas, the survey used in this study utilised a four point, ordinal, Likert scale, as shown in Table 6.25.

DGS Questionnaire:			
How often do you feel lonely?			
Often, always	Some of the time	Occasionally	Hardly ever/ never
1	2	3	4

Community Life Survey (National Dataset):				
How often do you feel lonely				
Often, always	Some of the time	Occasionally	Hardly ever	Never
1	2	3	4	5

Table 6.25 Comparison of loneliness questions and responses DGS questionnaire and Community Life Survey datasets

The use of a four-point Likert scale question in the DGS questionnaire was a mistake on the part of the researcher, which makes the results statistically imperfect and meant that advanced statistical comparison tests between the national and the DGS dataset could not be confidently completed. In the case of this study, losing the data entirely was not a sensible option given its potential value in explaining one of the reasons why the SWEMWBS scores were higher for DGS participants compared to the national average, as shown in section 6.5.1. It has been recognised that recoding of data is sometimes necessary to allow comparison between different datasets, to enable researchers to yield interpretable results (Lavrakas, 2008). The responses to the national dataset were recoded, combining 4 and 5 scores into a single '4' score as the recoded responses then both used the same response wording. This resulted in four-point ordinal responses, which are shown in the cross-tabulation Table 6.26.

Table 6.26 below provides an indication that loneliness levels are lower in DGS participants than the national average, and that reduced loneliness appears to be one of the reasons why DGS participants have statistically higher mental well-being levels measured using SWEMWBS, as detailed in section 6.5.1. However, some caution should be used with these results, due to the data recoding that was necessary to allow direct comparison. This supports the finding of the qualitative stage in Chapter 5, section 5.4.1.

How often do you feel lonely?		National Dataset or DGS dataset	
		National Dataset	DGS Participants
Often, always	Count	588	30
	% within National Dataset or DGS dataset	5.9%	1.2%
Some of the time	Count	1599	210
	% within National Dataset or DGS dataset	15.9%	8.7%
Occasionally	Count	2498	491
	% within National Dataset or DGS dataset	24.9%	20.3%
Hardly ever/never	Count	5361	1693
	% within National Dataset or DGS dataset	53.4%	69.8%
Total	Count	10046	2424
	% within National Dataset or DGS dataset	100.0%	100.0%

Table 6.26 How often do you feel lonely? - National Dataset or DGS dataset Crosstabulation

An examination of the percentage of respondents who reported feeling lonely 'often/always' compared to the national community life survey dataset and within the DGS dataset split by various participation groups is shown in Figure 6.16.

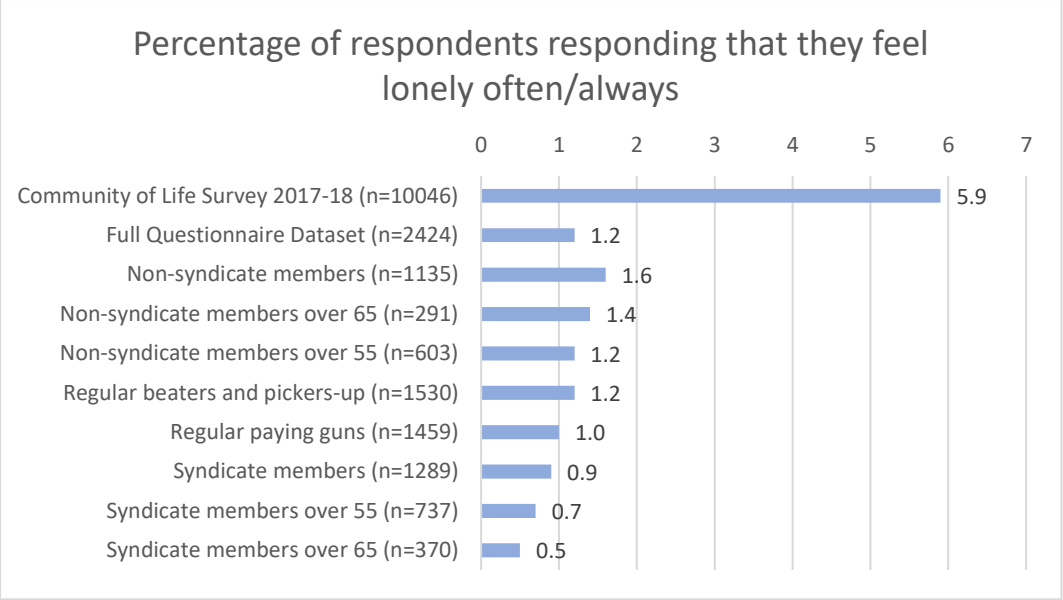


Figure 6.16 Comparison of percentage of respondents reporting feeling lonely often/always

Figure 6.16 and Table 6.26 indicate that those participating in DGS reported feeling lonely 'often/always' much less than the national average. Interestingly for a study looking at social capital, friendships and the strength of social networks, syndicate members report even lower rates of feeling lonely (often/always at 0.9%) than the overall DGS participant dataset. Section 6.5.1, found that those who were members of syndicates had higher levels of mental well-being measured using SWEMWBS. Syndicate members were found to have statistically stronger friendships in section 6.4.1 of this chapter, which could indicate stronger 'bonding' social capital and social networks, which appears to impact on their loneliness scores.

6.5.3 Positive Impact: Sense of purpose and achievement

Having a sense of purpose, particularly as we get older, has been shown to positively impact health and well-being (McKnight and Kashdan, 2009; Alimujiang *et al.*, 2019; Steptoe and Fancourt, 2019). Gaining a sense of purpose was a reason given by many of those participating in DGS as beaters and pickers-up that were retired in the qualitative interview stage of the research in Chapter 5. A total of 31.8% of regular beaters and pickers up were retired or semi-retired. Almost all regular beaters and pickers up (97.5%) agreed or strongly agreed that is was important that they (or their dog(s) if applicable) 'do a good job to contribute to the success of the shoot day'. The impact of having a purposeful life on health and well-being is explored further in Chapter 7.

6.5.4 Positive impact: Physical well-being: activity and time spent outdoors

Participants were asked how far on average they walked (in kilometres) when on a shoot. A conversion chart from kilometres to miles was provided so that the question would be easier to answer. The average responses for the 99.7% of participants who responded to this question are shown in Table 6.27.

	n	Median distance walked km	Mean distance walked km	SD	Min.	Max.
Full dataset	2,416	8.0	8.1	3.97	1	25
Beaters and pickers-up	1,525	9.0	9.4	3.83	1	25
Regular paying guns	1,454	7.0	7.6	3.91	1	25
Syndicate members	1,286	7.0	7.7	3.89	1	25

Table 6.27 Average distance walked by participant groups.

Table 6.27 shows that beaters and pickers up walked the furthest amongst all participation groups. At the qualitative stage interviewees highlighted that participation in DGS encouraged them to go out and socialise and take exercise in all weathers. Throughout the

season, 66.2% of beaters and pickers-up take part in DGS once a week or more, with 39.2% taking part twice a week or more which indicates frequent exercise, with a median distance walked of between 7km and 9 km per shoot day depending on individual's role at the shoot (see Table 6.27), facilitated via participation in DGS throughout the winter months, in all weathers, that may not be completed if individuals were not taking part in DGS.

To assess whether DGS participation helps reduce the impact of stress and enables people to spend more time outdoors the questions shown in Table 6.28 were asked to all participants.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
DGS enables me to get away from the stresses of the working week	☐	☐	☐	☐	☐
I spend more time outdoors that I otherwise would because of my involvement in DGS	☐	☐	☐	☐	☐
My involvement in DGS allows me to access countryside I would otherwise not be able to visit.	☐	☐	☐	☐	☐

Table 6.28 Question regarding well-being and time spent outdoors

The responses to questions in Table 6.28 are shown in Figure 6.17 and 6.18.

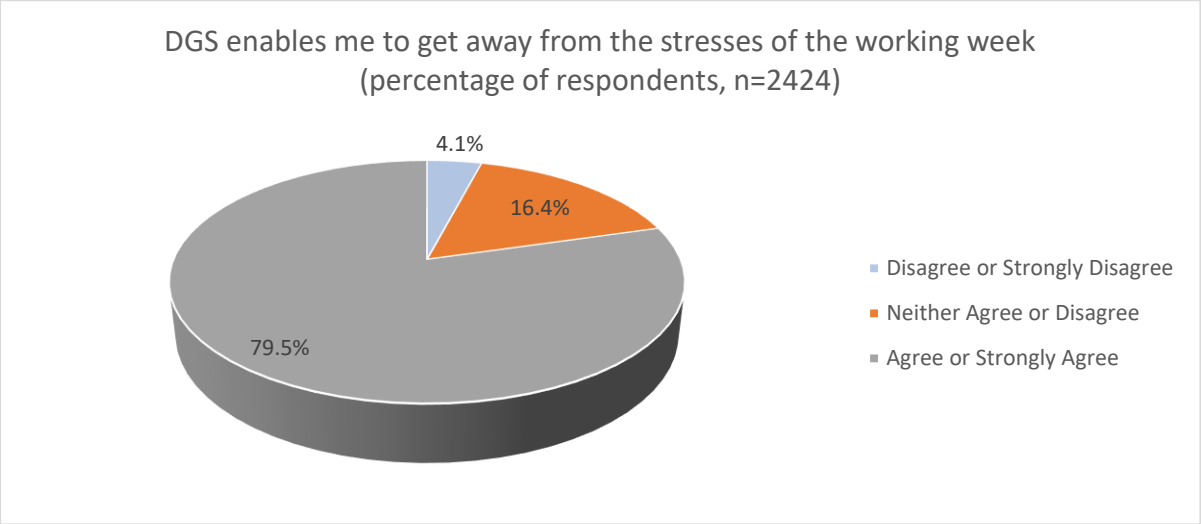


Figure 6.17 DGS participants' views on the stress relief benefits of DGS participation

Figure 6.18 shows that 79.5% of DGS participants agree or strongly agree that DGS helps them to get away from the stresses of the working week and this stress reduction activity may contribute to the higher well-being scores found in the DGS dataset compared to the national dataset.

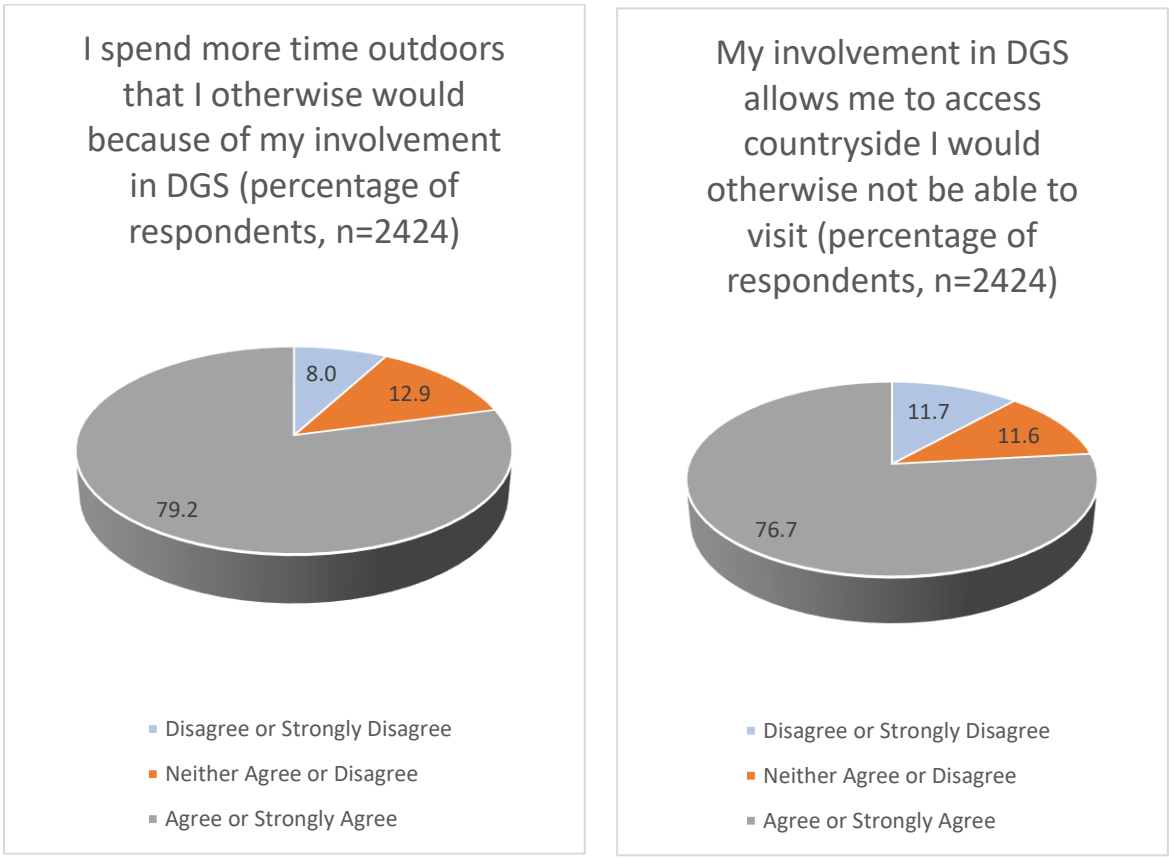


Figure 6.18 DGS participant responses to questions about time spent outdoors.

Figure 6.18 shows that 79.2 % of DGS participants feel they spend more time outdoors than they otherwise would because of their involvement in DGS, with 76.7% agreeing or strongly agreeing that participation in DGS allows them to access areas of the countryside they would otherwise not be able to visit. Spending time outdoors in nature has been shown to have a positive impact on mental well-being (Ryan *et al.*, 2010; Kerr *et al.*, 2012) and therefore the ability to spend more time outdoors, accessing a wider range of countryside, may also be a factor in the higher well-being scores associated with DGS participants shown in section 6.5.1.

6.5.5 Positive impact: Instrumental Returns

This study is particularly focussed on 'expressive' and not on individually received monetary returns on social capital within DGS. However, respondents were asked about the impact of bridging social capital in gaining employment and or training opportunities. The results are shown in Figure 6.19 and Figure 6.20 below.

Figure 6.19 Percentage of participants finding employment opportunities for either themselves or a friend or family member via contacts from DGS (percentage)

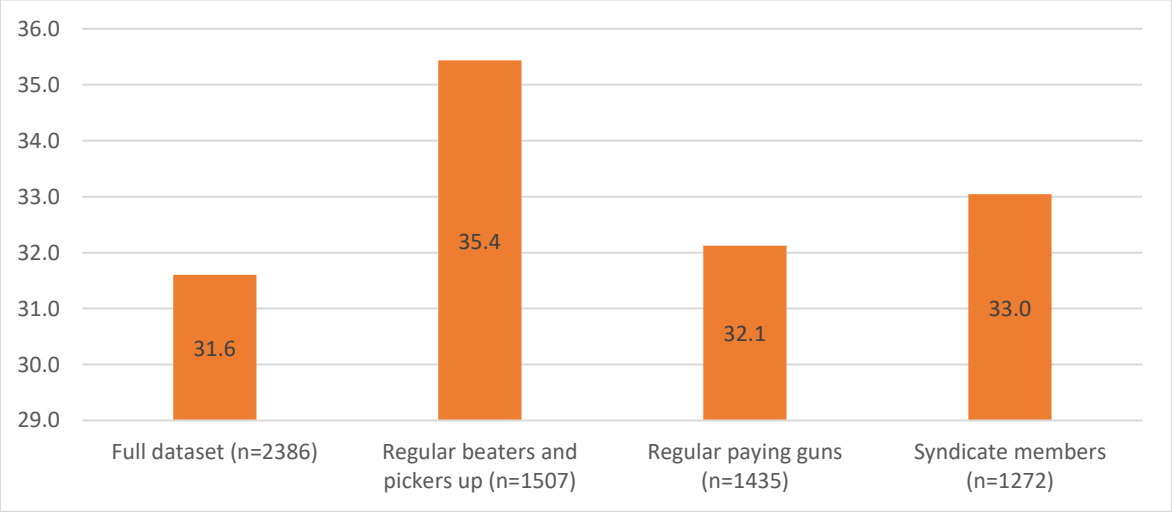


Figure 6.20 Percentage of participants finding training opportunities for either themselves or a friend or family member via contacts from DGS (percentage)

Training and employment opportunities can contribute to the well-being of individuals, having been recognised as one of the wider determinants of health (Dahlgren and Whitehead, 1991).

6.5.6 SWEMWBS: Other potential impacting factors

The researcher considered other potential impacting factors for the increased SWEMWBS identified within the dataset. The respondents covered a broad range of educational and employment backgrounds and were distributed across the entire country as detailed in sections 6.3.1. and 6.4.3.

The evidence on whether education level influences subjective well-being is ambiguous and contradictory (Dolan, Peasgood and White, 2008). However, an analysis of education within the dataset was completed to assess whether this could be a factor. Useable comparable highest level qualification data was not available within the Understanding Society dataset (UK Data Service, 2017) that contained the SWEMWBS scores. The categories of qualification used were not the same as in the questionnaire used in this study. Moreover, 32.5% of participants in the Understanding Society survey either failed to give a response to the qualification question, their response was marked as 'inapplicable' or they answered 'none of the above', which could mean they either had a different qualification or no qualifications at all.

Therefore, it was not possible to do a direct comparison with alternative national qualification data, as the categories used to describe the national qualification datasets are different to those used in the questionnaire. However, it was possible to map the qualification levels between the national survey data and the data gathered by this questionnaire, as shown in Table 6.29.

Study Questionnaire	National Household Survey Jan–Dec 2018
☐No Qualifications ☐ Level 1: Examples: 1 - 4 O levels /CSEs /GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level1, Foundation GNVQ, Basic Skills ☐Level 2: Examples: 5+ O levels (passes) /CSEs (grade 1) /GCSEs (grades A*-C or 9-4), School Certificate, 1 A level / 2-3 AS levels /VCEs, Higher Diploma. NVQ Level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First /General Diploma, RSA Diploma ☐ Level 3: Examples: 2+ A levels /VCEs, 4+ AS levels, Higher School Cert, Progression /Advanced Dip, NVQ L3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National ☐ Level 4-5: Examples: Foundation Degree, NVQ Level 4 -5, HNC, HND, RSA Higher Diploma, BTEC Higher Level, Certificate or Diploma of higher education, Higher Apprenticeship ☐Level 6: Examples: Honours Degree (e.g. BA (hons), BSc (hons)), degree apprenticeship, graduate diploma/certificate ☐ Level 7-8: Examples: Higher degree (for example MA, PhD, PGCE)	No Qualifications NVQ1 NVQ2 NVQ3 NVQ4 and above Trade Apprenticeships Other

Table 6.29 Qualification categories in the study questionnaire and national household survey

As there are apprenticeships noted in Level 4-5 and Level 6 in the questionnaire, the bottom three categories from each dataset have been compared together in the Table 6.30 below

	DGS Questionnaire Respondents %	National Household Survey 2018 %
No Qualifications	6.3	8.0
NVQ1	10.6	10.4
NVQ2	16.3	15.8
NVQ3	16.2	17.0
NVQ4 and above, trade apprenticeships and other qualifications	50.6	48.8

Table 6.30 Comparison of qualification levels in DGS questionnaire and National Household Survey 2018 (Office For National Statistics, 2018a)

The data in Table 6.30 indicates that qualification levels within the sampled population are broadly similar to the national household survey respondents. There is a good evidence base that unemployment and lack of social contact can impact subjective well-being (Dolan et al, 2008), which may explain some of the increased well-being scores for participants in DGS via their membership of a social network and having something to occupy their time.

Positive impacts are discussed further in section 7.2 of Chapter 7.

6.6 Wider and Negative Impacts and Concerns

The qualitative stage of the study highlighted potential conflicts between those that did and did not participate in DGS and between those who lived in the countryside and felt that those in towns and cities did not understand that shooting was considered by them as an integral a part of their 'identity' (see sections 5.3.1, 6.4.2 and literature review sections 2.2.1 and 3.4). However, some participants also highlighted some large commercial shoots not following suggested guidelines developed by organisations such as GWCT and BASC and thus potentially presenting shooting in a bad light, risking the ability of those interviewed being able to continue their way of life (see section 5.4.3).

This section uses descriptive statistics and hypothesis testing to consider wider perceptions of shooting, via an examination of potential conflicts between individuals within and outside of the shooting community and the potential negative impact of large commercial shoots not following good practice and guidelines. The capability of those involved in DGS to respond to these conflicts and negative portrayals of DGS is also considered.

6.6.1 Conflicts between shooting and non-shooting individuals

Section 5.4.3 of Chapter 5 found that there was conflict between shooting and non-shooting individuals, particularly observed at the larger commercial shoots by the researcher. To assess these perceived conflicts, the following five-point Likert scale question in Table 6.31 was asked of all participants:

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
People in towns and cities don't understand DGS is a part of rural life.	1	2	3	4	5

Table 6.31 Question to assess perceived conflict between rural and urban dwellers

To assess the potential division between urban and rural areas and the perceived lack of understanding of the importance of DGS to rural life, hypothesis 3a was tested using an independent samples t-test. The results of the independent t-test are shown in Table 6.32

Hypothesis 3a: People living in urban areas are less likely to agree that people in towns and cities don't understand DGS is a part of rural life.

Rural dwellers			Urban dwellers					
N	Mean	SD	N	Mean	SD	t	Df	Cohen's d effect size
1797	4.22	0.84	627	4.05	0.88	***4.31	2422	.20

***=<.001

Table 6.32 Independent t-test results for hypothesis 3a

The results of the t-test revealed a statistically significant difference (p<.001) with a small effect size (d=.2)[61], indicating that the null hypothesis can be rejected and people living in urban areas are less likely to agree that people in towns and cities do not understand DGS is a part of rural life.

To assess whether participants in DGS felt any conflicts within their everyday lives amongst friends and colleagues, the question shown in Table 6.33 was asked to all survey participants.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I sometimes feel alienated from my non-shooting friends as a result of participating in DGS	☐	☐	☐	☐	☐

Table 6.33 Question regarding conflict for DGS participants in everyday life

The responses to the question in Table 6.33 shown in Figure 6.21 show that only 13.9% of DGS participants agreed or strongly agreed that they sometimes feel alienated from their non-shooting friends as a result of participation in DGS.

[61] Cohen's d effect size d=.2 small, d=.5 moderate, d=.8 large

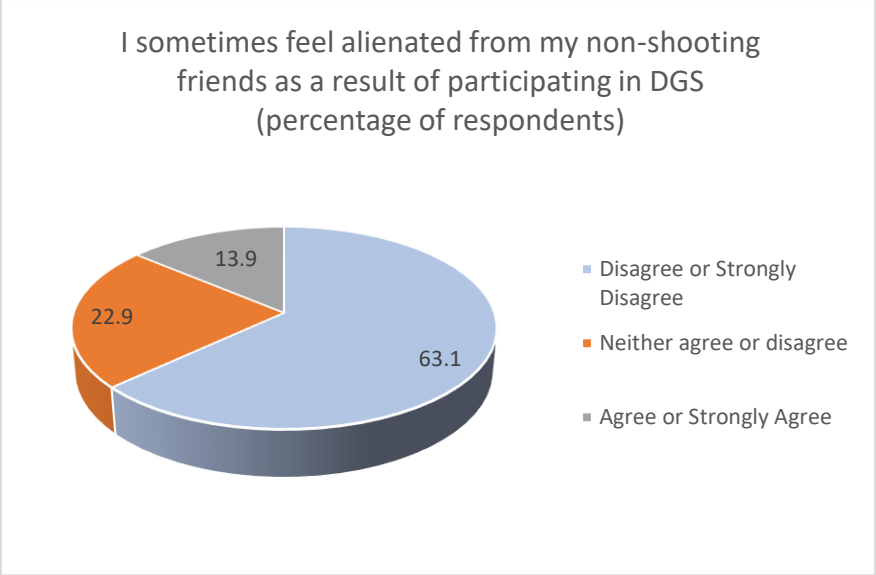


Figure 6.21 Participants responses to 'I sometimes feel alienated from my non-shooting friends as a result of participating in DGS' (percentage of respondents)

The reasons for this potential alienation from friends was explored further. Participants at the qualitative stage had expressed their lack of confidence in being able to portray their pastime in a positive light through social media channels, particularly to combat negative press that they felt could often be inaccurate (see section 5.4.2). To assess confidence in using online methods of communication, participants were asked the question shown in Figure 6.22:

Are you confident in using online forms of communication and social media? ☐Yes☐ No

3.5a If yes, please indicate which of the following social media applications/online communications you regularly use:

☐ Facebook ☐ Instagram ☐ twitter ☐ LinkedIn ☐ Email

Figure 6.22 Question 3.5 DGS participants' confidence in online communication methods.

The responses to the question in Figure 6.22 shown in Table 6.34 below

	Percentage of participants that are 'confident users' n=2424
Email	79.6 (%)
Instagram	24.1 (%)
Twitter	14.1 (%)
Facebook	52.8 (%)
LinkedIn	27.9 (%)

Table 6.34 DGS participant's online communication use confidence levels

The data in Table 6.34 shows that while 79.6% of DGS participants are confident email users, DGS participants are much less confident in using modern forms of social media communication such as Facebook (52.8%), Instagram (24.1%) and twitter (14.1%). The potential implications of these findings are discussed in Chapter 7, section 7.3.1.

6.6.2 Wider perceptions of DGS

In section 5.4.3, some syndicate members expressed concern about the practices of some larger commercial shoots and 'big bag' days and how this could potentially negatively impact their ability to continue to take part in DGS, something they viewed as a strong part of their identity. To assess these concerns amongst DGS participants, the following 5-point Likert scale questions shown in Table 6.35 were asked of all questionnaire respondents:

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
WP1 I am concerned that 'big bag' days can present shooting in a poor light.	☐	☐	☐	☐	☐
WP2 As long as all birds go into the food chain 500+ bird days are not an issue for me.	☐	☐	☐	☐	☐

Table 6.35 Questions regarding wider perceptions of DGS

Using the responses to question WP1 in the form of a five-point Likert scale as shown in Table 6.35, to see if this difference in opinions between syndicate and non-syndicate members was apparent in the larger dataset, hypothesis 3b was tested using an independent samples t-test. The results are shown in Table 6.36

Hypothesis 3b. Regular paying guns who are members of a syndicate will be more concerned that 'big bag days' can present shooting in a bad light compared to non-syndicate members.

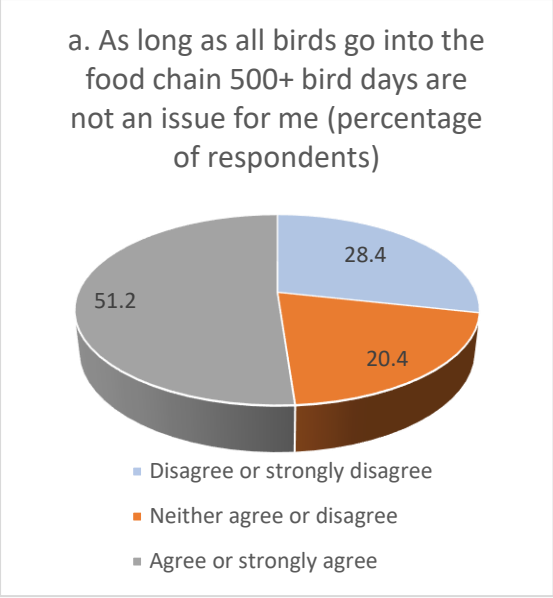
	Syndicate members			Non-syndicate members					
	N	Mean	SD	N	Mean	SD	t	Df	Cohen's effect size d
3b	1122	4.17	0.87	337	4.04	0.89	***2.50**	1457	0.23

*<.05

Table 6.36 Independent t-test results for hypothesis 3b

The results of the t-test revealed a statistically significant difference (p<.05) with a small effect size (d=.23)[62], indicating that the null hypothesis can be rejected and that syndicate members are more concerned that big bag days can present shooting in a poor light than non-syndicate members. At the qualitative stage, some guns had expressed complete opposition to 'big bag days' (section 5.4.3). There had also been negative stories in the press relating to larger commercial shoots wasting game meat (Milmo, 2015) and potential responses by the game shooting industry to ensure all game meat was used (Tomlinson, 2017; British Game Alliance, 2018). Participant responses to questions WP1 and WP2 are shown below in Figure 6.23 (a and b).

[62] Cohen's d effect size: d= .2 (small), d= .5 (moderate), d= .8 (large)



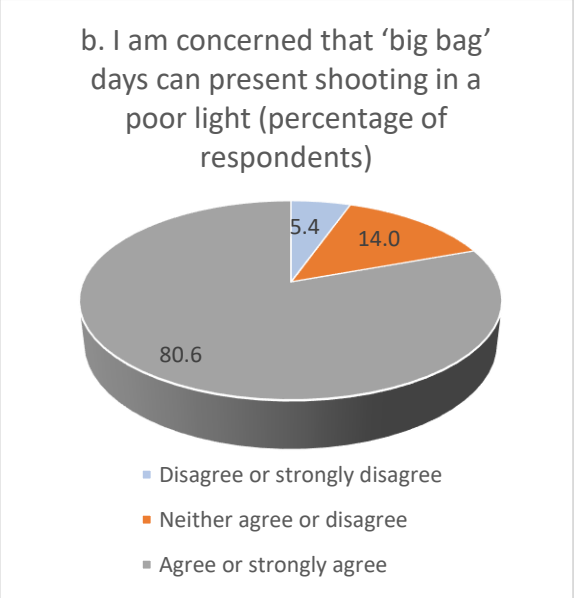


Figure 6.23 (a and b): Participant opinions on wider perceptions of DGS

Figure 6.23 shows that 80.6% of participants were concerned about the poor practices of some large shoots, however, only 28.4% of participants disagreed or strongly disagreed that as long as all birds go into the food chain 500+ bird days were not an issue for them.

These differences in opinions on varying shoot practices within DGS, including the acceptability of 'big bag days', particularly amongst syndicate members, as well as how participants feel some practices could affect their ability to participate in DGS in future and influence wider perceptions of DGS, are considered in Chapter 7, section 7.3.

6.7 Conclusion

This chapter confirmed the validity of the wider questionnaire dataset responses then completed analyses using statistical testing methods. It found both bonding and bridging social capital were apparent in DGS, with stronger bonding social capital found between members of shooting syndicates. Syndicates had the highest levels of bridging social capital and lowest levels of division. It found that strong social networks exist, ready to be activated by participants in times of need.

The analysis confirmed a strong rural identity amongst all participants, regardless of whether they are current rural or urban dwellers. The participation of people in DGS because it is a pastime practised in the area in which they now live was also shown to be statistically significantly higher in rural dwellers compared to urban dwellers, confirming the rural nature of DGS as a pastime and highlighting the potential to positively impact social cohesion through widening participation in DGS to include newcomers to rural areas. The perception of DGS as part of the intangible cultural heritage of those who grew up in rural areas, participating because of the links to their heritage was also indicated. These strong identities contribute to the bonding social capital within DGS.

In terms of positive social impacts, DGS participants were shown to have statistically higher mental well-being scores measured using SWEMWBS that the national comparative dataset (Understanding Society, Wave 7, 2015-16). DGS participants aged 55 and over had statistically higher levels of mental well-being measured using SWEMWBS than those not in syndicates, perhaps due to the higher levels of bonding social capital found amongst syndicate members. Reasons for the higher SWEMWBS considered included lower levels of loneliness compared to the national dataset (Community Life Survey 2017-18), a strong sense of purpose, regular physical exercise, participating in an activity individuals believe allows them to escape the stresses of the working week, spending more time outdoors and having access to a wide range of countryside and instrumental returns of access to training and employment, which form part of the wider determinants of health.

Finally, the chapter looked at negative impacts of participation in the form of potential conflicts and wider perceptions of DGS, also considering participant perceived inability to combat negative perceptions of DGS in wider society.

Further discussion of these findings is triangulated with the qualitative data analysis and literature review findings in the next Chapter 7.

Chapter 7 - Triangulation and Discussion

This chapter brings together the findings of the contextual literature review with the data presented in Chapters 5 and 6. It looks to answer the two research questions:

- To what extent does DGS create social impact through the creation of social capital and reinforcement of identity?
- How does the type and size of shoot mediate social capital and identity development?

The third research question, 'How can these social impacts be valued and compared in the future?' is considered in the final Chapter 8.

This chapter first considers the social capital and identity within DGS and how these two areas are linked to create strong 'social networks'. It concludes by looking at the social impacts identified during the research study, referring back to relevant supporting literature and prior studies where appropriate.

7.1 Social Capital, Identity and Social Networks

This study used the theoretical underpinning of social capital as a basis for measuring the social impact of engagement in DGS for all participants in relation to their health and well-being, providing a stronger form of 'theoretically based' social impact assessment (SIA) evidence than many other SIAs (Dietz, 1987; Becker and Vanclay, 2003; Aledo-Tur and Domínguez-Gómez, 2017), whilst following the process for SIAs recommended by GECES (Hehenberger, Harling and Scholten, 2014), outlined in Chapter 2.

This critical realist study focused on the creation of 'social networks' through bonding and bridging social capital, in line with Putnam's definition of social capital: "Connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (Putnam, 2000, p19), which although 'virtual', were shown to be available for 'activation' by participants in DGS when needed, in a way that could have a positive impact on participants' mental health and well-being. Impact on individuals' mental health and well-

being is recognised as a social impact across a range of social impact frameworks including GECES (Clifford, Hehenberger and Fantini, 2014; Hehenberger, Harling and Scholten, 2014) Big Society Outcomes Matrix (Big Society Capital, 2015b), UN Social Impact areas (United Nations Public Administration Network (UNPAN), 2006), the sustainable development goals (Boelt, 2014), and the UN/World Health Organisation (WHO) sustainable development goals (United Nations (UN), 2017) as detailed in Table 2.4 in Chapter 2 of this thesis.

The creation of social capital networks within DGS was found to be strongly linked to identity. Bonding social capital and identity are inextricably linked, with identity and its associated shared value, attitudes, beliefs and shared understandings (Claridge, 2018a; 2018b). If friends share a well-defined group identity then the bond between them is stronger, enabling the creation and maintenance of social structures (Burke and Cantwell, 2010) as shown in Figure 2.2 in section 2.2.1 of Chapter 2. Shared understandings and sense of belonging are key to the development of strong bonding social capital (Burke, 2007; Burke and Cantwell, 2010; Claridge, 2018a, 2018b) and therefore social networks. Within DGS these unspoken cultural understanding and shared meanings, not readily accessible and understood by those outside of DGS create stronger bonds, having a positive impact on how individuals "make the world known to themselves and to make themselves known to the world" (Cohen, 1982 P9-10). Strong social identity through group participation has been shown to have positive psychological consequences (Haslam et al., 2009b), whilst no longer being able to be part of that group tends to have negative psychological consequences (Haslam et al., 2009b), illustrating the importance of strong identity within this study in relation to mental health and well-being.

Rural identity was found to be a key reason for DGS participation, in line with the 'country identity' recognised in the last, unbiased study into shooting (Cox, Watkins and Winter, 1996b), that provides a context for people to establish personal identities, with 91.3% of survey respondents indicating that they participated in DGS because they feel a connection to the countryside/rural life. Statistical testing in section 6.4.2 confirmed that there was no statistically significant difference between rural and urban dwellers in the prevalence of

people who participate because they feel a connection to the countryside and rural life ($p>.05$). The rural or countryside identity is therefore not grounded in the place where they currently reside, but may be linked to the pastimes they pursue, in this case DGS, also an indicator of strong bonding social capital in DGS. This result reflects the findings of the qualitative interview stage, when almost all participants cited a feeling of connection to the countryside or a country identity as a reason for participation. It has been argued that in-group or category based identity verification allows people to create and maintain the social structures in which their identities are embedded (Burke, 2007; Burke and Cantwell, 2010), further supporting the assertion that bonding and bridging social capital and the creation of social networks are strongly linked to identity.

There was also a strong rural link to DGS participation, in that 85.6% of participants either currently lived in a rural area/had rural heritage, had been brought up in a rural area, or both. A link to heritage was also apparent for some, with 38.2% of respondents indicating they participate in DGS because their family did so in the past and maintaining a link to heritage was important to them. The importance of social practices that are regular, seasonal events in contributing to individual and community well-being through a strong, heritage linked identity has been recognised by UNESCO as 'intangible cultural heritage', as explored in Chapter 3, section 3.4 (United Nations Educational Scientific and Cultural Organization (UNESCO), 2018). These activities are valued by those who take part within the DGS community, as they are linked to their perception of history, reaffirming their identity. The National Trust recognises this rural heritage, supporting well-managed shoots that are in line with its ethos of recognising rural heritage, traditions and spirit (National Trust, 2015).

The return of DGS participants who now live in urban areas to take part in the seasonal, rural pastime of DGS would seem to be a form of 'intangible cultural heritage' and the quantitative stage of analysis found that participants in DGS who grew up in a rural area (village or rural) were significantly more likely to participate for heritage reasons than those who grew up in an urban area ($p<.001$, d.57). Syndicate shoots were shown to have stronger friendship ties and therefore stronger social network 'ties'. It has been argued that the stronger the ties

within a social structure, the greater the identity concerned (Stets and Burke, 2000). The data also revealed syndicate members had a stronger link to heritage as a reason for participation than non-syndicate members ($p<.001$; $d=.20$). This further supports the important role of identity and intangible cultural heritage in DGS, particularly in certain forms of participation.

DGS was confirmed as a rural pastime, linked to rural identity as noted earlier in this section which provided a way for newcomers to rural areas to become part of the community (see also section 5.3), make friends and therefore strengthen social cohesion. People who lived in rural areas (village or rural) were more likely to participate in DGS because it is a pastime regularly practised in the area in which they now live than those who lived in urban areas (town or city) ($p<.001$, d .64), further supporting the role of DGS as a rural pastime within rural communities.

Previous studies into the social impact of participation in game shooting explored in Chapter 3, section 3.4 and shooting overall have recognised the importance of spending time with 'like-minded' people and the important role their participation had in making and retaining friendships (British Association of Shooting & Conservation (BASC), 2016). These strong friendships were apparent at both commercial and syndicate shoots at the qualitative stage, both during visits to the sampled shoots and afterwards in the interviews with participants (See Chapter 5, section 5.3). As shown in section 6.4.1, this study found that there were high levels of friendship or bonding social capital within DGS, however, the independent t-test in section 6.4.1 showed that those in syndicates have statistically stronger friendships deriving from participation in DGS than those not in syndicates (SN1- $p<.001$; $d= .26$ SN2 $p<.001$ $d=.21$. SN3 $p<.001$ $d=.32$), indicating stronger bonding social capital and therefore stronger social networks within syndicates. However, there were also strong friendships apparent between beaters and pickers-up at the commercial shoots visited by the researcher, between those who had been involved in DGS at that particular shoot for many years (section 5.3.2). The use of regular, long-term teams of beaters and pickers-up may strengthen these friendships. Strong friendships and being able to rely on friends in DGS in times of need indicates high levels of trust and reciprocity, which are key elements of the traditional understandings of

social capital (Portes, 1998; Putnam, 2000), but there is very little research into their measurement and impact on health (Abbott and Freeth, 2008), something this study has sought to provide. Trust was particularly important to this group of individuals, who were wary of outsiders being 'anti-shooting' and therefore cautious about initial engagement.

The strength of the friendships at the commercial shoots visited was enhanced by the social activities provided by the shoots, such as summer barbeques, group hot lunches and Christmas parties. Shoots often laid on social activities for their beaters and pickers up, which many participants found to be an essential part of their social life in rural areas in particular. Section 6.4.1 analysed the range of social activities put on by shoots finding that some commercial shoots provided additional social activities such as summer BBQs or similar, as shown in Figure 6.9 and in Table 6.12. Those commercial shoots that provide these social activities can potentially increase bonding social capital amongst their participants and may have a greater potential impact on the social lives of those involved, compared to those that do not offer such activities. It has been argued that social capital is vital in creating a happy, healthy and safe society (Putnam, 2000), and the contribution made to rural social lives via DGS highlighted in this study widens the potential returns on social capital to include more than the direct participants in line with the work of both Coleman (1999) and Putnam (2000). Christmas/end of season parties, summer BBQs (or similar) and shoot day activities were more prevalent at the not for profit, syndicate shoots and family shoots than at commercial shoots, but in particular the competitions and social activities during the shoot day were much more prevalent, which is perhaps in line with the stronger bonding social capital amongst syndicate members, illustrated by the higher social network question scores reported by syndicate members in section 6.4.1.

The subsidised beaters shooting days offered by all shoot types as shown in Figure 6.9 in Chapter 6 can allow people who cannot usually afford to shoot to take a peg and be a 'gun' for the day on the shoot, thus widening participation. This 'return' on social capital for individuals is in line with Bourdieu's view that social capital is primarily utilised for individual gain (Bourdieu, 1986). The provision of social activities in a rural area in particular can help

maintain and strengthen friendships and provide a route by which people new to the area can make friends, as was apparent with some of those spoken to in Chapter 5 section 5.3. This wider impact of social capital, providing benefits for wider community members as well as those directly involved in the shoot, is in line with Coleman and Putnam's views on social capital as something that has benefit to the wider population, not just those directly involved (Putnam, 2000; Portes, 1998; Coleman, 1999).

Bridging social capital can help individuals to cross social divides and potentially access resources that would otherwise not be accessible to them (Claridge, 2018a), either enabling them to access individual benefits as a result of their investment in social capital (Bourdieu, 1986) or benefits for themselves and others both inside and outside of a group (Coleman, 2000; Putnam, 2000). Taking part in a shoot can help build relationships within personal and business life, which has been recognised in prior research exploring newcomers to the countryside (Heley, 2010), in line with the potential for individual returns on social capital highlighted by Lin (2008), Bourdieu (1986) and Coleman (1999).

The strongest bridging social capital and least division was found at syndicate shoots (section 5.3.2) at the qualitative stage and among members of shooting syndicates. Regular paying guns who were members of syndicate were significantly less likely to agree with separation of beaters and pickers-up from guns for meal breaks ($p<.001$, $d=.22$) and 81.5% of the 1265 syndicate members who responded confirmed all shoot participants at syndicate shoots have breaks, drinks and lunch together and socialise at the end of the day, further supporting stronger bridging social capital at syndicate shoots (section 6.4.3). Whilst commercial shoots had very little bridging social capital between guns and other participants, the data revealed that there was bridging social capital between the beaters and pickers-up themselves at these Shoots, confirming a wide range of educational and occupational background between guns, beaters and pickers-up and a wide range of opportunities for participation at all levels of cost (see section 5.1 and this section Figure 7.1). This shows the potential for bridging social capital and wider participation within DGS, rejecting the previously held assertion that all game

shooting is an elitist pastime with little cross-cultural social capital (Hillyard and Burridge, 2012).

Figure 7.1 shows the annual syndicate membership costs for the 1181 individuals out of the 1289 syndicate members who gave annual cost information, indicating that the syndicate shoot can be a mechanism by which costs can be minimised, to allow wider participation as a gun (not just as a beater or picker-up) for less than £250 per annum, albeit some syndicates can cost over £3,500. The median annual syndicate membership cost was £1200.00 and the mean was £2706.60.

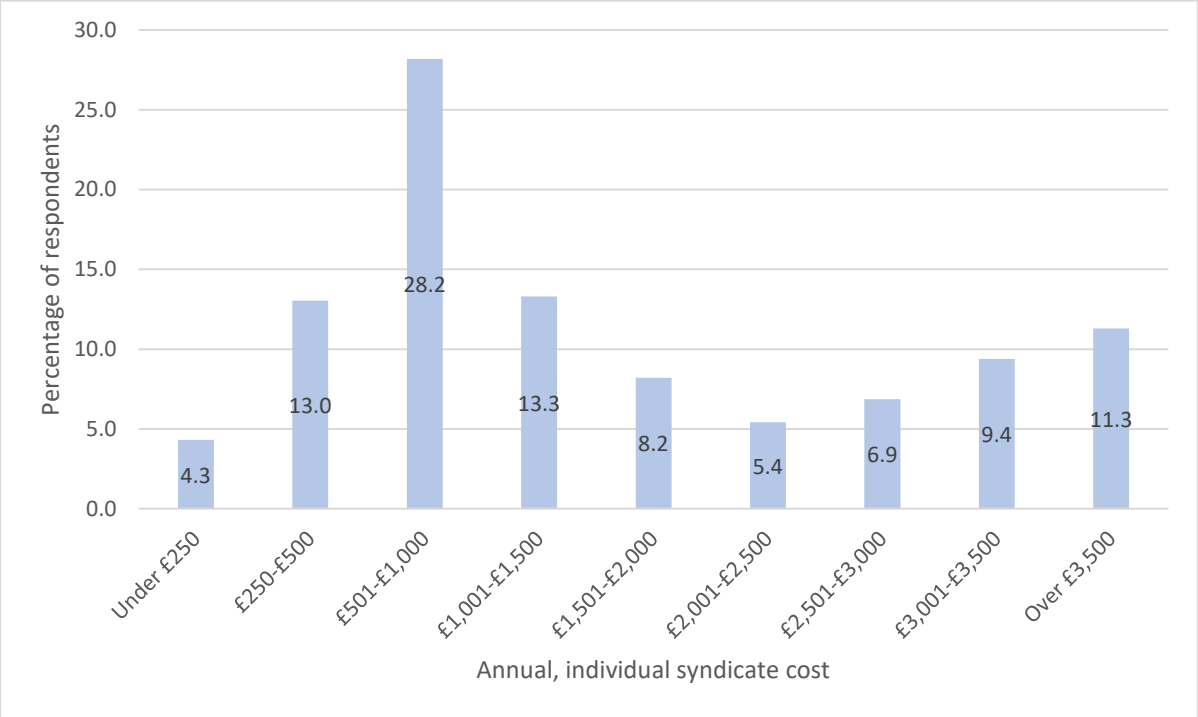


Figure 7.1 Annual, individual syndicate costs (percentage of respondents)

Bourdieu (1986) would argue that social capital is very much related to class, and that accumulated cultural capital and other factors influence individuals' ability to maximise social capital benefits. However, the lack of division seen in syndicates would seem to reject Bourdieu's assertion, as there is clearly mixing and bridging of groups. The division seen at commercial shoots appeared to be related to wealth rather than class, as pickers-up and beaters were from all backgrounds and the dividing factor was those who had paid several

thousand pounds for a shooting day and those who had not (see also Chapter 5 section 5.3 and Chapter 6 section 6.4). Coleman (1999) would refer to this as a 'closed network', as opposed to an 'open network', one person knows more people and therefore holds more 'power' within the network (Coleman, 2000). This type of social capital or informal network has been noted as important for personal identity, support and belonging (Woolcock and Narayan, 2000). It can also enable participants to access services, advice and other benefits as their network of contacts is wider than it otherwise would be if they did not participate. In line with existing research, the data revealed that DGS participants feel they have much in common regardless of their 'economic class' as defined by Marx (Haralambos and Holborn, 1995). The social stratification within DGS is between those that participate and/or feel a senses of rural identity which could be defined as 'status' of being a 'country person' (see section 6.4.2), in line with the three forms of social stratification outlined by Weber (class, status and party) in his three component theory of stratification, with each impacting on the distribution of power within a community (Weber, 1978).

Intergenerational, bridging social capital was also apparent at both the qualitative and quantitative stages with the age range of participants in the wider survey being from 14 to 90 years and interviewees from age 17 to 79 years. Research has shown that building bonds between generations can have a positive impact on social cohesion within communities (Becker and Vanclay, 2003) and health and well-being (O'Connor *et al.*, 2019) and those bonds were apparent, with the impact of them not being able to be maintained highlighted:

> *"If I couldn't do it anymore, I think I'd be quite devastated because just the fact that I enjoy it. It's a bond that me and my grandad like have with each other if you know what I mean. Cause obviously having a granddaughter that he can go shooting with has made him a lot happier because he can't really do that with anybody else in the family, …….. so I think if I stopped going now it'd have a big impact on my grandad as well."*
>
> *P34 (beater, commercial, small)*

Intergenerational engagement strengthens bonding social capital within families, reducing risk of loneliness and increases understanding between generations who share a common identity. The data reveals intergenerational engagement through DGS, a strong identity amongst all participants regardless of social background resulting in high levels of bonding social capital. It also revealed forms of bridging social capital across all shoots, although more clearly evident at syndicate shoots, which can maximise potential returns and opportunities for those involved, bridging perceived divides based on social background. The complex nature of the linkages within DGS is shown in the diagram Figure 7.2 below, outlining the positive, social impact outcomes found in this study, showing links between social capital, identity and social networks and the outcomes for individuals and communities.

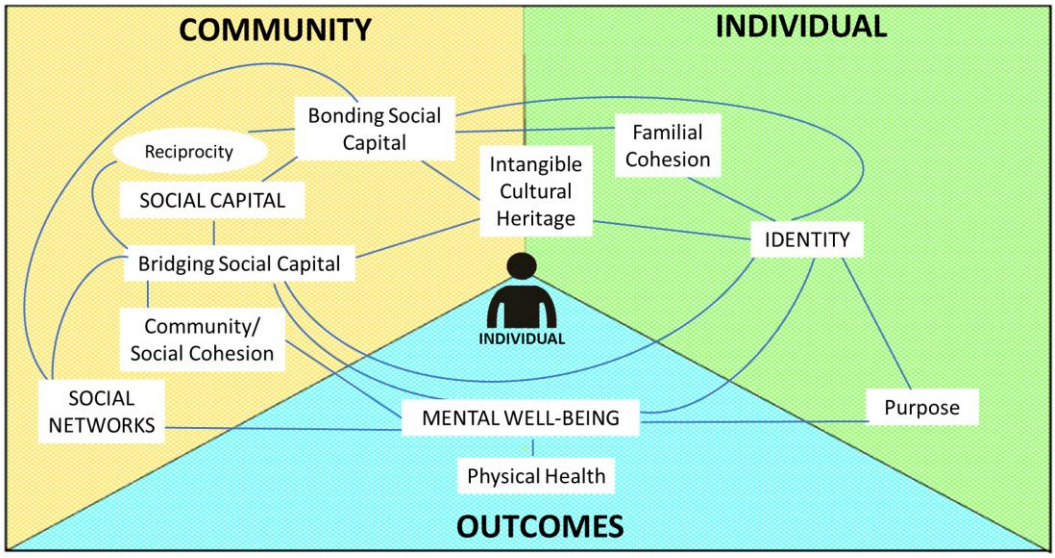


Figure 7.2 Social Capital, Identity and Social Networks-Community and Individual Outcomes

7.1.1 Section summary

This section has shown that within DGS there is strong bonding social capital across all sizes and type of shoot, although members of syndicate shoots reported a slightly higher level of bonding social capital than non-syndicate members, indicating stronger social networks amongst syndicate members. The role of identity in encouraging participation was found to be strong, in particular in relation to a 'rural' identity not linked to place or background, but

instead linked to participation in a rural pastime facilitating closeness to nature or providing a link back to family heritage. This bonding social capital, coupled with a well-defined identity, creates social networks that are available to support people in times of need. The study found bridging social capital in both syndicate and commercial shoots, facilitating wider participation for those who were new to an area, potentially positively impacting social cohesion within rural communities. However, bridging social capital was much stronger within syndicate shoots and division was found within larger commercial shoots in particular, a potential negative impact which is discussed in section 7.3.2.

The following sections look at the returns on the social capital based networks within DGS in the form of 'social impacts' to both individuals and wider society, particularly in relation to mental health and well-being.

7.2 Social Networks: Positive Social Impacts/Social Capital Returns

7.2.1 Social Capital and Social Networks

Social Networks have been identified as one of the key determinants of health (Dahlgren and Whitehead, 1991). The National Health Service (NHS) has recognised the importance of maintaining good mental and physical health and well-being in both the five year forward view, in terms of tackling the 'health and well-being gap' (National Health Service (NHS), 2014) and as part of the long-term plan, with a prevention and self-care being one of its key elements (Alderwick and Dixon, 2019; National Health Service (NHS), 2019). Loneliness and low social network levels have been found to have negative impacts on mental and physical well-being (Aiden, 2016).

This study proposed that the social networks created through the social capital found within DGS are available to be used when necessary through a causal mechanism, in line with critical realist thinking (Sayer, 2010; Zachariadis et al., 2010), such as a need for peer support in times of ill health or bereavement. The perception of these social structures varies between individuals and is affected by human agency (Collier, 1994; Archer, 2016), therefore the use of a standard measure for mental well-being in the form of the SWEMWBS gave a way to objectively assess the social impact and compare it with national data.

There was a strong, statistically significant, positive correlation between respondent levels of agreement with 'if I needed help, I can rely on my friends from within the shooting community' and 'I have made some close, long-term friends from my involvement in DGS' ($r = .601$, $n = 14$, $p < .001$). This confirmed that the longer the friendships made through DGS, the more likely people are to be able to rely on their friends within the shooting community if they needed help, evidence of a social network ready to be activated in a time of need. The mean score of above 4 for both statements indicated a high prevalence of agreement with those participating in DGS being able to rely on their friends made within DGS in times of need within their DGS social networks. Bourdieu (1986) argued that social capital, much like any other form of capital takes time to accumulate and increases in value as it does, which is in

line with this finding that the longer the friendships held the more likely people are to be able to rely on their friends for support in times of need and therefore the more developed the potential for the social capital return. This finding is also in line with the theories of Mead (1934) and Stryker (2007) relating to symbolic interactionism, providing a framework for understanding those participating in DGS in the case of this study work together to create symbolic structures, focusing on the way these structures emerge through the interaction of individuals, with shared understandings (Scott and Marshall, 2009). Examples of the social support networks created being activated were found at the qualitative stage (see section 5.4).

As noted in section 7.1, identity plays a key role in the social structures created within DGS. Strong relationship ties within a social network can make identities more noticeable and salient (Stets and Burke, 2000). Burke argues that the process of verifying identity, through participation in DGS in the case of this study, enables people to create and maintain social structures in which the identities are embedded (Burke, 2007). The existence of these social networks was shown to have a positive impact on participants' mental health and well-being measured using SWEMWBS, as detailed in the next section, reducing loneliness and giving those participating a sense of purpose, particularly in retirement.

7.2.2 Positive Impact: Higher mental well-being

Participants in DGS were found to have statistically higher levels of mental well-being measured using SWEMWBS than the national dataset, with a moderate to large effect size ($p<.001$, $d.64$)[63]. Although those in syndicates with stronger bonding social capital were found to have significantly higher SWEMWBS than those not in syndicates, the very low effect size indicated that practically within the overall dataset there was very little difference between

[63] In any social impact study alternative attribution or other factors that may influence positive impacts in addition to the intervention or activity being considered must be taken into account. Caution must be applied in interpreting the data, as the study compared the results of participants with a national dataset rather than with a genuine control group. As participants has often been taking part in DGS for many years, feeling it is an integral part of their lives and identity (see section 5.3.1 and 6.4.2) deadweight factor, representing what would have happened anyway, and drop-off, reduction in the benefits resulting from an intervention over time, are not of high relevance in this study.

the SWEMWBS of syndicate and non-syndicate members (p<.001, d=.09). Membership of social groups with strong identity links as identified in this study, have been found to protect and enhance health and well-being, finding that they make people feel good, capable and in control of their lives (Greenaway *et al.*, 2015), with a positive sense of identity, meaning and purpose (Haslam *et al.*, 2009).

The national dataset is published in age bands and the comparison between these age bands led to further analysis which revealed that there was a statistically significant difference in the SWEMWBS between syndicate members and non-syndicate members for those aged 55 and over (p<.001, syndicate members N=737 SD=3.61, non-syndicate members N=603 SD=4.23; d.22). This comparison with national dataset bandings also revealed the highest level of impact was in those aged 75 and over, as shown in Table 6.22 in Chapter 6. The average national dataset SWEMWBS reduces between the 65-74 age group and the 75 and over age group, whereas in the DGS sample, the average SWEMWBS is much higher. This supports the assertion that being part of the strong social network activity of DGS can have a strong positive impact for those in retirement. This is important in the UK where we have an ageing population, with 26% of the UK population predicted to be 65 or over by 2066 (Office for National Statistics (ONS), 2018). In rural areas the percentage rise in those 65 and over will be faster and greater, as indicated in Figure 7.3 overleaf. The potential reasons for these increases in SWEMWBS, in addition to a well-developed identity and strong social support networks, are discussed in the remainder of this section.

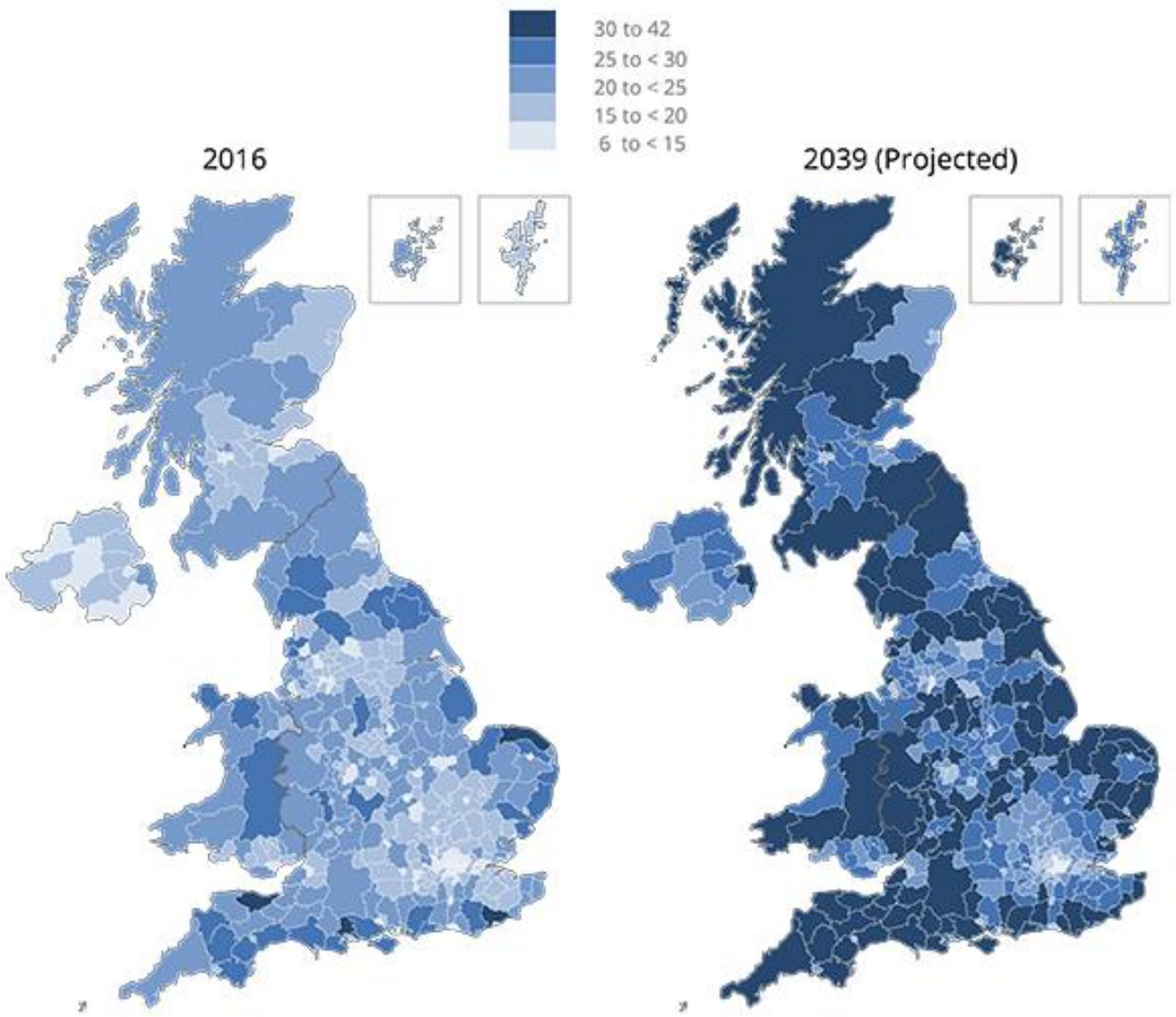


Figure 7.3 Proportion of the population aged 65 years and over, 2016 and 2039, UK

(Source: 2016 mid-year population estimates for UK, Office for National Statistics, 2014-based subnational population projections for UK, Office for National Statistics, Welsh Government, National Records Scotland and Northern Ireland Statistics and Research Authority, contains OS data © Crown copyright 2018) (Office for National Statistics (ONS), 2018)

7.2.3 Additional potential reasons for higher mental well-being scores

DGS is a rural pursuit with 80.0% of those interviewed at the qualitative stage living in rural areas (village or rural) and 70.3% of participants in the wider survey living in rural areas (village and rural). The wider survey included 32.9% of participants who were retired or semi-retired and 40.0% of participants interviewed at the qualitative stage were retired or semi-retired. Loneliness can be a greater issue when individuals retire and no longer have the day to day social contact a working life facilitates. A 2019 study found that 2.6 million people aged over 65 speak to three or fewer people a week, with 225,000 people aged over 65 often speak to no one in a week (Age UK, 2019). This loneliness and social isolation can be exacerbated in rural areas with isolated settlements and poor public transport.

Having a lack of social contact has also been shown to negatively impact physical health and well-being, impacting life expectancy (Holt-Lunstad *et al.*, 2015; Aiden, 2016; Coll-Planas *et al.*, 2017; Mcdaid, Bauer and Park, 2017; Gale, Westbury and Cooper, 2018; Valtorta *et al.*, 2018; Steptoe and Fancourt, 2019) with associate costs to the taxpayer (Mcdaid, Bauer and Park, 2017). Involvement in DGS as a syndicate member, particularly over the age of 65, appeared to be a factor in higher mental well-being measured using SWEMWBS, as shown in section 6.5.1, with 1.2% of participants in the DGS sample reporting feeling lonely 'often/always' compared to 5.9% in the national comparative dataset (section 6.5.2). Those participants aged over 65 who were members of a syndicate with their stronger bonding social capital, as indicated in section 7.1 and 6.5.2, reported feeling lonely often/always in just 0.5% of cases, indicating the positive impact of participation in DGS in reducing loneliness, particularly for those aged over 65 years. At the qualitative stage, interviewees drew attention to the risks of loneliness in rural areas, with one respondent clearly identifying the risks to rural populations in particular.

> *"I could easily go a day here where I wouldn't see anybody and you sort of think, that's not a good thing really …… I wouldn't want it to become like the norm that you don't do very much and you don't see very many people. I think that's when you become a little bit introverted and you don't sort of get*

yourself out there and that's when I think you're just, (sighs) you know waiting for the inevitable."

P18 (beater, commercial, large)

Having a purposeful life has been shown to positively impact mental well-being and mortality (McKnight and Kashdan, 2009; Alimujiang *et al.*, 2019; Steptoe and Fancourt, 2019). Of the regular beaters and pickers-up, 97.5% agreed or strongly agreed that it was important they, or their dogs if applicable, did a good job to contribute to the success of the shoot day. At the qualitative stage the recognition that what the participants were doing was important was highlighted by many participants, with one picker-up particularly indicating the importance to her, as a widow, in having a purpose, which had a positive impact on her mental health and well-being:

"I do think if you live to some extent on your own as you get older and become very introspective there can be degree of how do I feel today and that's bad for anyone. You know, when you have a couple of kids you don't have time to invest in yourself and how you're feeling and I think that is a possible pitfall if you don't have enough to do as you get older."

P9 (picker-up, commercial, large)

DGS participation can provide a reason to go out and participate in a social network-based activity with a clearly defined purpose. Those involved feel they play an integral role in the shoot day and this 'sense of belonging' and purpose encouraged individuals to spend more time outdoors and complete physical exercise throughout the entire year, in the natural environment, which has also been shown to have a positive impact on their physical and mental well-being (Loureiro, Veloso and Veloso, 2014; Zhang, 2017; Kerr et al., 2012; Frühauf et al., 2016; Ryan et al., 2010; Thompson Coon et al., 2011). A total of 79.5% of respondents agreed or strongly agreed their involvement in DGS enabled them to get away from the stresses of the working week, which could have been an influencing factor in higher mental well-being scores. In addition, 79.2% of respondents agreed or strongly agreed that they spend more time outdoors that they otherwise would because of their involvement in DGS. Exercise taken outside has been shown to be more beneficial than exercise completed indoors (Thompson Coon et al., 2011). Regular exercise, facilitated by access to open spaces via DGS

in the case of this study, is associated with reductions in the number of long-term conditions such as heart disease, cancer and musculoskeletal conditions (Department of Health (DOH), 2012). Spending time outdoors has been shown to have positive mental well-being benefits (Frühauf et al., 2016; Kerr et al., 2012; Ryan et al., 2010). A 2019 study found a positive correlation between spending 120 minutes or more a week in nature with higher levels of both self-reported good health and higher levels of well-being, measured using the government's life satisfaction ten-point Likert scale question[64], than those who spent less than 120 minutes a week in nature (White *et al.*, 2019). Additionally, the role of land in human spirituality, connection with god and as a place of 'therapeutic stillness' has been considered in relation to overall human well-being (Winter, 2012). These could be factors in the higher mental well-being scores seen in section 6.5.1.

For those that enjoy being outdoors, the ability to access greater areas of the countryside they would not otherwise be able to visit, may have a positive impact on their health and well-being. A total of 76.7% of respondents agreed or strongly agreed that their involvement in DGS allowed them to access countryside they would otherwise not be able to visit. Research has also shown that time spent in green spaces can positively impact sense of belonging and identity (Pinder et al., 2009), as well as happiness (White et al., 2013).

In terms of physical health and well-being, it was clear from the qualitative stage of data collection that a good level of fitness was required to be a beater and/or picker-up and that beaters and pickers-up said that although they liked walking, involvement in DGS encouraged them to go out and complete exercise over the winter months when they otherwise may not have done. This indicates that that DGS facilitates regular physical activity over the entire year, in all weathers. The wider dataset showed that the median distance walked by participants was 8.0 km (mean 8.1 km), rising to a median of 9.0 km (mean 9.4 km) for beaters and pickers-up. Regular physical activity has been shown to impact positively on both physical and mental well-being (Miles, 2007; Grant et al., 2017). Walking is particularly beneficial for

[64] The 'Life Satisfaction' measure, one of the UK's national well-being measures asks national survey respondents 'Overall how satisfied are you with life nowadays?' with responses ranging from 0 'Not at all' to 10 'Completely'(White *et al.*, 2019)

those in older age groups, as indicated in higher societal savings when benefits are calculated for those aged 45 years and over (World Health Organisation (WHO), 2019) and has been suggested as a good way for men reluctant to take part in physical activity to improve their fitness (Pollard, 2010), which is relevant as section 6.3.1 shows DGS is a predominantly male sport (86.7% male respondents). It has also been suggested that participating at least once a week for at least two months in mild exercise that does not change the participants' breathing or make them sweat could be valued at £3,537 per person, per year (Big Lottery Fund and E Corys, 2014; Housing Associations Action Trust, 2018).

These positive social impacts have both benefit to the individual and wider society. As discussed in Chapter 2, the use of social capital as a basis for quantifying the value of impacts allows them to be expressed in an understandable way within a capitalist society, in line with the framework of social capital 'returns' identified by (Lin, 2008) discussed in section 2.2.3 of Chapter 2 and in Figure 7.4. Whilst instrumental social capital returns benefit individuals, expressive social capital returns of physical health, mental health and life satisfaction, as discussed in section 5.4.1, can have wider societal financial return, in term of cost-savings to the National Health Service for example.

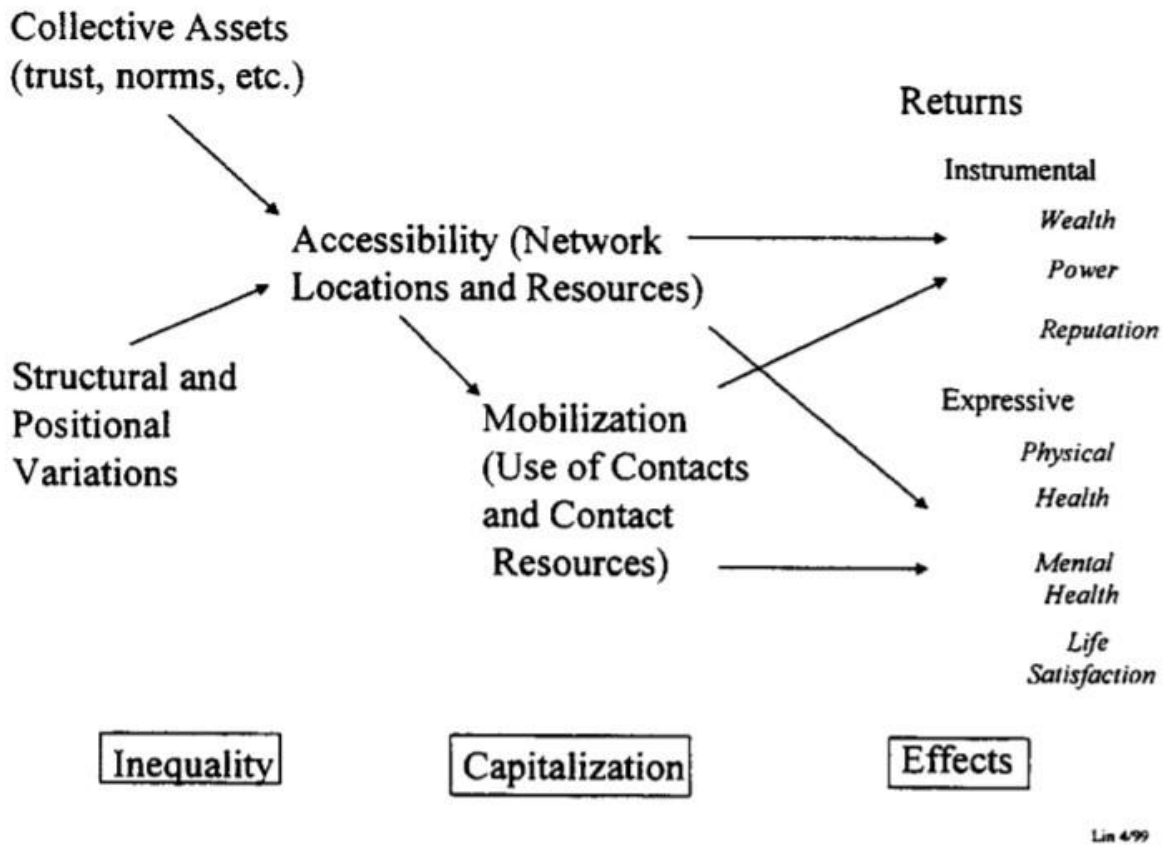


Figure 7.4 Modelling a theory of social capital (Lin, 2008)

The cost-savings to society in maintaining good health and well-being can be substantial. It is estimated that poor mental health costs the UK £105 billion per annum, when the various social and economic factors are taken into account (Department of Health Independent Mental Health Taskforce, 2016) and the overall costs of loneliness for each individual person can be £6,000 over ten years (Mcdaid, Bauer and Park, 2017). Additional examples of proxy values relating to potential cost-savings to society can be found in Appendix P.

Whilst this study was not primarily concerned with 'instrumental returns' for individuals, there was evidence of accessing potential financial gains via work and training opportunities, with 34.5% of respondents in the wider questionnaire having found work opportunities via involvement in DGS, rising to 38.2% for regular beaters and pickers-up. Overall, 31.6% of total respondents reported they had found training opportunities via DGS involvement, rising

to 35.4%, for regular beaters and pickers-up. These are clear examples of the 'instrumental' returns defined by Lin (2008), gained through exploitation of the social capital accumulated in line with the theories of Bourdieu (1986) and Coleman (1999). This was in addition to the advice people received when mixing with other participants which included IT systems and building works advice, a form of reciprocity (Putnam, 2000).

Chapter 3 found that DGS can provide a source of employment for those involved directly in DGS and indirectly, via the hospitality industry, local hotels and restaurants that are supported by shoot visitors in winter outside of the main UK tourist season, although the precise value of these employment impacts is disputed (Public and Corporate Economic Consultants (PACEC), 2014, 2012; Cormack & Rotherham, 2014). This study has shown that driven game shoots range in size from small to larger 'not for profit' syndicate shoots and commercial shoots of all sizes. Smaller, commercial driven game shoots often form part of the diversification of farm incomes to enable them to remain sustainable businesses all year round (Cox *et al.*, 1996). Employment in rural areas in particular enables young people to remain in the area rather than moving away, ensuring an intergenerational mix is maintained. Intergenerational relationships and the building of intergenerational understanding and respect have been recognised as an important element of social cohesion and social capital (Commision On Integration And Cohesion, 2007; Hatton-Yeo and Batty, 2011). Employment and training are also both listed as areas to be considered as part of any social impact assessment by GECES (Hehenberger, Harling and Scholten, 2014) and for this study in particular education and unemployment are elements of the wider determinants of health (Dahlgren and Whitehead, 1991) indicating that both training and employment can also have an impact on mental health and well-being.

The 'beaters' days' provided by the shoots themselves for beaters and pickers-up shown in Figure 6.9 were not only a social event, but an opportunity to 'take a peg' and shoot for the day. This was viewed as being of benefit to the individual through widening participation, allowing those who would usually not be able to buy expensive shoot days to take part in a day's game shooting as a 'gun'. These were offered by 71.7% of larger commercial shoots, 67.0% of small commercial shoots, 67.8% of large syndicates, 67.9% of small syndicates and

72.4% of family shoots. There was also clear evidence of reciprocity, a key element of social capital returns identified by Putnam (2000). Syndicate shoot members spoke of receiving free advice from contacts at shoot days and at one of the case study syndicate shoots, much of the assistance/equipment for the running of the shoot was acquired via a reciprocal economy, with no money changing hands, in line with the not-for-profit ethos of the syndicate shoot concerned and the reciprocity element of social capital highlighted by both Putnam (2000) and Coleman (1999).

7.2.4 Section Summary

This section has shown that participation in DGS results in higher mental well-being measured using SWEMWBS than the national average. The reasons for this higher mental well-being level have been explored and include reduced loneliness, strong identity, a sense of purpose, social support networks ready to be activated in times of need, physical exercise, spending time in nature and a strong rural and/or cultural heritage identity (explored fully in section 7.2.3.) The next section looks at potential negative factors that could reduce the level of social impact, especially when comparing between shoot types and sizes.

7.3 Negative Social Impacts

This section considers the potential negative impacts of participation in DGS. Firstly, it considers the lack of bridging capital within some forms of DGS participation. It then goes on to look at the potential conflict between those who participate in DGS and those who do not, as well as the differences of opinions on the practices within the shooting community in certain areas. Finally, it examines the conflict between those who participate in DGS and those who do not, comparing urban and rural dweller opinions within the shooting community and how this potentially impacts the individuals involved.

7.3.1 Wider conflict and perceptions

Whilst the key area of identity can be beneficial to individuals in strengthening bonding social capital and social networks, there can be negative aspects of strong identities, as identified by Tajfel and Turner (1986) with in and out groups, that can cause conflict between different identity groups. This conflict was apparent during the research. The qualitative shoot visits and interviews identified that there was conflict between those who take part in shooting in an area and those that do not (section 5.4.3). Many individuals expressed concern that the countryside community had not been able to exploit modern communication channels and social media to combat the anti-shooting lobby:

> *"I suppose as a general comment it does sort of divide between town and country. I think country people who shoot and hunt are a little understood minority and it's probably down to their fault that they're not vocal enough or not exposed enough, or eloquent enough to promote it on the normal media channels, or contest some of the untruths that are printed about it."*
>
> *P23 (beater, commercial, large)*

The responses to the wider survey confirmed the lack of social media lobbying expertise, with only 52.8% describing themselves as confident users of Facebook and 14.1% feeling they were confident users of twitter. This is most likely a reflection of the age demographic of participants, skewed towards older participants, with the median age being 57 years old (mean 54.57 years), as shown in Table 6.5 in Chapter 6. The age distribution of DGS

participants is skewed towards an older range than would be expected in a normally distributed UK population (see normality distribution tests in Appendix N) and statistics have shown the age distribution of Twitter users is younger than the age distribution of the UK population (Sloan, 2017). This lack of twitter use reduces the ability for individuals to mobilise a social movement, as twitter has certain features that make it an ideal platform for successful social movements, for example, the brevity in communication of 140 characters, which encourages fast sharing and the structure of twitter allowing anyone, anywhere to follow a public twitter account, without the need for reciprocity in accepting a friend request, as would be the case on Facebook (Buente, 2017). DGS participants felt hindered by their lack of expertise, believing they had been unable to mobilise their social capital to use their joint power to achieve their goals, (Coleman, 1999; Bourdieu, 1986) to portray their pastime in a positive light and combat the negative representations in the media, which they felt threatened an activity integral to their way of life. They identified as an under-represented minority, whose participation in DGS was more than just a hobby, but a way of life with strong sense of belonging and shared understandings (Cohen, 1982), including a set of rituals and procedures that make up part of the recognised sociological aspect of taking part in DGS (Hillyard and Burridge, 2012), not understood by those outside of the in-group identity (Tajfel and Turner, 1986).

Some people felt that those from towns and cities did not understand the importance of DGS to the country identity and wondered why people from towns and cities wanted to meddle in the lives of country people when country people did not go to towns and cities and tell urban dwellers how to live their lives. Others wondered why those from towns and cities would move to villages and complain about game shooting (section 5.4.3, though it has been highlighted in prior research that those relocating to the countryside from urban areas who are against shooting do not always make their opinions known, indicating a need for acceptance in the community (Heley, 2010).

As noted in section 6.3.1, 25.9% of DGS participants in the wider survey lived in urban areas, with a need to fit in both as part of the shooting community and as part of their everyday

'urban' community. One gun mentioned to the researcher in his interview that he never told his urban clients about his game shooting, as it could influence his acquisition of new business, indicating his need to 'adapt' his identity and fit into his urban work-life:

> *"I keep it extremely quiet anything to do with shooting. Cause you never know who's pro and who's anti…One or two close friends know that I do it. I might take them a pheasant once in a while but not many and only the closest of them. I don't …you know I know for a fact one of the people who I am hoping to give me work is very much into animal rights and I can't imagine for a moment (they) would be in favour of shooting so it's not something I advertise at all."*
>
> *P44 (gun, syndicate, small)*

The negative perception of DGS via the divisions between those for and against the sport is clearly reflected here.

The independent t-test in section 6.6.1 found a small, but significant difference between those living in urban and rural areas in relation to feeling that people from towns and cities did not understand that DGS is part of rural life, with those living in urban areas agreeing less strongly with this statement ($p<.001$, rural dwellers N=1797 SD=0.84; urban dwellers N=627 SD=0.88; d .20), perhaps because they spend more time mixing with those in urban areas. However, there was a general agreement overall that people in towns and cities did not understand that DGS is a part of rural life. This is illustrated in Figure 7.5, highlighting the conflict between urban and rural areas in relation to DGS.

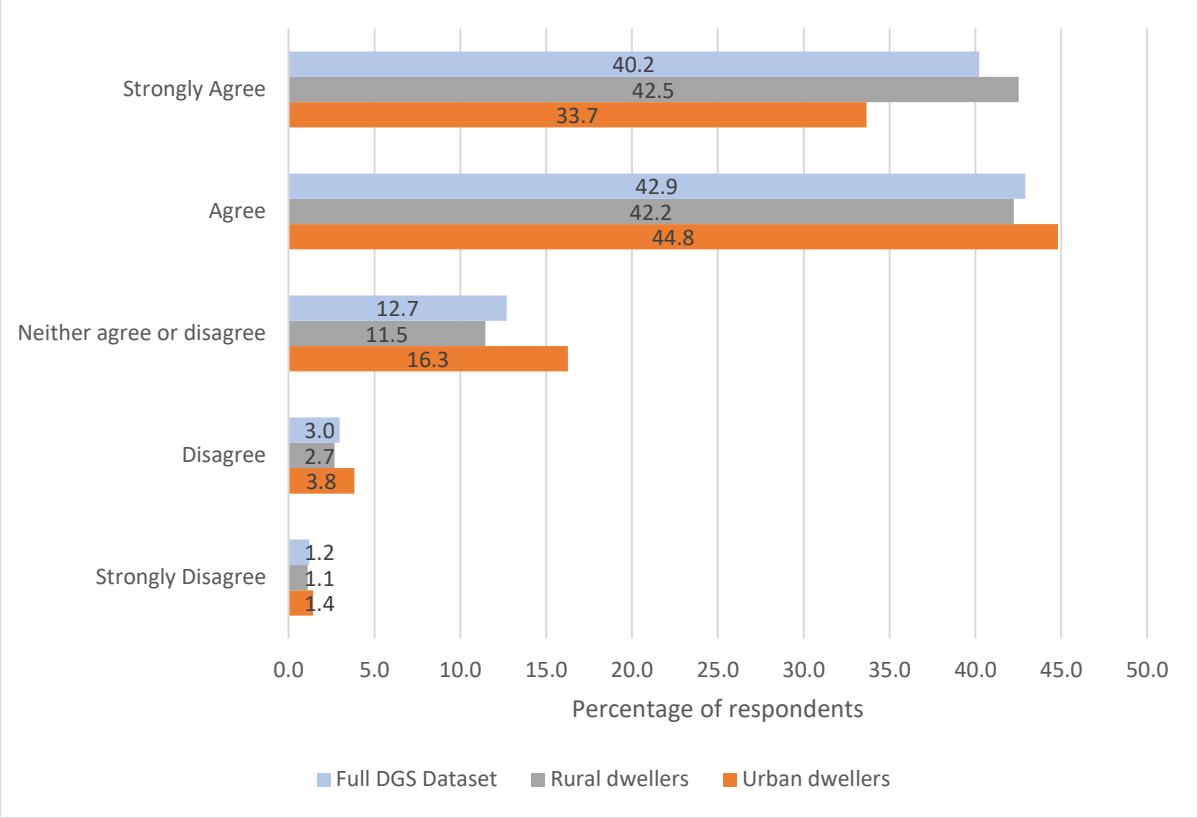


Figure 7.5 Level of agreement with the statement 'People in towns and cities don't understand DGS is a part of rural life'.

Previous attempts by those involved in field sports to argue the case of rural identity and the need to protect activities that are seen by some as integral to rural life have been unsuccessful, most notably prior to the introduction of the Hunting Act (2004), in spite of the 'social capital' and social network activation of those supporting rural pursuits to engage in the Countryside March of 2002 (The Telegraph, 2002), coming together to increase their potential 'power' created through social capital to affect change (Coleman, 1999; Bourdieu, 1986). The individuals concerned put forward that hunting with hounds was an integral part of country life practiced across a wide range of participants, but it was argued by some that it was an elitist activity, confined to a few individuals (Milbourne, 2003). Interestingly, this study has found that DGS participants come from a wide range of backgrounds, both educational and occupational, with strong bridging capital within syndicate shoots as discussed above.

There is ongoing conflict between those for and against DGS with some individuals calling for an outright ban of driven grouse shooting, for example Avery (2016) and others wanting to limit the raising of pheasants for shooting (The Labour Party, 2018). In recent years, the anti-shooting lobby have mobilised their social capital to protest in more effective ways than those in support of game shooting, most notably in relation to driven grouse shooting (Knapton, 2017; BBC, 2018), supported by high profile individuals with a strong social media presence. Opposition to shooting can be on purely ethical grounds or in relation to particular issues such as alleged hen harrier persecution, the use of lead shot and potential negative environmental impacts, as outlined in Chapter 3, section 3.6. Those opposed to shooting have used a variety of methods to voice their opposition, including direct action via demonstrations and political avenues (BBC, 2018; Blackmore, 2018), social media channels with the support of high profile individuals and legal avenues (Wild Justice, 2019), most recently in opposition to general licensing, whose suspension between April and June 2019 caused disruption to wider rural and farming communities, potentially exacerbating division between those in favour and those against shooting (Horton, 2019; Bentley, 2019). The example of the general licence suspension issue illustrates the intensity of feeling between those for and against shooting and how it can impact individuals and wider society.

Participants at the syndicate shoots raised concerns about the perception of DGS as illustrated in Chapter 5, section 5.4.3, as a result of alleged poor practices by some shoots (Milmo, 2015), which could, in their view, potentially impact their ability to continue DGS, resulting in an inability to maintain part of their 'identity' which, it has been suggested, could lead to stress to individuals (Burke, 1991). The 'big bag days', where 300 or more birds are shot in a single day and loaders are often used, to 'double-gun' meaning having a second gun ready to fire immediately after the first to allow more rapid shooting, were likened negatively to treating birds as clays by one syndicate participant (Chapter 5, section 5.4.3). The shooting press raised concerns about 'big bag days' at the 2018 Game Fair (Starkey, 2018) and the shooting industry has responded with the creation of the British Game Alliance (BGA) (British Game Alliance, 2018), which aims to ensure all meat shot goes into the food chain with full traceability. Those against shooting have said that it is still inappropriate to consume all game meat due to the use of lead ammunition (Lead Ammunition Group, 2015), however the use

of lead ammunition in the UK over land has been allowed to continue following a government review (Rought, 2016; Swift, 2015). In February 2020, the shooting industry took a pro-active step aimed to ensure the sustainability of shooting, issuing a joint statement between The British Association for Shooting and Conservation (BASC), British Game Alliance (BGA), Countryside Alliance (CA), Country Land and Business Association (CLA), Game and Wildlife Conservation Trust (GWCT), National Gamekeepers' Organisation (NGO), the Moorland Association (MA), Scottish Land & Estates (SLE) and Scottish Association for Country Sports (SACS) of their wish to see a phasing out of lead and single use plastics in ammunition used to shoot live quarry with shotguns within five years (British Association for Shooting and Conservation (BASC), 2019) and their intention to work with members to achieve this ambition. Those against DGS also cite environmental concerns, in particular relating to the environmental impact of large numbers of non-native birds being released (Wild Justice, 2020), as explored in Chapter 3.

All of the shoots visited by the researcher followed all shooting best practice guidance and had clear processes in place to ensure all game was retrieved, processed and stored appropriately to ensure there was no wastage and all meat entered the appropriate food chain. The BGA registration scheme is voluntary and some may argue that it should be compulsory for commercial shoots above a certain size of bag 'day', along with potential compulsory compliance with the guidance for well-managed shoots, as it has been argued that game shooting needs to be culturally and socially acceptable for it to continue (Hillyard and Burridge, 2012). As noted in Chapter 5, illustrated by the quote below, some syndicate members expressed support for licencing, as well as the need to maintain respect for birds. To enable pro and anti-shooters to live together in an area requires encouragement of 'common values' (Kearns and Forrest, 2000) to enable community cohesion and a 'sense of belonging' (LGA, 2002) for all community members, as recognised by one of the beaters interviewed:

> *"I'm not against having… erm… some sort of certification, some sort of training, some sort of certificate, some sort of …regulation over driven shooting because I have been on shoots too often where all somebody is doing is shooting a pheasant like it's a clay and then they've got no connection with the bigger*

picture which I feel is wrong. I feel that continental Europe's got that much more correct...there is much more respect for game and we could easily drift away from that so it's like any human activity they say there can be practices that I don't fully support."

P8 (picker-up, syndicate, small)

The statistical testing in section 6.6.2 found a small but significant difference between the opinions of syndicate and non-syndicate members in relation to the acceptability of big bag days, even if all meat goes into the food chain, indicating that regular paying gun (PG) syndicate members were less happy for big bag days to take place, even if all meat goes into the food chain ($p<.001$, PG syndicate members N= 1122 SD=0.87, PG non-syndicate members N=337 SD=0.89; d=.23), confirming the differences of opinion on what type of shooting is acceptable within the game shooting community. Shoots that follow respect for quarry guidelines and are members of organisations such as the BGA, with clear procedures and traceability for their meat going into the food chain, could be seen to be more acceptable in wider society than those that do not. These factors would need to be incorporated in any social impact measurement system, as shown in section 8.2.1 of Chapter 8.

7.3.2 Potential divisions within DGS

Section 5.3.2 of Chapter 5 identified that there was very little bridging social capital apparent at commercial shoots, particularly at larger commercial shoots, where the pickers-up and beaters had little or no contact with the guns. This reinforces the traditional view of game shooting as being elitist and closed to those who do not 'fit-it' (Hillyard and Burridge, 2012), limiting the potential for social capital to be used to achieve one's goals, as envisaged by Bourdieu (1986). Instead, there is a presence of two closed networks (Coleman, 1999) at larger commercial shoots. Whilst there is this separation between guns and other participants at large commercial shoots, the beaters and pickers-up at these shoots had strong bonding social capital between each other and their backgrounds were varied, providing some cross-cultural mixing, this bridging social capital was not as prevalent and wide-ranging as in the syndicate shoots (see section 5.3.2). The lack of mixing between guns and beaters/pickers-up at commercial shoots in particular limits the returns possible from social capital in terms of social and cultural capital 'crossing fields', accumulating and widening of individual's social networks identified as a potential gain by Hillyard and Burridge, 2012. The analysis of qualitative data found that bridging social capital was stronger in syndicates than at commercial shoots (Section 5.3.2) and the wider questionnaire analysis in section 6.4.3 confirmed that regular paying guns who are members of syndicates are less likely to agree with the separation of beaters and pickers-up from guns for meal breaks, indicating stronger bridging social capital within syndicates, with a small, statistically significant difference ($p<.001$) between the two groups. The lower levels of bridging social capital in commercial shoots reduces the potential for individuals to widen their social networks and access potential instrumental returns as classified by Lin (2008) such as employment or training opportunities or access to services such as pro-bono or reduced cost professional advice.

7.3.3 Section Summary

This section has shown that although this study identified positive impacts associated with participation in DGS in section 7.2, it also identified potential negative impacts. There was a lack of bridging social capital at commercial shoots and a higher level of bridging social capital and acceptance of bridging social capital development and cultural mixing by syndicate 'gun'

participants. Syndicate members had a strong belief in the sustainability of their past-time, and raised concerns around poor practice within some shoots. The wider societal perception of certain forms of DGS is of concern not only to those outside of the shooting community, but also those within it, particularly those in syndicates who may fear the impact of negative societal perceptions on their ability to continue to participate in DGS as part of a syndicate, with strong bonding and bridging social capital. The lack of social media expertise to defend their pastime effectively and lack of understanding of DGS in wider society was a concern to many participants. These negative impacts would need to be considered in any valuation of the social impacts of DGS on a shoot by shoot basis.

7.4 Conclusion

This chapter has shown that the social capital within DGS is strongly linked to identity, which in turn creates strong social network structures, in line with recognised social capital and identity theory. It has also outlined the complex links between identity, social capital, social support networks and well-being and explored reasons for the higher mental well-being scores for DGS participants compared to a national dataset. The next chapter summarises the study and looks at the wider social impact of these findings, exploring how these impacts can be measured and compared in future. It concludes by suggesting policy recommendations, reviewing the limitations of the research and reflecting on the research process.

Chapter 8 - Conclusion

This chapter provides an overview of the research and sets out a way to measure and compare the social impact of participation in DGS. The implications for policy are also discussed. The limitations of this research are identified and potential future areas of research are noted. The chapter concludes with a summary outlining the original contribution to research this study provides, and a section reflecting on the experience of the researcher during the study.

8.1 Research Overview

This study has found that participation in DGS results in the building of bonding social capital, which is strengthened by a clearly defined, strong rural identity. This rural identity sometimes represented a link to intangible cultural heritage (United Nations Educational, 2018) which relates to social practices, knowledge and seasonal events that some individuals and communities recognise as part of their cultural heritage, explored in Chapter 3, section 3.4. Bridging social capital was also found within both commercial and syndicate shoots, although it was stronger within syndicate shoots as there was less division between guns and other participants than that found at commercial shoots. This bridging social capital facilitates wider participation in DGS for newcomers to rural areas and widens the social networks of those participating, strengthens community cohesion and potentially enables DGS participants to access services, training and employment. The combination of strong identity and social capital has been shown to create social support networks, ready to be 'activated', or used as a support network in times of need. This study showed that some individuals faced circumstances in which the support network created via their participation in DGS was used to support them through a difficult time.

Participation in DGS resulted in higher mental well-being levels measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS) for participants across all sizes and types of shoot. The benefit was particularly high in older individuals who are part of a syndicate shoot, with stronger social networks, reinforcing the role of social capital networks in good mental health and well-being. The higher mental well-being level was influenced by

a number of factors including strong friendships, reduced loneliness levels (as a consequence of having a well-developed friendship/social support network), having a purposeful life, strong identity, spending time outdoors and completing regular physical exercise outdoors, (further benefitting participants' physical health). There is a large potential cost saving to the UK taxpayer in avoiding poor mental health for those who participate in DGS in any role, whether that be as a gun, beater, picker-up or otherwise, and from the physical health benefits of exercise completed by beaters and pickers-up in particular as noted in section 8.2.1 of Chapter 8.

The study also found that the conflict between those for and against shooting was exacerbated by perceived and reported lack of social media expertise that participants felt reduced their ability to defend negative wider perceptions of DGS. The use of evidence-based decision making by government can help reduce this conflict, as noted in the policy recommendations in Table 8.2 in the next section 8.2, which also discusses how the social impacts of DGS can be valued and compared in future.

8.2 Valuing and Comparing Shoot Social Impacts

8.2.1 Future Measurement Framework

Based on the benefits of social impact measurement as described by GECES, two key reasons for measuring social impact are to provide an evidence-based assessment of societal impacts of any activity or intervention to be used when decisions are being made that may affect these societal impacts, and to feed reliable and robust evidence into policy-making decisions (Hehenberger, Harling and Scholten, 2014). DGS is currently an activity (intervention) that is not funded by the taxpayer. If it were to be restricted any positive social impacts identified and potential societal cost-savings realised would need to be funded by the taxpayer, or they would be forgone. It is important to consider any irreversible and undesirable effects of restricting DGS before they occur (Burdge and Johnson, 1998) and a structured method of both valuing DGS overall and comparing and contrasting different shoot types is required.

It was envisaged at the start of this study that a framework for measurement of the social impact of DGS could be produced, in line with GECES recommendations (Hehenberger, Harling and Scholten, 2014), to allow comparison between different sizes and types of shoot. The outline framework produced is shown in Figure 8.1. This research has shown that participation in DGS is often not restricted to one size or type of shoot, with beaters and pickers-up in particular often attending a range of shoot types and sizes. Therefore, the impacts seen in those that participate could have resulted due to attendance at one or many shoots of different sizes/types or through involvement with the DGS community as a whole. To compare the social impact of different shoot types and sizes fully, further research would need to be undertaken to assess the number of different types and size of shoot across the UK, the additional social activities they provide for participants and to what extent GWCT and BASC good practice guidance is followed by shoots. It was clear from the literature review in Chapter 3, that previous valuations relating to economic and environmental impacts of DGS have been accused of bias and therefore the use of a fully independent assessor, following a uniform measurement method, would be vital in producing a reasonable and unbiased social impact assessment value of any particular shoot or group of shoots.

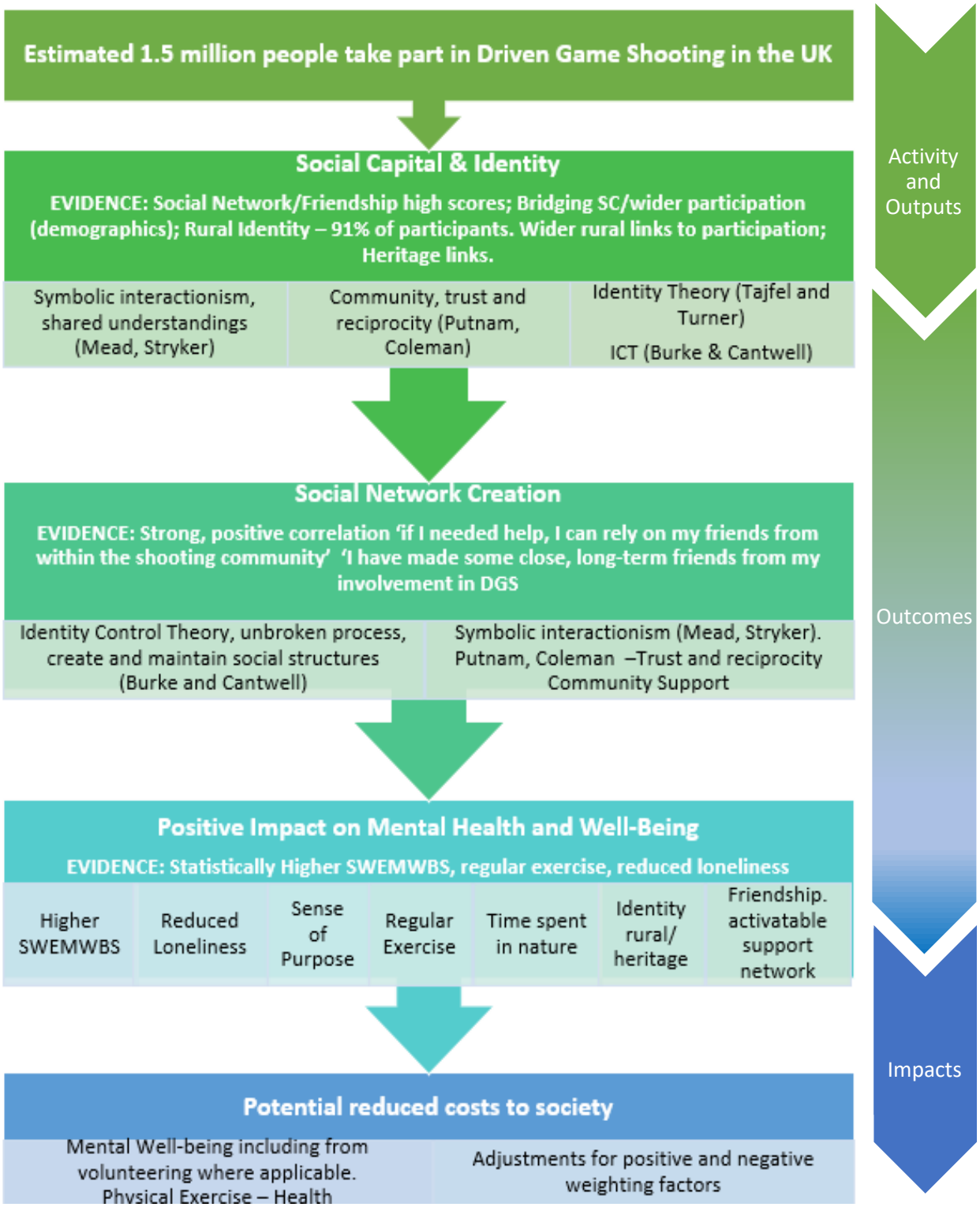


Figure 8.1 Outline Social Impact Measurement Framework for Participation in DGS

8.2.2 Social Impact Value: Mental Health and Well-being

The data collected in this study does not allow for a robust valuation of the overall potential financial impacts relating to mental well-being, because it is not possible to accurately account for difference in well-being between DGS and non-DGS participants to a degree that would allow for accurate financial projections. This study has shown that syndicate shoots have a potentially greater impact on participants' mental health and well-being, especially for those aged 55 year and over (see Chapter 5, section 5.4.1 and Chapter 6 section 6.5.1) with stronger friendships/bonding social capital, providing stronger social support networks (see Chapter 5 section 5.3 and Chapter 6 section 6.4.1) and less division, via stronger bridging social capital (see Chapter 5, section 5.3.2 and Chapter 6, section 6.4.3). This means a greater proportion of the social impact value shown in this section could be attributed to syndicate shoots. The overall mental well-being impact can be explored in more detail once further research has been completed into the distribution of shoots of different sizes and types across the UK. There are few studies that attempt to value subjective well-being (Maccagnan et al., 2019). However, a 2019 study suggested that maintaining well-being could be valued at £10,560 per person, per year (Cox, Bowen and Kempton, 2012 in Maccagnan et al., 2019). This valuation compares loss of subjective well-being with severe mental health problem development, using Quality Adjusted Life Year (QALY) health economist assessed weights[65] (Maccagnan et al., 2019; Cox, Bowen and Kempton, 2012; Sainsburys Centre for Mental Health, 2010). Further research should seek to explore this amongst the DGS population (and indeed other groups who engage in outdoor physical activities).

It is important to note that these impacts represent the maximum potential impact on mental health and well-being that could be attributed to participation in DGS. In terms of alternative attribution (meaning the other factors that could influence the increase in well-being) and the

[65] "QALYs are one way economists use to estimate the varying types of health outcomes in a common metric—with a value of 1 indicating a year in full health and 0 indicating death. Taking the loss of QALYs from a severe mental health condition (0.352) and multiplying by the NICE Cost Effectiveness threshold of £30,000 gives a value of £10,560 per year for overall well-being" (Maccagnan *et al.*, 2019, p. 16) . The NICE cost effectiveness threshold is used to assess new clinical interventions to around cost-benefit analysis. The standard threshold stands at £20,000 to £30,000 per quality-adjusted life year (QALY), however higher thresholds are used in some circumstance in areas such as end of life care and when patients make individual funding requests for treatment that are considered by an NHS panel.

proportion of the increase in SWEMWBS score that is attributable to DGS, caution must be applied in interpreting the data, as the study compared the results of participants with a national dataset rather than with a genuine control group. As the individuals concerned have been taking part in DGS for many years, it is difficult to ascertain a deadweight factor, representing what would have happened anyway, as many feel that DGS is integral to their lives and identity (see section 5.3.1 and section 6.4.2). The longevity of participation also indicates that drop-off, reduction in the benefits resulting from an intervention over time, is not particularly relevant in this study.

8.2.3 Social Impact Value: Physical Health and Well-being

Whilst all participants in this study walked a median average of 8km on a shoot day, reducing to 7km for paying guns and increasing to 9km for beaters and pickers-up, it is beaters and pickers-up who most frequently participate in the shooting season, which takes place for around one third of the year. An indicative value for physical health benefits via regular exercise participation, for an estimated number of beaters and pickers-up in the UK has been calculated using the WHO Health Economic Assessment Tool (HEAT) for walking and cycling (World Health Organisation (WHO), 2019). The calculation takes into account age, distances walked and frequency of participation, with those who participate less than once a week not included in the calculation. Based upon the HEAT tool a value of around £547 million[66] per year can be suggested as the health-related financial impact of participation in DGS by beaters and pickers-up, due to the increased walking that this group participates in. This value is based on the weekly exercise during the shooting season being spread out over the entire year (i.e. 9km per week for a four-month period equates to 3km per week average across a year). The total maximum economic impact calculated by HEAT over the full assessment period of 10 years equals £5.47 billion[67], which when discounted to 2020 values at an annual discount rate of 5% amounts to £4.22 billion[68]. These calculations are based on the HEAT prediction that the increased walking and physical activity experienced by beaters and

[66] Converted from EUR to GDP at a rate of 0.8453 on 11.02.2020. (Bank of England, 2019)
[67] As footnote 57
[68] As footnote 57

pickers-up prevents 158 premature deaths per year, which equates to 1,601 premature deaths prevented over ten years. Full details of the calculation are shown in Appendix R.

8.2.4 Social Impact Values: Negative Impacting Factors

Whilst this study has shown the social networks in DGS had a positive impact on participants' mental health and well-being measured using SWEMWBS (see chapter 5, section 5.4.1, 5.4.2 and Chapter 6, section 6.5.1) and in relation to physical exercise for those who engage as beaters and pickers-up (see Chapter 5, section 5.4.1, 5.4.2 and Chapter 6, section 6.5.4), these values need to be considered in conjunction with potential negative impacts identified in this study (see Chapter 5, section 5.4.3 and Chapter 6, section 6.6). These negative impacts, in the form of wider conflicts and societal perceptions, vary between shoot sizes and types and their consideration would therefore be essential to compare the overall social impact of different sizes and types of shoot. For example, commercial shoots that can prove compliance with best practice and traceability of all meat into the food chain reduce the negative impact of these conflicts, whereas those that do not potentially increase the impact of these negative factors. As noted in section 8.2.1, the framework shown in Figure 8.1 could be used with an application of positive and negative impact factors, such as those suggested in Table 8.1, for which values and scoring mechanisms would need to be developed in future research. As an example of practical use, this would result in shoots following the exemplar standards resulting in higher net social impacts, when potential negative impacts have been considered compared to those who do not comply to such standards, recognising the potential negative impacts of DGS identified during this research study.

Commercial Shoots		Syndicate (not for profit) shoots (less than 20 shooting days p.a.)	
Positive	Negative	Positive	Negative
Provision of social activities/lunch during the shoot day	Do not provide social activities/lunch during the shoot day.	Status: not for profit, syndicate shoot	
Provision of 'beaters' day'	No or limited mixing between guns and/or pickers-up	Provides social activities such as annual party, beaters' day and/or shoot day activities.	Do not provide social activities such as annual party, beaters' day and/or shoot day activities.
Full traceability of game meat, certified via BGA membership or similar for shoots above a specified size[69]	Cannot provide assurance of full game meat traceability, via BGA membership or similar for shoots above a specified size[70]. Smaller shoots not providing traceability via own records.	All game meat used by participants, confirmed via shoot records and/or declarations.	Cannot confirm all game meat used.
Provision of annual end of season or Christmas party for beaters and pickers-up (BPU).	Compliance with BASC good shoot guidance and GWCT environmental guidance.	Compliance with BASC good shoot and GWCT environmental guidance.	Do not comply with BASC good shoot and GWCT environmental guidance.
	Do not provide a subsidised beaters shooting day and/or an annual end of season or Christmas party for BPU.	All syndicate members involved in maintenance of site in location-based syndicate	
		All syndicate participants have lunch/breaks together	
		Beat and stand shoot	

Table 8.1 Potential positive and negative impact factors for DGS participation social impact (percentage weighting values to be developed).

[69] The specifications for this area would need to be considered. Perhaps for shoots above a certain bag size maybe over 200 birds, shooting for more than a specified number of days per year, in a specified location, to avoid over burdensome bureaucracy on smaller commercial shoots that form part of the economic sustainability mix on a farm as income diversification.

[70] As footnote 60.

8.2.5 Policy Considerations

A summary of policy recommendations is shown in Table 8.2. These policy recommendations are based on the evidence presented in this thesis relating to the social impact of participation in driven game shooting and should be considered in any review of the regulations relating to DGS. The policy recommendations refer to potential financial benefits to society of participation in DGS. To give context to the policy recommendations, as noted in section 8.2.2, whilst there are few studies that attempt to value subjective well-being (Maccagnan et al., 2019), it has been suggested maintaining well-being could be valued at £10,560 per person, per year (Cox, Bowen and Kempton, 2012 in Maccagnan et al., 2019). Using the WHO HEAT tool to measure the impact of walking (World Health Organisation (WHO), 2019), a value of around £547 million[71] per year can be suggested, with the number of premature deaths potentially prevented over one year estimated at 158 (see section 8.2.3). Full details of the WHO HEAT tool calculation can be found in Appendix R.

Once further research to assess the distribution of shoot sizes and types has been completed, and a mechanism for applying positive and negative impacts factors described in section 8.2 and Table 8.1 has been developed, an overall value to society of individuals' participation in DGS comparing the different types and sizes of shoot could be calculated, utilising the framework shown in Figure 8.1.

[71] Converted from EUR to GDP at a rate of 0.8453 on 11.02.2020. (Bank of England, 2019)

Table 8.2 Policy Recommendations		
Recommendation		Outline
1	Recognise the strong social support networks apparent across all forms of DGS and in particular within not-for-profit syndicate shoots.	This research illustrated the strong social capital networks that exist within all forms of driven game shooting and has given examples of those networks being activated in times of need. This included a very strong and clear 'rural identity' amongst almost all participants, which further strengthened the social networks. Strong social support networks have a number of positive benefits to both mental and physical health and well-being, as outlined in Chapters 2 and 3, and can help enhance and maintain social cohesion in rural communities.
2	Recognise the benefit of participation in DGS on participants' mental health and well-being.	This study has shown that participation in DGS in any form has a moderate to large effect on participants' mental health and well-being measured using the short Warwick-Edinburgh mental well-being scale (SWEMWBS). This is due to a number of factors including strong social support networks, reduced loneliness, strong rural and/or cultural heritage identity, time spent outdoors in nature, regular physical exercise and participating in an activity that gives a sense of purpose.
3	Recognise the rural nature of DGS as a pastime and the particularly positive impact it can have on ageing, rural populations' mental health and well-being.	The positive impact on participants' mental health and well-being was particularly high in those who are members of a syndicate, either roving or location based, above the age of 55 years, reflecting the importance of strong social networks as we get older. In rural areas the proportion of those over 65 years is rising more quickly and will continue to be greater than in urban areas, therefore the importance of ensuring good mental health and well-being in rural areas is heightened. Good mental health and well-being and strong support networks can also positively impact long-term condition management, which is also important as the NHS has recognised we are living longer but often with long-term

		conditions to manage. This long-term condition management will become increasingly community based in line with the NHS long-term plan, with the role of self-care gaining increasing importance, so the ability to take part in a social network activity that also provides physical exercise such as DGS increases in importance.
4	Recognise the benefit of DGS in encouraging physical exercise all year round.	This study has found that DGS participation encouraged individuals of all ages to go out and participate in walking long distances in all weathers. The median distance walked by participants was 8.0 km (mean 8.1 km), rising to a median of 9.0 km (mean 9.4 km) for beaters and pickers-up. Throughout the season, 66.2% of beaters and pickers-up take part in DGS once a week or more, with 39.2% taking part twice a week or more which indicates a large amount of exercise is facilitated via participation in DGS throughout the winter months, in all weathers that may not be completed if individuals were not taking part in DGS. The annual impact of regular exercise can be measured to show a positive financial benefit to society using a recognised tool such as the WHO calculator. The benefit is higher for those aged over 45 years, which is relevant as DGS participants fell within the older range of individuals. In addition, walking has been recognised as a good way for reluctant men to exercise and DGS is a predominantly male sport (86.7 % male participants).
5	Recognise the unique status of the 'not for profit' syndicate and family shoot and its resultant positive social impacts	The unique status of the not for profit syndicate/family shoot needs to be recognised as a lower potential negative impact form of DGS participation, with less days shot across the year involving a lower number of birds. Syndicate shoots often use volunteers for a range of roles, which has been shown to positively impact health and well-being with potential societal value of regular volunteering estimated at £13,500 per annum (Fujiwara, 2013). The environmental benefits of land management carried out

		to facilitate many syndicate shoots receive no subsidy so any environmental benefits come at zero direct cost to the taxpayer and this too should be recognised within any social impact measurement framework.
6	Recognise the strong heritage cultural identity linked to participation in DGS for some people, particularly in the form of a syndicate, as a form of intangible cultural heritage.	This study has found a link to participation due to family and/or cultural heritage for some. The importance of social practices that are regular, seasonal events in contributing to individual and community well-being through a strong, heritage linked identity has been recognised by UNESCO as 'intangible cultural heritage' (United Nations Educational Scientific and Cultural Organization (UNESCO), 2018). Participation in DGS by those within the DGS community who take part for family heritage reasons, participation is linked to their perception of history, reaffirming their identity. Those who grew up in rural areas were more likely to participate for heritage reasons and those that were member of a syndicate were more likely to participate for heritage reasons than those who were not syndicate members, an additional reflection of the strong bonds and friendships amongst syndicate members.
7	Recognise the positive impact on social cohesion, wider participation and welcoming newcomers to an area DGS can have if carried out in an appropriate way.	This study found that previous studies have highlighted the important role of commercial shoots in providing employment (a wider determinant of health) in remote areas (Public and Corporate Economic Consultants (PACEC), 2012, 2014a). The provision of social events in the community found via this study can also be of value within rural areas so this should also be considered, with large commercial shoots providing such opportunities recognised. Newcomers to rural areas were shown to be welcomed to the DGS community if they showed an interest in taking part, allowing them to make friends and build social capital networks in the area they have now moved to. Intergenerational mixing opportunities,

		evidenced by the age ranges of shoot participants, was also found also a factor in enhancing social cohesion.
8	Consult with the commercial shooting industry to ensure best practice is followed and that those not following respect for quarry, environmental and other guidelines are tackled whilst good practice is recognised.	The good practice of some commercial shoots should be recognised and poor practice should lead to consequences. A licensing scheme could be considered for commercial shoots above a certain size, shooting above a certain number of days. However, this should be formulated in conjunction with the shooting industry to ensure decisions are not made that can cause irreparable damage to businesses, as was seen in the case of the general licence survey issues in Spring 2019, potentially exacerbating the conflicts between those for and against shooting. Ensuring smaller commercial enterprises, shooting fewer, smaller days as part of their business diversification have a less burdensome regime to ensure compliance with good practice, will allow the positive benefits of shooting as a diversification of farm income to continue within reasonable guidelines, whilst minimising any negative impacts. Failure to recognise the importance of following good practice and stopping poor practice risks widening the conflicts between those who shoot and those that do not.
9	Use the social impact framework developed in this research to allow the true value to society of DGS social impacts to be measured and also facilitate comparison	This study has shown that the use of a social impact framework would be the best way to measure and compare the social impact of different shoot sizes and types, in line with recommended SIA procedures. However, in order to use a framework effectively, an assessment would need to be made of the number of large commercial, small commercial and syndicate/family shoots across the UK. This data does not currently exist, particularly in relation to syndicate and family shoots. Any social impact valuation would need to be completed by an independent consultant who does not participate in DGS to avoid bias.

	between different shoot types and sizes.	
10	To ensure the voices of those participating in DGS are heard in balance with those against, in spite of their lack of media expertise, and that any decisions on future regulation/restriction are based on evidence.	This study has shown that even when evidence is reviewed independently, as in the case of the National Resources Wales consultation, and recommendations are made to allow game shooting to continue, a single voice against can unduly influence any decisions. This leads to feelings of powerlessness amongst those who feel under-represented and under-equipped to challenge decisions through modern communication channels. Instead, a more balanced approached should be taken, considering the evidence. The National Trust has taken such an approach, balancing the views of those for and against shooting and continuing to allow shooting on its land that has a link to heritage and is in line with the ethos of the organisation.

8.3 Research Limitations and Further Research Areas

This study was unable to consider the impact of DGS, particularly larger commercial shoots, on those that live in a shoot area, but perhaps do not participate in DGS. A study could be completed in the areas where the shoots took place. However, it is likely a simple survey would need to be administered in hard copy via post in the surrounding area, as online contacts are not available for this group of people and the response rate for hard copies in this study was low. The use of local area forums (such as Next Door) and local area handbooks to promote any future survey could also be explored. This further research would provide a wider perspective and consider whether living in the vicinity of a shoot impacts mental health and well-being negatively or positively for example. The need for this was suggested by one of the beaters at the qualitative stage:

> *"I can understand that some farmers who are not interested in shooting and have a shoot run over their ground becoming irritated by that, although they're financially compensated for that it's not all about finance is it and I can understand people that live around the villages and have to put up with a lot of shooting going on being irritated by it, but there's a lot of things on the up side, the keepers, the feed they put down it's a tremendous conservation tool. I mean you've only got to go out on the drive, today we were up on one of the drives and there was just flocks of small birds in it. Just literally thousands of small birds, sparrow finch type of things I suppose of one form or another and you know if you're not putting down the fields and you're not putting in the side on this scale or the feed down all that will effectively disappear, not all of it but a large percent of it will disappear. If you're doing this, perhaps to give it a balanced view you ought to talk to people that live in a shooting area that are not involved in shooting and see how they feel about it, I don't know. It's very easy to give a one sided view of things because I am sure there are people that are not really keen on it at all. I must be honest I live somewhere where there's no real shoot around."*
>
> *P22, (beater, large, commercial)*

As noted in section 8.2, an assessment of the total number of driven game shoots within the UK would enable a more accurate comparison of the value of the social impact of DGS, taking into account all of the factors detailed in this chapter.

This study produced a framework for valuing the social impacts of participation in DGS as shown in Figure 8.1 in section 8.2. An indication of some potential financial values for the social impact of participation in DGS are given in section 8.2.

It would be useful to value the social impact of different types and sizes of shoot. Syndicate shoots would be the most obvious area for initial valuation within the UK, as they have been considered very little in previous research, which has focussed on economic and environmental impacts of primarily commercial shoots. As noted in section 8.2.1, syndicate shoots have a potentially greater impact on participants' mental health and well-being, especially for those aged 55 year and over (see Chapter 5, section 5.4.1 and Chapter 6 section 6.5.1) with stronger friendships/bonding social capital, providing stronger social support networks (see Chapter 5, section 5.3 and Chapter 6 section 6.4.1) and less division, via stronger bridging social capital (see Chapter 5, section 5.3.2 and Chapter 6, section 6.4.3). This means a greater proportion of any social impact value could be attributed to syndicate shoots. This can only be confirmed once further research has been completed into the distribution of shoots of different sizes and types across the UK. They also had fewer potential negative impacting factors (See Chapter 5, section 5.4.3, Chapter 6, section 6.6 and Table 8.1 in Chapter 8, section 8.2). The syndicate shoot provides most impact to those who are older, important in an ageing society with rural populations ageing more quickly than urban populations.

It was noted in Chapter 4 section 4.6.2 that the standard way of measuring social capital for this study was not appropriate. Instead three friendship social network opinion questions were asked to assess the strength of friendships within DGS as shown in Table 6.9. There is

scope for development of a simple scale for measuring social network strength (total score out of 15) and with this in mind the total score data for the social network scale gathered was subjected to Cronbach's α test. The results of the Cronbach's α tests for the full dataset and the split datasets indicated are shown in Table 8.3. Whilst it did not reach the preferred alpha of 0.8 or above (Henson, 2001), the values all exceed the recommended 0.7 or higher (McLeod, 1994; Nunnally, 1978), with no individual question removal bringing the value greater than the Cronbach's alpha of the whole scale. The corrected item total correlation[72] was consistently above 0.5, higher than the recommended minimum 0.4 (Gliem and Gliem, 2003). This is an area that could be further researched and the scale developed to allow comparison of social network strengths across different types of social activity.

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Full Dataset (2424 responses)	.798	.799	3
Beaters and pickers-up only (1530 responses)	.798	.799	3
Syndicate Members only (1289 responses)	.787	.790	3
Paying Guns Only (1459 responses)	.794	.797	3

Table 8.3 Cronbach's alpha score for potential social network scale data

An additional element that should also be incorporated in any measurement system for social capital is the important role of identity in bonding social capital, as discussed in Chapter 2, section 2.2.1 of this thesis. There is potential for this to be incorporated in a future measurement scale for social capital and social network strength, relating to the impact of participation in 'social network' based activities on individuals' mental health and well-being**.** This would facilitate easier comparison of social network strength between different social network-based activities of any kind and how this impacts individual mental well-being.

[72] "Corrected Item-Total Correlation—This is the correlation of the item designated with the summated score for all other items. In Table 2, the correlation between item 2 and the summated score is .60. A rule-of-thumb is that these values should be at least .40." Gliem & Gliem, 2003

8.4 Summary and Research Contribution

In spite of the limitations, this study fills a gap in the evidence base, by identifying the social impact(s) that participation in DGS has on the people involved in it (not just guns, beaters and pickers up, but also the wide network of people whose lives are affected). A need for this has been clearly outlined by National Resources Wales and their independent evaluation consultants in a recent consultation on shooting in Wales (Hillyard and Marvin, 2017; Natural Resources Wales, 2017). The only prior wide-ranging study into personal impacts was a self-evaluation study that did not attempt to identify or quantify comparable social impacts (British Association of Shooting & Conservation (BASC), 2016). The Exmoor study into all types of shooting, not just DGS, carried out by PACEC looked only at one geographic location, and in very little detail relating to social impacts, again not attempting to identify a framework of identified social impacts. (Public and Corporate Economic Consultants (PACEC), 2012). The 2014 PACEC study only dedicated two pages of its full 128-page report to social impacts and did not attempt to identify a framework of social impacts utilising recognised GECES social impact measurement methods. This study was the first research to consider the social impacts of DGS in full, utilising the recognised GECES Social Impact Assessment method (Clifford, J., Hehenberger, L. and Fantini, 2014; Hehenberger, L., Harling, A-M. and Scholten, 2014).

This study has produced a summary of the social impacts of DGS participation, an outline of some potential financial benefits to society of participation in DGS in the UK and an outline Social Impact Assessment Framework which can be used to compare social impacts between different shoot types and sizes. It has shown that social capital, both bonding and bridging is apparent within DGS which creates strong social networks. The research findings support the evidence that social and community networks are one of the wider determinants of health (Dahlgren and Whitehead, 1991) and that social capital and identity, which are intrinsically linked (Claridge, 2018b; a), can have a positive impact on both mental and physical well-being (Helliwell and Putnam, 2004; Szreter and Woolcock, 2004; Sarracino, 2010; Bian, Hao and Li, 2018), enabling people to better manage long-term-conditions (Hinder and Greenhalgh, 2012) and cope with bereavement for example. The costs to society of poor mental health and physical health, including the management of long-term conditions, could be reduced or

avoided through individuals' participation in DGS. This research can be used to further develop the social impact assessment framework outlined in Chapter 8, Figure 8.1, to evaluate the social impact of DGS in terms of total savings to society, once the total number of DGS participants and the range of different types and sizes of shoot within the UK have been estimated, and therefore represents an original and needed contribution to knowledge.

8.5 Reflections on the research

I approached this research having worked within the NHS for over 6 years and having been involved in third sector projects supporting those in need for around 15 years. I have a keen interest in the wider impacts of both cuts to provision of services on wider societal costs and how we can recognise where 'self-care' can be encouraged, to keep our ageing population not only living longer, but also living well for longer and enabling them to manage long-term conditions, keep active and avoid loneliness. I worked in a rural area within the NHS and the opportunities for social contact are much less than they would be in an urban area, which is why when I heard of a PhD focussing on a social activity that involved regular exercise, with others in the local, rural area with similar interests I was encouraged to pursue the PhD. I had no experience of DGS before I started this project.

My first visit to a shoot was on a very cold, wet January day and, standing in a field wearing every item of waterproof clothing I owned, I wondered 'why on earth would anyone spend all day out in the cold and wet for little or no pay?'. However, spending the day on the 'beaters' waggon' revealed that the individuals involved were not in this for the money. There was a strong sense of shared understandings, friendships and identity demonstrated by those involved. I attended additional shoots (although the weather was sometimes better the work involved was still hard) and this feeling of camaraderie, friendship and rural identity was reinforced. I was welcomed to all of the shoots although those at larger commercial shoots were warier of my presence, concerned I might be an 'anti' as they put it, most likely due to the fact they had recent negative experience of those against shooting disrupting the local shoots. At my first syndicate shoot there was rumour of a Panorama programme that was exposing poor shoot practices being shown imminently and DGS participants were keen to

tell me that all of their game meat was used and that clear, environmental and safety guidelines were followed. Participants felt powerless to explain the positive impact of their pastime and hoped this study would help them to do that. They were keen to be involved both on site, when I was visiting the shoot and I had no problems encouraging people to be interviewed, for which I am grateful and I feel this adds to the welcoming nature of the shoots I visited to outsiders and whilst this section does not seek to add to the evidence base, I feel this is a further indicator of the social capital within DGS.

From my perspective, the research focused on mental health and well-being and the elements of DGS participation that influence the mental well-being level of individuals taking part in DGS and how these can help reduce societal costs within an ageing society, particularly in a rural context. I did not share this view with my participants, I told them I was looking at the impact of taking part in DGS on the people involved. For many of the participants, their key knowledge of DGS impacts was on the direct financial and environmental benefits of participation and many had not considered the social impacts before and they started to talk about friendships, DGS being part of rural life and spending time with like-minded people, something that featured heavily in all of my interviews.

This study needed to be completed within a strict timeframe to align to the shoot seasons, so I had to factor that into the timetable. I had a very engaged group of individuals and shoots who were keen for me to visit, so much so that I could not visit them all within the time and budget of the study. However, having built this network I maintained engagement via sending a quarterly newsletter. This allowed me to gain a very large amount of responses to my wider questionnaire without using open postings, via email sharing and through closed, social media groups. My participants were initially surprised at the length of time the research would take. I would encourage all PhD students completing a long-term project to send out quarterly newsletters as it maintains links to your participants and keeps interest in your research 'live' in the fast-paced world we live in today, where results are expected in short timescales. I only set up my social media presence at the second stage of data collection. I would advise future researchers to do this at the very beginning of the study as it has enabled me to widen

relevant contacts and keep up to date with developments within DGS as I wrote up my PhD and would have been a useful tool in this regard earlier in the study.

I learnt that the length of my wider questionnaire meant that I gathered a very large amount of data and in future studies I would streamline and reduce the length of any questionnaire, to focus on specific areas of interest, ensuring they fully match the comparative national datasets for all sections prior to questionnaire distribution.

Overall, I have developed my research skills, particularly in relation to recognised qualitative analysis methods, statistical analysis and theoretical underpinning of research and learnt a lot more about DGS in its various forms and its role in rural society in the UK.

References

2 Map.co.uk (2019). Available at: https://www.2map.co.uk/ (Accessed: 6 August 2019).

Abbott, S. and Freeth, D. (2008) 'Social capital and health: Starting to make sense of the role of generalized trust and reciprocity', *Journal of Health Psychology*. SAGE PublicationsSage UK: London, England, pp. 874–883. doi: 10.1177/1359105308095060.

Aebischer, N. . *et al.* (2017) 'Twenty years of local farmland bird conservation: the effects of management on avian abundance at two UK demonstration sites', *Bird Study*, 63, pp. 10–30. Available at: https://www.gwct.org.uk/research/scientific-publications/2016/aebischer2016/ (Accessed: 19 December 2017).

Aebischer, N. J. (2019) 'Fifty-year trends in UK hunting bags of birds and mammals, and calibrated estimation of national bag size, using GWCT's National Gamebag Census', *European Journal of Wildlife Research*. Springer Verlag, 65(4). doi: 10.1007/s10344-019-1299-x.

Aiden, H. (2016) *Isolation and Loneliness: An overview of the literature*.

Alderwick, H. and Dixon, J. (2019) 'The NHS long term plan', *BMJ (Online)*. doi: 10.1136/bmj.l84.

Aledo-Tur, A. and Domínguez-Gómez, J. A. (2017) 'Social Impact Assessment (SIA) from a multidimensional paradigmatic perspective: Challenges and opportunities', *Journal of Environmental Management*, 195, pp. 56–61. doi: 10.1016/j.jenvman.2016.10.060.

Alimujiang, A. *et al.* (2019) 'Association Between Life Purpose and Mortality Among US Adults Older Than 50 Years', *JAMA network open*. NLM (Medline), 2(5), p. e194270. doi: 10.1001/jamanetworkopen.2019.4270.

Allen, J. and Allen, M. (2015) *Using the Social Value Act to reduce health inequalities in England through action on the social determinants of health*. doi: 10.2190/G8QW-TT09-67PL-QTNC.

Andrews, F. and Withey, S. (1976) *Social Indicators of Well-Being*, *Social Indicators of Well-Being*. New York: Plenum Press. doi: 10.1007/978-1-4684-2253-5.

Animal Aid (no date) *Shooting - Animal Aid*. Available at: https://www.animalaid.org.uk/the-

issues/our-campaigns/shooting/ (Accessed: 2 June 2020).

Animal and Plant Health Agency (APHA) Avian Expert Group (2015) 'Common diseases of gamebirds in Great Britain'. Available at: https://www.gwct.org.uk/media/1094670/Moving-away-from-lead-shot-QA.PDF.

Archer, M. (2016) 'Reconstructing Sociology: The Critical Realist Approach', *Journal of Critical Realism*, 15(4), pp. 425–431. doi: 10.1080/14767430.2016.1191809.

Ares, E. and Baker, J. (2015) 'House of Commons Debate Pack: Lead Shot Ammunition CDP 2015/0120 (Contains Parliamentary information licensed under the Open Parliament Licence v3.0 details at https://www.parliament.uk/site-information/copyright/open-parliament-licence/)'.

Australian Bureau of Statistics (2019) *Sample Size Calculator*. Available at: https://www.abs.gov.au/websitedbs/D3310114.nsf/home/Sample+Size+Calculator (Accessed: 14 August 2019).

Avery, M. (2016) *Inglorious: Conflict in the Uplands*. Paperback. London: Bloomsbury.

Avery, M. (2018) *NEWS: National Trust and grouse shooting in the Peak District - Mark Avery*. Available at: https://markavery.info/2018/01/10/news-national-trust-grouse-shooting-peak-district/ (Accessed: 3 April 2018).

Baines, D. *et al.* (2014) 'Grouse moor management: effects on other upland birds in the UK', in Buchanan, G., Thompson, D., Chamberlain, D. & Pearce-Higgins, J. (eds) (ed.) *Ecology and Conservation of Birds in Upland and Alpine Habitats: 1*. Peterborough: British Ornithologists' Union. Available at: http://www.bou.org.uk/bouproc-net/uplands/baines-et-al.pdf (Accessed: 19 December 2017).

Bank of England (2019) *Daily Exchange Rates*. Available at: https://www.bankofengland.co.uk/boeapps/database/Rates.asp?Travel=NIxAZx&into=EUR (Accessed: 11 February 2020).

Barnett, K. *et al.* (2012) 'Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study.', *Lancet (London, England)*. Elsevier, 380(9836), pp. 37–43. doi: 10.1016/S0140-6736(12)60240-2.

Bartley, M; Ferrie, J; Montgomery, S. (2005) 'Chapter 5: Health and labour market disadvantage: unemployment, non-employment and job insecurity', in Marmot, M. and Wilkinson, R. (eds) *Social Determinants of Health*. 2nd edn. Oxford: Oxford University Press.

Bartolini, S. and Sarracino, F. (2014) 'Happy for how long? How social capital and economic growth relate to happiness over time', *Ecological Economics*. Elsevier, 108, pp. 242–256. doi: 10.1016/J.ECOLECON.2014.10.004.

Barton, J. and Pretty, J. (2010) 'What is the Best Dose of Nature and Green Exercise for Improving Mental Health? A Multi-Study Analysis', *Environmental Science & Technology*. American Chemical Society, 44(10), pp. 3947–3955. doi: 10.1021/es903183r.

BASC *et al.* (2018) 'Important Joint Communication: Spring 2018 REDUCING ANTIBIOTIC USE IN GAMEBIRDS'. Available at: https://www.gwct.org.uk/media/854614/2018-joint-communication-on-ab-reduction.pdf (Accessed: 11 April 2018).

BBC (2018a) 'Crews use water bombs for major wildfire on Isle of Rum - BBC News', *BBC News Online*, April. Available at: http://www.bbc.co.uk/news/uk-scotland-highlands-islands-43651948 (Accessed: 9 April 2018).

BBC (2018b) 'Protesters call for Yorkshire Water to ban grouse shooting', 11 August. Available at: https://www.bbc.co.uk/news/uk-england-leeds-45155349.

Becker, H. A. and Vanclay, F. (2003) *The International handbook of social impact assessment : conceptual and methodological advances*. Cheltenham, UK: Edward Elgar.

Becker, H.A. (2003) 'Theory formation and application in social impact assessment', in Becker, Henk A and Vanclay, F. (eds) *The International Handbook of Social Impact Assessment: Conceptual and Methodological Advances*. Cheltenham, UK: Edward Elgar Publishing, pp. 129–142. doi: 10.4337/9781843768616.00021.

Bhaskar, R. (2008) *A Realist Theory of Science*. Online. Abingdon, Oxon: Routledge.

Bian, Y., Hao, M. and Li, Y. (2018) 'Social Networks and Subjective Well-Being: A Comparison of Australia, Britain, and China', *Journal of Happiness Studies*. Springer Netherlands, 19, pp. 2489–2508. doi: 10.1007/s10902-017-9926-2.

Bicknell, J. *et al.* (2010) *Impacts of non-native gamebird release in the UK: a review RSPB*

Research Report Number 40. Available at: http://robyorke.co.uk/wp-content/uploads/2015/05/gamebird-release.pdf (Accessed: 11 April 2018).

Big Lottery Fund and E Corys (2014) *Wellbeing Programme: An introduction to Social Return on Investment*.

Big Society Capital (2015a) 'Big Society Capital Outcomes Matrix Full Guidance'. Available at: http://www.goodfinance.org.uk/sites/default/files/Outcomes Matrix Full Guidance_01.pdf.

Big Society Capital (2015b) 'Social Outcomes Matrix: 5 Mental health and well being'.

Binder, M. and Freytag, A. (2013) 'Volunteering, subjective well-being and public policy', *Journal of Economic Psychology*, 34, pp. 97–119. doi: 10.1016/j.joep.2012.11.008.

Birdlife International (2019) *Why we need birds (far more than they need us)*. Available at: https://www.birdlife.org/worldwide/news/why-we-need-birds-far-more-they-need-us (Accessed: 2 June 2020).

Blackmore, A. (2018) 'Adrian Blackmore: Repercussions for moor from grouse shooting ban - Yorkshire Post', *The Yorkshire Post (online)*, January. Available at: https://www.yorkshirepost.co.uk/news/opinion/adrian-blackmore-repercussions-for-moor-from-grouse-shooting-ban-1-8967792 (Accessed: 3 April 2018).

Blaikie, N. W. H. and Priest, J. (2017) *Social research : paradigms in action*. Chichester: Polity Press.

Bodkin, H. (2018) 'Pheasant shooting to be banned on public land in Wales', *The Telegraph (online)*, 20 September. Available at: https://www.telegraph.co.uk/news/2018/09/20/pheasants-wales/.

Boeije, H. (2002) *A Purposeful Approach to the Constant Comparative Method in the Analysis of Qualitative Interviews*, *Quality & Quantity*. Available at: http://qualquant.org/wp-content/uploads/text/Boeije 2002-1.pdf (Accessed: 7 September 2018).

Boelt, W. (2014) 'UN General Assembly's Open Working Group proposes sustainable development goals', *UN Department of Public Information*. New York, p. 2. Available at: https://sustainabledevelopment.un.org/content/documents/4538pressowg13.pdf

(Accessed: 26 April 2018).

Bourdieu, P. (1986) 'The forms of capital', in Richardson, J. (ed.) *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood, pp. 241–258. doi: 10.1002/9780470755679.ch15.

British Association for Shooting & Conservation (BASC) (2010) 'BASC Code of Practice: Respect for Quarry'. Available at: https://basc.org.uk/cop/respect-for-quarry/.

British Association for Shooting & Conservation (BASC) (2011) *Aim Of The Game: Driven Game Shooting In Britain Today*. Available at: https://basc.org.uk/wp-content/uploads/downloads/2013/06/aim_of_the_game_for_web.pdf (Accessed: 31 January 2018).

British Association for Shooting & Conservation (BASC) (2016) *The Personal Value Of Shooting*.

British Association for Shooting and Conservation (BASC) (2009) 'BASC: Policy on Raptors'. Available at: http://www.basc.org.uk/en/utilities/document-summary.cfm/docid/979F4136-00BC-4C6C-A9AE5CAA68B93C72.

British Association for Shooting and Conservation (BASC) (2018a) *BASC seeks clarity on outcome of NRW shooting review*. Available at: http://www.politics.co.uk/opinion-formers/british-association-for-shooting-and-conservation-basc/article/basc-seeks-clarity-on-outcome-of-nrw-shooting-review (Accessed: 16 July 2018).

British Association for Shooting and Conservation (BASC) (2018b) *Colleges offering gamekeeping courses - BASC*. Available at: https://basc.org.uk/game-and-gamekeeping/so-you-want-to-be-a-gamekeeper/colleges-offering-gamekeeping-courses/ (Accessed: 11 April 2018).

British Association for Shooting and Conservation (BASC) (2018c) *Natural England and British Association of Shooting and Conservation Partnership Agreement*. Available at: https://basc.org.uk/basc-and-natural-england-renew-partnership-agreement/.

British Association for Shooting and Conservation (BASC) (2019) *A joint statement on the future of shotgun ammunition for live quarry shooting - The British Association for Shooting*

and Conservation. Available at: https://basc.org.uk/a-joint-statement-on-the-future-of-shotgun-ammunition-for-live-quarry-shooting/?utm_source=LinkedIn&utm_medium=social&utm_campaign=SocialSignIn&utm_content=Lead+Press (Accessed: 24 February 2020).

British Association for Shooting and Conservation (BASC) and Natural England (2015) 'Natural England and the British Association for Shooting and Conservation Partnership Agreement'.

British Game Alliance (2018) *British Game Alliance - For the Love of Game*. Available at: https://britishgamealliance.co.uk/ (Accessed: 17 July 2018).

British Medical Association (2016) *Sustainability and transformation plans (STPs) explained*, *The King's Fund website*. Available at: https://www.kingsfund.org.uk/topics/integrated-care/sustainability-transformation-plans-explained.

Bryman, A. (1988) *Quantity and quality in social research*. 18th edn. London: Routledge.

Bryman, A. (2001) *Social Research Methods*. 1st edn. Oxford: Oxford University Press.

Buente, W. (2017) *#Activism – How Twitter Boosts Civic Activism in 140 Characters or Less | Scholars Strategy Network*. Available at: https://scholars.org/contribution/activism-how-twitter-boosts-civic-activism-140-characters-or-less (Accessed: 12 June 2020).

Burdge, R. and Johnson, S. (1998) *'Social impact assessment: developing the basic model'. In Burdge, R. (ed.), A conceptual approach to social impact assessment*. Middleton-Wisconsin: Social Ecology Press.

Burdge, R J (1998) 'A Brief History and Major Trends in the Field of Social Impact Assessment', in Burdge, Rabel J (ed.) *A Conceptual Approach to Social Impact Assessment*. Revised. Middleton: Social Ecology Press, pp. 3–12.

Burke, P. and Cantwell, A. (2010) 'Identity Control Theory', in Levine, J. M. and Hogg, M. A. (eds) *Encyclopedia of group processes & intergroup relations*. Thousand Oaks, CA: Sage Publications, pp. 416–417. Available at: http://sk.sagepub.com.ezproxy.northampton.ac.uk/reference/processes/n124.xml.

Burke, P. J. (1991) 'Identity Processes and Social Stress', *American Sociological Review*,

56(6). Available at: https://search.proquest.com/docview/218787450?accountid=12834&rfr_id=info%3Axri%2Fsid%3Aprimo (Accessed: 16 May 2018).

Burke, P. J. (2007) 'Identity Control Theory', *The Blackwell Encyclopedia of Sociology*, pp. 2202–2207. doi: none.

Burke, P. J. and Stets, J. E. (1999) 'Trust and commitment through self-verification', *Social Psychology Quarterly*, 62(4). Available at: https://search.proquest.com/docview/212710654/fulltextPDF/EE7ED105DCE74EACPQ/1?accountid=12834 (Accessed: 15 May 2018).

Cabinet Office (2010) 'Building Big Society', *UK Government*. doi: 10.1017/CBO9781107415324.004.

Callegari, S. E. *et al.* (2014) 'Impact of game bird release on the Adonis blue butterfly Polyommatus bellargus (Lepidoptera Lycaenidae) on chalk grassland', *European Journal of Wildlife Research*. Springer Verlag, 60(5), pp. 781–787. doi: 10.1007/s10344-014-0847-7.

Capstick, L. A. *et al.* (2019) 'The effect of game management on the conservation value of woodland rides', *Forest Ecology and Management*. Elsevier B.V., 454, p. 117242. doi: 10.1016/j.foreco.2019.03.034.

Capstick, L. A., Sage, R. B. and Hoodless, A. (2019) 'Ground flora recovery in disused pheasant pens is limited and affected by pheasant release density', *Biological Conservation*. Elsevier Ltd, 231, pp. 181–188. doi: 10.1016/j.biocon.2018.12.020.

Carpiano, R. M. (2006) 'Toward a neighborhood resource-based theory of social capital for health: Can Bourdieu and sociology help?', *Social Science & Medicine*. Pergamon, 62(1), pp. 165–175. doi: 10.1016/J.SOCSCIMED.2005.05.020.

Carpiano, R. M. (2007) 'Neighborhood social capital and adult health: An empirical test of a Bourdieu-based model', *Health & Place*. Pergamon, 13(3), pp. 639–655. doi: 10.1016/J.HEALTHPLACE.2006.09.001.

Cattan, M., Hogg, E. and Hardill, I. (2011) 'Improving quality of life in ageing populations: What can volunteering do?', *Maturitas*. Elsevier, 70(4), pp. 328–332. doi:

10.1016/J.MATURITAS.2011.08.010.

Centre for Mental Health (2010) *The economic and social costs of mental health problems in 2009 / 10*. Available at: http://www.centreformentalhealth.org.uk/economic-and-social-costs-2009.

Centre for Mental Health (2018) *Centre For Mental Health | Parity of esteem*. Available at: https://www.centreformentalhealth.org.uk/parity-of-esteem (Accessed: 18 June 2018).

Chapman, A. R. A. R. (2010) 'The social determinants of health, health equity, and human rights', *Health and Human Rights*. Cambridge: Cambridge University Press, 12(2), pp. 17–30. Available at: https://doi.org/10.1017/CBO9781316104576.007 (Accessed: 23 April 2018).

Claridge, T. (2018a) *Explanation of types of social capital*. Available at: https://www.socialcapitalresearch.com/explanation-types-social-capital/ (Accessed: 23 April 2018).

Claridge, T. (2018b) *What is Cognitive Social Capital?* Available at: https://www.socialcapitalresearch.com/cognitive-social-capital/ (Accessed: 17 May 2018).

Clifford, J. and Hazenberg, R. (2015) *Aligning The Needs and Requirements for Social Investment, Commissioning for Social Value and Effective Social Enterprise*. Available at: http://e3m.org.uk/wp-content/uploads/2015/03/E3M_Impact-Policy-Paper_March-2015.pdf (Accessed: 7 December 2017).

Clifford, J., Hehenberger, L. and Fantini, M. (2014) *Proposed Approaches to Social Impact Measurement in European Commission legislation and in practice relating to: EuSEFs and the EaSI, European Commission Report 140605*. Available at: http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7735&type=2&furtherPubs=yes.

Clifford, J., Markey, K. and Malpani, N. (2013) 'Measuring Social Impact in Social Enterprise: The state of thought and practice in the UK'. Available at: http://ec.europa.eu/internal_market/social_business/docs/expert-group/social_impact/presentation-e3m_en.pdf (Accessed: 7 December 2017).

Cohen, A. P. (1982) 'Belonging: The experience of culture', in Cohen, A. P. (ed.) *Belonging:*

Identity and Social Organisation in British Rural Cultures. Manchester: Manchester University Press, p. 323.

Cohen, J. (1970) 'Approximate Power and Sample Size Determination for Common one-Sample and two-Sample Hypothesis Tests', *Educational and Psychological Measurement*, 30(4), pp. 811–831. doi: 10.1177/001316447003000404.

Cohen, J. (1992) 'A power primer', *Psychological Bulletin*. US: American Psychological Association, 112(1), pp. 155–159. doi: 10.1037/0033-2909.112.1.155.

Coleman, J. (1999) 'Social Capital in the Creation of Human Capital', in Dasgupta, P. and Serageldin, I. (eds) *Social capital: A multifaceted perspective*. Washington: The International Bank for Reconstruction and Development/THE WORLD BANK, pp. 325–424. Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1999/11/19/000094946_99110505361324/Rendered/PDF/multi_page.pdf#page=339.

Coleman, J. (2000) 'Social capital in the creation of human capital', in Dasgupta, P. and Serageldin, I. (eds) *Knowledge and Social Capital*. Washington: World Bank Publications, pp. 17–41. doi: 10.1016/B978-0-7506-7222-1.50005-2.

Coleman, J. S. (1988) 'Social Capital in the Creation of Human Capital', *American Journal of Sociology*, 94, pp. S95–S120.

Coll-Planas, L. *et al.* (2017) 'Social capital interventions targeting older people and their impact on health: a systematic review', *Journal of Epidemiology and Community Health*, 71(7), pp. 663–672. doi: 10.1136/jech-2016-208131.

Collier, A. (1994) *Critical realism: An Introduction to Roy Bhaskar's Philosophy*. 1st edn. London: Verso.

Collis J, Hussey, R. (2009) *Business Research*. 3rd edn. Basingstoke: Palgrave MacMillan.

Commision On Integration And Cohesion (2007) *Our Shared Future*, *Commission on Integration and Cohesion*.

Committee of Inquiry into Hunting with Dogs (1999) *Background to the Inquiry. Archived from the original on 26.07.2008*. Available at:

https://webarchive.nationalarchives.gov.uk/20080726235555/http://www.huntinginquiry.gov.uk/mainsections/committeedetails/aboutus.htm.

Cook, S. (2011) *Revise Sociology: Marxist perspective of power*. Available at: https://revisesociology.wordpress.com/2011/11/29/6-marxist-perspective-of-power/ (Accessed: 15 May 2018).

Coombes, E., Jones, A. P. and Hillsdon, M. (2010) 'The relationship of physical activity and overweight to objectively measured green space accessibility and use', *Social Science & Medicine*. Pergamon, 70(6), pp. 816–822. doi: 10.1016/J.SOCSCIMED.2009.11.020.

Corbin, J. and Strauss, A. (2008) *Basics of Qualitative Research (3rd ed.): Techniques and Procedures for Developing Grounded Theory*. 2nd edn. SAGE Publications, Inc. doi: 10.4135/9781452230153.

Cormack & Rotherham (2014) *A review of the PACEC reports (2006 & 2014) estimating net economic benefits from shooting sports in the UK*. Available at: https://www.league.org.uk/Handlers/Download.ashx?IDMF=e2145c4a-3dad-45a0-b0fd-1f8fca726e88 (Accessed: 12 February 2018).

Countryside Alliance (no date) *The way forward for shooting - Countryside Alliance*, *2018*. Available at: http://www.countryside-alliance.org/the-way-forward-for-shooting/?utm_campaign=456188_Newsletter - 250518&utm_medium=dotmailer&utm_source=Countryside Alliance&dm_i=44G9,9RZW,1MJ53S,12H05,1 (Accessed: 29 May 2018).

Countryside Recreation Network (2006) *A Countryside for Health and Wellbeing: The Physical and Mental Health Benefits of Green Exercise*. Available at: http://obesity.thehealthwell.info/search-results/countryside-health-and-wellbeing-physical-and-mental-health-benefits-green-exercise?source=relatedblock&content=resource&member=6842&catalogue=Research and Evaluation,Report&collection=Cardiovascular Health (Accessed: 8 November 2017).

Cox, G. *et al.* (1996) *Game Management and Property Rights: Implications for the Rural Economy and Social Relations. Final report to ESRC: R000232663.* Swindon.

Cox, G., Watkins, C. and Winter, M. (1996b) *Game Management in England: Implications for*

Public Access, the Rural Economy and the Environment. Cheltenham. Gloucester: Countryside and Community Research Unit, Cheltenham and Gloucester College.

Cox, G., Watkins, C and Winter, M. (1996a) 'Game Management and Access to the Countryside', in Watkins, Charles (ed.) *Rights of Way: Policy, Culture and Management*. London: Pinter, pp. 197–213.

Cox, J., Bowen, M. and Kempton, O. (2012) *Social Value: Understanding the wider value of public policy interventions*. Available at: https://www.socialauditnetwork.org.uk/files/5213/4996/6941/Social_Value_-_080612.pdf (Accessed: 11 March 2019).

Creed, P. A., Bloxsome, T. D. and Johnston, K. (2001) 'Self-esteem and self-efficacy outcomes for unemployed individuals attending occupational skills training programs', *Community, Work & Family*. Taylor & Francis Group , 4(3), pp. 285–303. doi: 10.1080/01405110120089350.

Crotty, F. and Stoate, C. (2017) 'Understanding cover crops at the farm-scale - a method of sustainable intensification?', *Aspects of Applied Biology,* 136, pp. 79–86. Available at: https://www.gwct.org.uk/research/scientific-publications/2017/crotty2017/ (Accessed: 19 December 2017).

Cundill, G. *et al.* (2014) 'A reflection on the use of case studies as a methodology for social learning research in sub Saharan Africa', *NJAS - Wageningen Journal of Life Sciences*. Elsevier, 69, pp. 39–47. doi: 10.1016/J.NJAS.2013.04.001.

Dahlgren, G. and Whitehead, M. (1991) *Policies and strategies to promote social equity in health*. Available at: https://www.researchgate.net/profile/Goeran_Dahlgren/publication/5095964_Policies_and_strategies_to_promote_social_equity_in_health_Background_document_to_WHO_-_Strategy_paper_for_Europe/links/569540f808aeab58a9a4d946.pdf (Accessed: 9 April 2018).

Davies, S. C. (2011) *Annual Report of the Chief Medical Officer Volume Two, 2011 Infections and the rise of antimicrobial resistance. Chapter 1*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_

data/file/138331/CMO_Annual_Report_Volume_2_2011.pdf (Accessed: 11 April 2018).

Defra (2011) *Biodiversity 2020 : A strategy for England's wildlife and ecosystem services*. Crown Copyright. doi: papers3://publication/uuid/A410E982-E93B-42E6-9B10-4967CF689B99.

Defra, EAFRD and Natural England (2016) 'Countryside Stewardship - How can it help reduce flooding ?' Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/570105/cs-flood-reduction-infographic.pdf.

Denny, S. *et al.* (2011) 'Social enterprise: evaluation of an enterprise skills programme', *Social Enterprise Journal*. Emerald Group Publishing Limited, 7(2), pp. 150–172. doi: 10.1108/17508611111156619.

Department of Environment Food and Rural Affairs (DEFRA) (2005) *Environmental Stewardship Higher Level Stewardship Handbook Terms and conditions and how to apply*. Available at: www.defra.gov.uk (Accessed: 9 June 2020).

Department of Environment Food and Rural Affairs (DEFRA) (2016) 'Letter Liz Truss MP to Lead Ammunition Group'. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/537391/truss-letter-ammunition-wildlife-160712.pdf (Accessed: 10 April 2018).

Department of Health (DOH) (2012) *Long Terms Conditions Compendium of Information*.

Department of Health and Department for Environment Food and Rural Affairs (2013) 'UK Five Year Antimicrobial Resistance Strategy 2013 to 2018', *Department of Health Department for Environment Food and Rural Affairs*, p. 43. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf (Accessed: 11 April 2018).

Department of Health Independent Mental Health Taskforce (2016) *THE FIVE YEAR FORWARD VIEW FOR MENTAL HEALTH*. Available at: https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf (Accessed: 12 April 2018).

Diabetes UK (2018) *Cost of Diabetes*. Available at: https://www.diabetes.co.uk/cost-of-diabetes.html (Accessed: 24 July 2018).

Diener, E. (1984) 'Subjective well-being', *Psychological Bulletin*, 95(3), pp. 542–575. doi: 10.1037/0033-2909.95.3.542.

Diener, E. *et al.* (1985) 'The Satisfaction With Life Scale', *Journal of Personality Assessment*, 49(1), pp. 71–75. doi: 10.1207/s15327752jpa4901_13.

Dietz, T. (1987) 'Theory and Method in Social Impact Assessment', *Sociological Inquiry*. Wiley/Blackwell (10.1111), 57(1), pp. 54–69. doi: 10.1111/j.1475-682X.1987.tb01180.x.

Dillman, D. A., Smyth, J. D. and Christian, L. M. (2014) *Internet, phone, mail, and mixed-mode surveys : the tailored design method*. 4th edn. Hoboken, New Jersey: John Wiley & Sons.

Disley, E. *et al.* (2015) *The payment by results Social Impact Bond pilot at HMP Peterborough: final process evaluation report*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486512/social-impact-bond-pilot-peterborough-report.pdf (Accessed: 19 December 2017).

Dobbs, R. *et al.* (2014) *Overcoming obesity: An initial economic analysis The McKinsey Global Institute*. Available at: https://www.mckinsey.com/~/media/McKinsey/Business Functions/Economic Studies TEMP/Our Insights/How the world could better fight obesity/MGI_Overcoming_obesity_Full_report.ashx (Accessed: 10 April 2018).

Dobson, J. (2012) 'Commissioning for social value : what the Public Services (Social Value) Act 2012 means in practice'.

Dolan, P., Peasgood, T. and White, M. (2008) 'Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being', *Journal of Economic Psychology*. North-Holland, 29(1), pp. 94–122. doi: 10.1016/J.JOEP.2007.09.001.

Doogal - Batch Geocoding tool (2019). Available at: https://www.doogal.co.uk/BatchGeocoding.php (Accessed: 6 August 2019).

Draycott, R. A. H. (2012) 'Restoration of a sustainable wild grey partridge shoot in eastern

England.', *Animal Biodiversity and Conservation,* , 35, pp. 381–386. Available at: https://www.gwct.org.uk/research/scientific-publications/2012/draycott2012c/ (Accessed: 19 December 2017).

Draycott, R. A. H. *et al.* (2012) 'The influence of pheasant releasing and associated management on farmland hedgerows and birds in England', *European Journal of Wildlife Research*. Springer-Verlag, 58(1), pp. 227–234. doi: 10.1007/s10344-011-0568-0.

Dreiling, A. *et al.* (2015) *Social Capital Theory - YouTube, Queensland University of Technology*. Available at: https://www.youtube.com/watch?v=sts9upOA9EU (Accessed: 19 April 2018).

Driscoll, M. P. (2000) *Psychology of learning for instruction*. Boston : Allyn and Bacon.

Dudwick, N. *et al.* (2006) *Analyzing social capital in context: A guide to using qualitative methods and data*, *The International bank of reconstruction and Development/ The World Bank*. doi: 10.1016/j.jml.2007.09.002.

Duke, M. (2018) *Game Meat Sales are On the Rise | Fur Feather and Fin Blog*. Available at: http://www.furfeatherandfin.com/blog/index.php/game-meat-sales-are-on-the-rise/ (Accessed: 11 April 2018).

Easton, G. (2010) 'Critical realism in case study research', *Industrial Marketing Management*. Elsevier, 39(1), pp. 118–128. doi: 10.1016/J.INDMARMAN.2008.06.004.

Eden, D. and Aviram, A. (1993) 'Self-efficacy training to speed reemployment: Helping people to help themselves.', *Journal of Applied Psychology*, 78(3), pp. 352–360. doi: 10.1037/0021-9010.78.3.352.

Edwards, R. (2010) 'Animal rights activists jailed for terrifying campaign against Huntingdon Life Sciences - Telegraph', *The Telegraph (online)*. Available at: https://www.telegraph.co.uk/news/uknews/crime/8086051/Animal-rights-activists-jailed-for-terrifying-campaign-against-Huntingdon-Life-Sciences.html (Accessed: 24 April 2018).

Ellis, A. and Fry, R. (2010) 'Regional health inequalities in England', *Regional Trends*, 42(1), pp. 60–79. doi: 10.1057/rt.2010.5.

Elwell, F. (2018) *The Sociology of Max Weber*. Available at:

http://webcache.googleusercontent.com/search?q=cache:25ERckNMKK0J:www.faculty.rsu.edu/~felwell/Theorists/Four/Presentations/Weber/Weber.ppt+weber+evolution+of+an+iron+cage&hl=en&ct=clnk&cd=8&gl=us (Accessed: 11 June 2018).

Elwell, F. W. (2013) *Sociocultural systems: principles of structure and change*. doi: 10.2307/2065657.

Emerson, J. (2003) 'The Blended Value Proposition: Integrating Social and Financial Returns', *California Management Review*, 45(4), pp. 35–51. Available at: http://www.blendedvalue.org/wp-content/uploads/2004/02/pdf-proposition.pdf (Accessed: 18 December 2017).

Eodice, A. R. (2012) 'Critical Realism', *New Catholic Encyclopedia Supplement 2012-2013*. Gale, a Cengage Company, 1, pp. 325–326. Available at: http://go.galegroup.com/ps/i.do?p=GVRL&u=nene_uk&id=GALE%7CCX2762500127&v=2.1&it=r&sid=exlibris (Accessed: 6 January 2018).

Esteves, A. M., Franks, D. and Vanclay, F. (2012) 'Social impact assessment: the state of the art', *Impact Assessment and Project Appraisal*. TF , 30(1), pp. 34–42. doi: 10.1080/14615517.2012.660356.

European Commission (2004) *Why do we need to take care of our birds ?* Available at: http://ec.europa.eu/environment/nature/legislation/birdsdirective/docs/why_take_care_of_birds.pdf.

European Commission (2018) *Lead - European Commission (Food Safety)*. Available at: https://ec.europa.eu/food/safety/chemical_safety/contaminants/catalogue/lead_en (Accessed: 9 April 2018).

EVPA (2015) 'A practical guide to measure impact'. Available at: http://www.ietp.com/en/content/practical-guide-measure-impact (Accessed: 12 January 2018).

Ewald, J. A. *et al.* (2010) 'The effect of agri-environment schemes on grey partridges at the farm level in England', *Agriculture, Ecosystems & Environment*. Elsevier, 138(1–2), pp. 55–63. doi: 10.1016/J.AGEE.2010.03.018.

Ewald, J. A., Potts, G. R. and Aebischer, N. J. (2012) 'Restoration of a wild grey partridge shoot: a major development in the Sussex study, UK', *Animal Biodiversity and Conservation*, 352. Available at: http://abc.museucienciesjournals.cat/files/ABC_35-2_pp_363-369.pdf (Accessed: 19 December 2017).

Field, A. (2012) *Discovering Statistics Using SPSS Statistics*. 4th edn. London: Sage Publications.

Fleetwood, S. (2013) 'What is (and what isn´t) Critical Realism?' Bristol: Bristol Business School.

Fletcher, A. J. (2017) 'Applying critical realism in qualitative research: methodology meets method', *International Journal of Social Research Methodology*. Routledge, 20(2), pp. 181–194. doi: 10.1080/13645579.2016.1144401.

Fletcher, K., Newborn, D. and Baines, D. (2014) 'Game management in the UK uplands: a review of the effects of management on other wildlife and ecosystem services', in *Ecology and Conservation of Birds in Upland and Alpine Habitats*, pp. 1–4. Available at: http://www.bou.org.uk/bouproc--- (Accessed: 19 December 2017).

Food Standards Agency (FSA) (2015) *Advice to frequent eaters of game shot with lead | Food Standards Agency*. Available at: https://www.food.gov.uk/science/advice-to-frequent-eaters-of-game-shot-with-lead (Accessed: 9 April 2018).

Forgrave, A. (2019) 'Calls for Welsh pheasant shooting ban to be extended to university campus', *North Wales Live (Online)*, 1 March. Available at: https://www.dailypost.co.uk/news/north-wales-news/calls-welsh-pheasant-shooting-ban-15906849.

Franks, D. M., Brereton, D. and Moran, C. J. (2010) 'Managing the cumulative impacts of coal mining on regional communities and environments in Australia', *Impact Assessment and Project Appraisal*, 28(4), pp. 299–312. doi: 10.3152/146155110X12838715793129.

Frühauf, A. *et al.* (2016) 'Acute effects of outdoor physical activity on affect and psychological well-being in depressed patients – A preliminary study', *Mental Health and Physical Activity*. Elsevier, 10, pp. 4–9. doi: 10.1016/J.MHPA.2016.02.002.

Fugate, M., Kinicki, A. J. and Ashforth, B. E. (2004) 'Employability: A psycho-social construct, its dimensions, and applications', *Journal of Vocational Behavior*. Academic Press, 65(1), pp. 14–38. doi: 10.1016/J.JVB.2003.10.005.

Fujiwara, D., Oroyemi, P. and Mckinnon, E. (2013) *Wellbeing and civil society Estimating the value of volunteering using subjective wellbeing data*. Available at: http://research.dwp.gov.uk/asd/asd5/rrs-index.asp (Accessed: 30 January 2020).

Full Fact (2016) *Does mental ill health cost £105 billion a year? - Full Fact*. Available at: https://fullfact.org/health/does-mental-ill-health-cost-105-billion-year/ (Accessed: 18 June 2018).

Furness, H. (2017) 'Prince Harry: I sought counselling after 20 years of not thinking about the death of my mother, Diana, and two years of total chaos in my life', *The Telegraph (online)*. Available at: https://www.telegraph.co.uk/news/2017/04/16/prince-harry-sought-counselling-death-mother-led-two-years-total/ (Accessed: 18 June 2018).

Gale, C. R., Westbury, L. and Cooper, C. (2018) 'Social isolation and loneliness as risk factors for the progression of frailty: The English Longitudinal Study of Ageing', *Age and Ageing*. Oxford University Press, 47(3), pp. 392–397. doi: 10.1093/ageing/afx188.

Game and Wildlife Conservation Trust (2018) *Game - Game and Wildlife Conservation Trust*. Available at: https://www.gwct.org.uk/game/ (Accessed: 7 March 2018).

Game and Wildlife Conservation Trust (GWCT) (2018) *Why are the RSPB trying to veto the Hen Harrier plan? - Game and Wildlife Conservation Trust*. Available at: https://www.gwct.org.uk/blogs/news/2018/may/why-are-the-rspb-trying-to-veto-the-hen-harrier-plan/ (Accessed: 18 June 2018).

Game and Wildlife Conservation Trust (GWCT) (2020a) *Guides and Factsheets - Game and Wildlife Conservation Trust*. Available at: https://www.gwct.org.uk/advisory/guides/ (Accessed: 26 June 2020).

Game and Wildlife Conservation Trust (GWCT) (2020b) 'Moorland Conservationists: The Untold Story – Game & Wildlife Conservation Trust'. Available at: https://www.gwctshop.org.uk/products/moorland-conservationists-the-untold-story (Accessed: 26 June 2020).

Game and Wildlife Conservation Trust (GWCT) (2020c) 'Moving away from lead shot – Q & A'. Available at: https://www.gwct.org.uk/media/1094670/Moving-away-from-lead-shot-QA.PDF.

Game and Wildlife Conservation Trust (GWCT) (2020d) *Our research into the consequences of pheasant releasing - Game and Wildlife Conservation Trust*. Available at: https://www.gwct.org.uk/policy/position-statements/our-research-into-the-consequences-of-pheasant-releasing/ (Accessed: 11 June 2020).

Game and Wildlife Conservation Trust (GWCT) (2020e) *THE CODE OF GOOD SHOOTING PRACTICE*.

Garnier Ruffer, J. (1978) *The Big Shots, Edwardian Shooting Parties*. 3rd edn. New York: Debrett's Peerage Limited.

Ge, L. *et al.* (2017) 'Social isolation, loneliness and their relationships with depressive symptoms: A population-based study', *PLoS ONE*. Public Library of Science, 12(8), pp. e0182145–e0182145. doi: 10.1371/journal.pone.0182145.

Gethings, O. J. *et al.* (2016) 'Body condition is negatively associated with infection with Syngamus trachea in the ring-necked pheasant (Phasianus colchicus)', *Veterinary Parasitology*. Elsevier B.V., 228, pp. 1–5. doi: 10.1016/j.vetpar.2016.08.007.

Gethings, O. J., Sage, R. B. and Leather, S. R. (2015) 'Spatial distribution of infectious stages of the nematode Syngamus trachea within pheasant (Phasianus colchicus) release pens on estates in the South West of England: Potential density dependence?', *Veterinary Parasitology*. Elsevier, 212(3–4), pp. 267–274. doi: 10.1016/j.vetpar.2015.07.016.

Glaister, D. (2015) 'RSPB says "progressive" pheasant shoots can be good for wildlife | Environment | The Guardian', *The Guardian*, 29 March. Available at: https://www.theguardian.com/environment/2015/mar/29/rspb-backs-pheasant-shoots (Accessed: 12 April 2018).

Gliem, J. A. and Gliem, R. R. (2003) 'Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales', in *2003 Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, pp. 82–88. Available at: https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem & Gliem.pdf?s..

(Accessed: 11 September 2019).

Grant, Murray C *et al.* (2012a) *The costs and benefits of grouse moor management to biodiversity and aspects of the wider environment : a review. RSPB Research Report Number 43*. Available at: http://rackspace-web2.rspb.org.uk/Images/grant_mallord_stephen_thompson_2012_tcm9-318973.pdf (Accessed: 9 April 2018).

Grant, Murray C *et al.* (2012b) *The costs and benefits of grouse moor management to biodiversity and aspects of the wider environment: a review RSPB Research Report Number 43*.

Greenaway, K. H. *et al.* (2015) 'From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being.', *Journal of Personality and Social Psychology*, 109(1), pp. 53–74. doi: 10.1037/pspi0000019.

Griffin, J. (1985) *The Satisfaction with Life Scale*, *Journal of Personality Assessment*.

Grouse Moor Management Review Group (2019) *Report to the Scottish Government*. Available at: https://www.gov.scot/publications/grouse-moor-management-group-report-scottish-government/.

Guns On Pegs (2018) *What is a big bag?* Available at: https://www.gunsonpegs.com/articles/shooting-talk/what-is-a-big-bag (Accessed: 15 June 2020).

Hall, A. (2014) 'Life Satisfaction, Concept of.', in *Encyclopedia of Quality of Life and Well-Being Research.* Dordrecht: Springer, p. 157.

Han, S. *et al.* (2016) 'Volunteering and Cognitive Well-Being In Later Life: Evidence From The Health and Retirement Study', *GERONTOLOGIST*. Oxford University Press, 56(3), p. 378. doi: 10.1093/geront/gnw162.1523.

Haralambos, M. and Holborn, M. (1995) *Sociology: Themes and Perspectives*. 4th edn. London: Collins Education. Available at: http://resourcelists.ntu.ac.uk/items/ECDA0368-3E60-438C-83AD-2DE56B1CD0AC.html (Accessed: 14 May 2018).

Harlock, J. (2013) *Impact measurement practice in the UK third sector: A review of emerging*

evidence. TSRC Working Paper 106 (Birmingham, University of Birmingham). Available at: http://epapers.bham.ac.uk/1800/1/WP106_Impact_measurement_practice_in_the_UK_third_sector_-_Harlock%2C_July_2013.pdf.

Harvard Men's Health Watch (2009) 'Walking your way to better health, from the Harvard Men's Health Watch - Harvard Health', *Harvard Health Publishing*. Available at: https://www.health.harvard.edu/press_releases/walking-your-way-to-better-health (Accessed: 20 June 2018).

Hasan, M. N. (2016) 'Positivism: to what extent does it aid our understanding of the contemporary social world?', *Quality & Quantity*. Springer Netherlands, 50(1), pp. 317–325. doi: 10.1007/s11135-014-0150-4.

Haslam, C. *et al.* (2008) 'Maintaining group memberships: Social identity continuity predicts well-being after stroke', *Neuropsychological Rehabilitation*, 18(5–6), pp. 671–691. doi: 10.1080/09602010701643449.

Haslam, S. A. *et al.* (2009) 'Social Identity, Health and Well-Being: An Emerging Agenda for Applied Psychology', *Applied Psychology*, 58(1), pp. 1–23. doi: 10.1111/j.1464-0597.2008.00379.x.

Hatton-Yeo, A. and Batty, C. (2011) 'Evaluating the contribution of intergenerational practice to achieving social cohesion', in *Promoting social cohesionImplications for policy and evaluation*. Policy Press, pp. 243–258. doi: 10.1332/policypress/9781847426956.003.0013.

Hazenberg, R. (2012) *Work integration social enterprise: a NEET idea*, *Doctoral dissertation*.

Hazenberg, R. (2018) *Northampton Leisure Trust - Social Impact Report*.

Hazenberg, R. and Bajwa-Patel, M. (2014) *A review of the impact of waterway restoration*. Northampton. Available at: https://canalrivertrust.org.uk/media/library/6337.pdf (Accessed: 31 January 2018).

Hazenberg, R., Bajwa-Patel, M. and Giroletti, T. (2018) 'The role of stakeholder networks in shaping the development of social enterprise ecosystems', in *Chapter 8 EFESEIIS Academic Volume (England)*.

Hazenberg, R. and Karlidag-Dennis, E. (2018) *Social Impact Bonds & Social Prescribing : A*

research review.

Hazenberg, R., Seddon, F. and Denny, S. (2015) 'Programme recruitment and evaluation: the effect of an employability enhancement programme on the general self-efficacy levels of unemployed graduates', *Journal of Education and Work*, 28(3), pp. 273–300. doi: 10.1080/13639080.2014.900165.

Hehenberger, L., Harling, A.-M. and Scholten, P. (2014) *GECES Sub-group on Impact Measurement: Proposed Approaches to Social Impact Measurement in the European Commission legislation and practice relating to: EuSEFs and the EaSI*. Brussels. Available at: http://ec.europa.eu/internal_market/social_business/docs/expert-group/social_impact/140605-sub-group-report_en.pdf (Accessed: 19 December 2017).

Hehenberger, L., Harling, A. and Scholten, P. (2015) 'EVPA: A practical guide to measuring and managing impact - Second Edition'. Available at: https://www.social-enterprise.nl/files/1414/4197/9814/EVPA_Measuring_and_managing_Impact.pdf.

Heley, J. (2010) 'The new squirearchy and emergent cultures of the new middle classes in rural areas', *Journal of Rural Studies*. Pergamon, 26(4), pp. 321–331. doi: 10.1016/J.JRURSTUD.2010.03.002.

Heley, J. (2011) 'On the Potential of Being a Village Boy: An Argument for Local Rural Ethnography', *Sociologia Ruralis*. Wiley/Blackwell (10.1111), 51(3), pp. 219–237. doi: 10.1111/j.1467-9523.2011.00534.x.

Hillyard, S. and Burridge, J. (2012) 'Shotguns and Firearms in the UK: A Call for a Distinctively Sociological Contribution to the Debate', *Sociology*, 46(3), pp. 395–410. doi: 10.1177/0038038511428753.

Hillyard, S. and Marvin, G. (2017) *Natural Resources Wales Consultation Evaluation Report*. Available at: https://naturalresources.wales/media/683949/paper-4-external-assurance-report-hillyard-and-marvin-2017.pdf (Accessed: 6 February 2018).

Hinder, S. and Greenhalgh, T. (2012) '"This does my head in": Ethnographic study of self-management by people with diabetes.', *BMC health services research*. BioMed Central, 12, p. 83. doi: 10.1186/1472-6963-12-83.

HM Government (1831) *Game Act 1831*. Statute Law Database. Available at: http://www.legislation.gov.uk/ukpga/Will4/1-2/32 (Accessed: 27 March 2018).

Hoddinott, S. N. and Bass, M. J. (1986) 'The dillman total design survey method.', *Canadian family physician Medecin de famille canadien*. College of Family Physicians of Canada, 32, pp. 2366–8. Available at: http://www.ncbi.nlm.nih.gov/pubmed/21267217 (Accessed: 2 March 2018).

Holmes, L. (2004) 'Guidance for Ensuring Confidentiality and the Protection of Data', in Becker, S. and Bryman, A. (eds) *Understanding Research for Social Policy and Practice: Theme, Methods and Approaches*. Bristol: Policy Press.

Holt-Lunstad, J. *et al.* (2015) 'Loneliness and Social Isolation as Risk Factors for Mortality', *Perspectives on Psychological Science*, 10(2), pp. 227–237. doi: 10.1177/1745691614568352.

Hornsby, A. (2012) *The Good Analyst. Impact Measurement & Analysis in the Social-Purpose Universe*. London: Investing for Good.

Hornsby, A. and Blumberg, G. (2013) *The Good Investor. A Book of Best Impact Practice*. London: Investing for Good.

Housing Associations Action Trust (2018) 'UK Social Value Bank Calculator 4.0'. Available at: http://www.hact.org.uk/value-calculator.

Howitt, R. (2011) 'Theoretical Foundations', in Vanclay, F. and Esteves, A. M. (eds) *New directions in social impact assessment : conceptual and methodological advances*. Edward Elgar, pp. 78–95.

Humphreys, R. (2010) 'Game birds: The ethics of shooting birds for sport', *Sport, Ethics and Philosophy*. Routledge, 4(1), pp. 52–65. doi: 10.1080/17511320903264198.

Hunter, G. (2017) 'NEMUS Winter Newsletter: Director's Grumblings', *NEMUS*. Available at: http://mailchi.mp/26317445bb4f/lincolnshire-community-foundation-newsletter-3274017.

Husk, K. *et al.* (2016) 'What approaches to social prescribing work, for whom, and in what circumstances? A protocol for a realist review', *Systematic Reviews*, 5. doi: 10.1186/s13643-016-0269-6.

Hutchinson, M. (2011) *Pheasant Shooting: Bad for Pheasants, Worse for Humans?*, *Practical*

Ethics, University of Oxford. Available at: http://blog.practicalethics.ox.ac.uk/2011/10/pheasant-shooting-bad-for-pheasants-worse-for-humans/ (Accessed: 26 June 2020).

International Association for Impact Assessment (IAIA) (2018) *IAIA: Social Impact Assessment*. Available at: http://www.iaia.org/wiki-details.php?ID=23 (Accessed: 18 December 2017).

International Association for Impact Assessment (IAIA) (no date) *Social Impact Assessment, 2018*. Available at: http://www.iaia.org/wiki-details.php?ID=23 (Accessed: 2 April 2018).

Jamshed, S. (2014) 'Qualitative research method-interviewing and observation.', *Journal of basic and clinical pharmacy*. Wolters Kluwer -- Medknow Publications, 5(4), pp. 87–8. doi: 10.4103/0976-0105.141942.

Jenkins, R. (2008) *Social Identity*. 3rd Editio. Routledge. Available at: https://www.dawsonera.com/abstract/9780203927410.

Jetten, J. *et al.* (2017) 'Advancing the social identity approach to health and well-being: Progressing the social cure research agenda', *European Journal of Social Psychology*. Wiley-Blackwell, 47(7), pp. 789–802. doi: 10.1002/ejsp.2333.

Johnson, D. R. and Creech, J. C. (1983) 'Ordinal measures in multiple indicator models: a simulation study of categorization error.', *American Sociological Review*, 48(3), pp. 398–407. doi: 10.2307/2095231.

Jones, D. S. D. (2015) *Game Shooting, An Illustrated History*. 1st edn. Shrewsbury: Quiller.

Kagan, C. and Duggan, K. (2011) 'Creating Community Cohesion: The Power of Using Innovative Methods to Facilitate Engagement and Genuine Partnership', *Social Policy and Society*, 10(03), pp. 393–404. doi: 10.1017/S147474641100011X.

Kanstrup, N. *et al.* (2016) 'The transition to non-lead rifle ammunition in Denmark: National obligations and policy considerations.', *Ambio*. Springer, 45(5), pp. 621–8. doi: 10.1007/s13280-016-0780-y.

Kearns, A. and Forrest, R. (2000) 'Social Cohesion and Multilevel Urban Governance', *Urban Studies*, 37(5–6), pp. 995–1017. doi: 10.1080/00420980050011208.

Kerr, J. *et al.* (2012) 'The relationship between outdoor activity and health in older adults using GPS', *International Journal of Environmental Research and Public Health*, 9(12), pp. 4615–4625. doi: 10.3390/ijerph9124615.

Kim, H.-Y. (2013) 'Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis', *Restorative Dentistry & Endodontics*. The Korean Academy of Conservative Dentistry (KAMJE), 38(1), p. 52. doi: 10.5395/rde.2013.38.1.52.

Kirchherr, J. and Charles, K. J. (2016) 'The social impacts of dams: A new framework for scholarly analysis', *Environmental Impact Assessment Review*. Elsevier, 60, pp. 99–114. doi: 10.1016/j.eiar.2016.02.005.

Klein, C. (2013) 'Social Capital or Social Cohesion: What Matters For Subjective Well-Being?', *Social Indicators Research*. Springer Netherlands, 110(3), pp. 891–911. doi: 10.1007/s11205-011-9963-x.

Knapp, M. (2015) 'Reflecting on "An economic model of social capital and health"', *Health Economics, Policy and Law*, 10(4), pp. 411–417. doi: 10.1017/S1744133115000146.

Knapton, S. (2017) '"Glorious 12th" protests in London as Chris Packham says bloodsports are as outdated as slavery', *The Telegraph (online)*, 12 August. Available at: https://www.telegraph.co.uk/news/2017/08/12/glorious-12th-protests-london-chris-packham-says-bloodsports/.

Langholm Moor Project Demonstration Board (2019) *Managing Moorland for Birds of Prey and Red Grouse: The Final Report of the Langhaolm Moor Demonstration Project Partners 2008-2017*.

Larsen, C. A. (2014) *Social Cohesion: Definition, measurement and developments*. Aalborg, Denmark. Available at: www.ccws.dk (Accessed: 8 June 2020).

Lavrakas, P. (2008) 'Recoded Variable', in *Encyclopedia of Survey Research Methods*. Thousand Oaks, CA: Sage Publications, Inc. doi: 10.4135/9781412963947.n450.

Layton, M. (2018) *Game meat sales are on the rise shows an independent report*. Available at: http://www.shootinguk.co.uk/news/game-sales-rise-97821 (Accessed: 11 April 2018).

Lead Ammunition Group (2015) *Lead Ammunition, Wildlife and Human Health*. Available at:

http://www.leadammunitiongroup.org.uk/wp-content/uploads/2015/06/LAG-Report-June-2015-without-Appendices.pdf (Accessed: 10 April 2018).

League Against Cruel Sports (no date) *Shooting*. Available at: https://www.league.org.uk/shooting (Accessed: 1 June 2020).

LeCompte, M. D. and Schensul, J. J. (2010) *Designing and Conducting Ethnographic Research: an introduction*. 2nd edn. Plymouth: AltaMira Press.

Lee, A. C. K. and Maheswaran, R. (2011) 'The health benefits of urban green spaces: a review of the evidence', *Journal of Public Health*, 33(2), pp. 212–222. doi: 10.1093/pubmed/fdq068.

Lee, S. P., Cornwell, T. B. and Babiak, K. (2013) 'Developing an Instrument to Measure the Social Impact of Sport: Social Capital, Collective Identities, Health Literacy, Well-Being and Human Capital', *Journal of Sport Management*, 27(1), pp. 24–42. doi: 10.1123/jsm.27.1.24.

Leong, K. S. and Wilding, J. P. (1999) 'Obesity and diabetes', *Best Practice & Research Clinical Endocrinology & Metabolism*. Baillière Tindall, 13(2), pp. 221–237. doi: 10.1053/BEEM.1999.0017.

Lester, P. (2014) 'Study adds fuel to the fire', *Country Life*, pp. 24–25.

Lin, N. (2008) 'Building a Network Theory of Social Capital', *Social Capital Theory and Research*, 22(1), pp. 3–29. doi: 10.1108/14691930410550381.

Local Government Association (2002) 'Guidance on community cohesion'. Available at: http://www.tedcantle.co.uk/publications/006 Guidance on Community Cohesion LGA 2002.pdf (Accessed: 19 December 2017).

Local Government Association (2017) *Health and wellbeing in rural areas*.

Lombardo, P. *et al.* (2018) 'The fundamental association between mental health and life satisfaction: Results from successive waves of a Canadian national survey', *BMC Public Health*. BioMed Central Ltd., 18(1), p. 342. doi: 10.1186/s12889-018-5235-x.

Loureiro, A., Veloso, S. and Veloso, S. (2014) 'Outdoor Fitness, Wellness and Connectivity with Nature', *Psico*, 45(3), p. 299. doi: 10.15448/1980-8623.2014.3.19180.

Ludwig, S. C. *et al.* (2017) 'Long-term trends in abundance and breeding success of red

grouse and hen harriers in relation to changing management of a Scottish grouse moor', *Wildlife Biology*, 2017(SP1), p. wlb.00246. doi: 10.2981/wlb.00246.

Maas, J. *et al.* (2006) 'Green space, urbanity, and health: how strong is the relation?', *Journal of epidemiology and community health*. BMJ Publishing Group Ltd, 60(7), pp. 587–92. doi: 10.1136/jech.2005.043125.

Maccagnan, A. *et al.* (2019) 'Wellbeing and Society: Towards Quantification of the Co-benefits of Wellbeing', *Soc Indic Res*, 141, pp. 217–243. doi: 10.1007/s11205-017-1826-7.

Martin, J. (2011) 'The Transformation of Lowland Game Shooting in England and Wales since the Second World War: The Supply Side Revolution', *Rural History*, 22(2), pp. 207–226. doi: 10.1017/S0956793311000033.

Marvin, G. (2006) 'Wild killing: Contesting the animal in hunting', *Killing Animals*, pp. 10–29.

McAuley, E. *et al.* (2000) 'Social relations, physical activity, and well-being in older adults', *Preventive Medicine*. Academic Press Inc., 31(5), pp. 608–617. doi: 10.1006/pmed.2000.0740.

Mccrone, P. *et al.* (2008) *Paying the Price: the cost of mental health care in England in 2026 - McCrone, Dhanasiri, Patel, Knapp, Lawton-Smith - The King's Fund, May 2008*. Available at: www.kingsfund.org.uk/publications (Accessed: 15 January 2020).

McCrum-Gardner, E. (2008) 'Which is the correct statistical test to use?', *The British journal of oral & maxillofacial surgery*, 46(1), pp. 38–41. doi: 10.1016/j.bjoms.2007.09.002.

Mcdaid, D., Bauer, A. and Park, A.-L. (2017) *Making the economic case for investing in actions to prevent and/or tackle loneliness: a systematic review A briefing paper*. Available at: http://www.lse.ac.uk/business-and-consultancy/consulting/assets/documents/making-the-economic-case-for-investing-in-actions-to-prevent-and-or-tackle-loneliness-a-systematic-review.pdf (Accessed: 24 July 2018).

McHugh, N. *et al.* (2013) 'Social impact bonds: a wolf in sheep's clothing?', *Journal of Poverty and Social Justice*, 21(3), pp. 247–257. doi: 10.1332/204674313X13812372137921.

McKnight, P. E. and Kashdan, T. B. (2009) 'Purpose in Life as a System That Creates and Sustains Health and Well-Being: An Integrative, Testable Theory', *Review of General*

Psychology, 13(3), pp. 242–251. doi: 10.1037/a0017152.

McLeod, J. (1994) *Doing Counselling Research*. Thousand Oaks, CA: Sage Publications.

McLeod, S. (2008) *Social Identity Theory | Simply Psychology*. Available at: https://www.simplypsychology.org/social-identity-theory.html (Accessed: 18 April 2018).

McLoughlin, J. *et al.* (2009) 'A strategic approach to social impact measurement of social enterprises', *Social Enterprise Journal*. Emerald Group Publishing Limited, 5(2), pp. 154–178. doi: 10.1108/17508610910981734.

Merz, F. (2011) 'Max Weber's Theory of Bureaucracy & its Negative Consequences'. Chemnitz: GRIN Publishing, p. 20.

Milbourne, P. (2003) 'Hunting ruralities: nature, society and culture in "hunt countries" of England and Wales', *Journal of Rural Studies*. Pergamon, 19(2), pp. 157–171. doi: 10.1016/S0743-0167(02)00054-2.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative Data Analysis*. Second. Thousand Oaks, California: SAGE Publications.

Milmo, C. (2015) 'Secret photos of dozens of pheasants dumped into a pit expose "myths" of hunting industry | The Independent', *The Independent*. Available at: http://www.independent.co.uk/environment/secret-photos-released-of-dozens-of-pheasants-dumped-into-a-pit-victims-of-uk-shooting-industry-10045528.html (Accessed: 6 February 2018).

Mingers, J. (2006) 'Philosophical Foundations: Critical Realism', in *Realising Systems Thinking: Knowledge and Action in Management Science*. Springer US, pp. 11–31. doi: 10.1007/0-387-29841-X_2.

Ministry of Justice (2015) *Social Impact Bond pilot at HMP Peterborough: final report - GOV.UK*. Available at: https://www.gov.uk/government/publications/social-impact-bond-pilot-at-hmp-peterborough-final-report (Accessed: 12 January 2018).

Mishra, P. *et al.* (2019) 'Descriptive statistics and normality tests for statistical data', *Annals of Cardiac Anaesthesia*. Wolters Kluwer Medknow Publications, 22(1), pp. 67–72. doi: 10.4103/aca.ACA_157_18.

Monk, S. *et al.* (1999) *Finding work in rural areas : barriers and bridges*.

Moore, D. and McCabe, G. P. (1999) *Introduction to the Practice of Statistics*. 3rd edn. New York: W H Freeman.

Morante-Filho, J. C. and Faria, D. (2017) 'An Appraisal of Bird-Mediated Ecological Functions in a Changing World', *Tropical Conservation Science*. SAGE Publications Inc., 10, p. 194008291770333. doi: 10.1177/1940082917703339.

National Health Service (NHS) (2014) 'Five Year Forward VIew'.

National Health Service (NHS) (2017) 'Next Steps on the five year forward view'.

National Health Service (NHS) (2018a) *Foods to avoid in pregnancy - NHS.UK*. Available at: https://www.nhs.uk/conditions/pregnancy-and-baby/foods-to-avoid-pregnant/#meat (Accessed: 9 April 2018).

National Health Service (NHS) (2018b) *NHS England » System change (STPs and ICSs)*. Available at: https://www.england.nhs.uk/systemchange/ (Accessed: 27 April 2018).

National Health Service (NHS) (2018c) *NHS England » View sustainability and transformation partnerships*. Available at: https://www.england.nhs.uk/systemchange/view-stps/ (Accessed: 27 April 2018).

National Health Service (NHS) (2019) *The NHS Long Term Plan*. Available at: www.longtermplan.nhs.uk (Accessed: 29 October 2019).

National Resources Wales (2018a) *Board Paper: Review of the Use of Firearms on Land Managed by NRW*. Available at: https://cdn.naturalresources.wales/media/685941/item-5-nrw-b-b-2818-board_firearms_review_june18.pdf?mode=pad&rnd=131751920360000000.

National Resources Wales (2018b) *Board Paper: Supplementary Consideration: Review of the Use of Firearms on Land Managed by NRW*. Available at: https://cdn.naturalresources.wales/media/686761/review-of-the-use-of-firearms-of-the-nrw-estate.pdf.

National Trust (2015) *Our position on shooting | National Trust*. Available at: https://www.nationaltrust.org.uk/features/our-position-on-shooting (Accessed: 3 April 2018).

Natural Resources Wales (2017) *A review of the use of firearms on land managed by Natural Resources Wales Paper 2 Synthesis of Evidence*. Available at: https://naturalresources.wales/media/683945/paper-2-synthesis-of-evidence.pdf (Accessed: 6 February 2018).

Naylor, C. *et al.* (2012) 'Long-term conditions and mental health The cost of co-morbidities'. Available at: https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/long-term-conditions-mental-health-cost-comorbidities-naylor-feb12.pdf (Accessed: 12 April 2018).

Neumann, J. L. *et al.* (2015) 'Releasing of pheasants for shooting in the UK alters woodland invertebrate communities', *Biological Conservation*, 191, pp. 50–59. doi: 10.1016/j.biocon.2015.06.022.

NHS Health Scotland; University of Warwick; University of Edinburgh. (2007) 'The Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS)'. Available at: http://www.healthscotland.com/uploads/documents/14092-SWEMWBSSept2007.pdf (Accessed: 13 February 2018).

Nicholls, A. (2009) '"We do good things, don't we?": "Blended Value Accounting" in social entrepreneurship', *Accounting, Organizations and Society*. Pergamon, 34(6–7), pp. 755–769. doi: 10.1016/J.AOS.2009.04.008.

Nicholls, A. (2010) 'The Institutionalization of Social Investment: The Interplay of Investment Logics and Investor Rationalities', *Journal of Social Entrepreneurship*. Routledge , 1(1), pp. 70–100. doi: 10.1080/19420671003701257.

Norman, G. (2010) 'Likert scales, levels of measurement and the "laws" of statistics', *Advances in Health Sciences Education*, 15(5), pp. 625–632. doi: 10.1007/s10459-010-9222-y.

North York Moors National Park (2018) *All about heather*. Available at: http://www.northyorkmoors.org.uk/discover/moorland/all-about-heather (Accessed: 9 April 2018).

O'Connor, J. P. *et al.* (2019) 'Intergenerational understandings of personal, social and community assets for health', *Health and Place*. Elsevier Ltd, 57, pp. 218–227. doi:

10.1016/j.healthplace.2019.05.004.

Office For National Statistics (2018a) *Labour Market Profile: Qualification (Jan 2018-Dec 2018)*, *ONS Population Survey*. Available at: https://www.nomisweb.co.uk/reports/lmp/gor/2092957698/report.aspx#tabquals (Accessed: 12 August 2019).

Office For National Statistics (2018b) *Measuring national well-being: domains and measures - Office for National Statistics*. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/measuringnationalwellbeingdomainsandmeasures (Accessed: 19 December 2018).

Office for National Statistics (ONS) (2017a) 'Measuring National Well-being: Domains and Measures - Office for National Statistics'. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/measuringnationalwellbeingdomainsandmeasures (Accessed: 2 April 2018).

Office for National Statistics (ONS) (2017b) *Social capital in the UK - Office for National Statistics*. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/socialcapitalintheuk/may2017 (Accessed: 13 February 2018).

Office for National Statistics (ONS) (2020) 'Estimates of personal well-being from the Annual Population Survey (APS): UK, year ending September 2012 to year ending September 2019'.

Olujoke, Fakoya, A., McCorry, N. K. and Donnelly, M. (2020) 'Loneliness and social isolation interventions for older adults: a scoping review of reviews', *BMC public health*. NLM (Medline), 20(1), p. 129. doi: 10.1186/s12889-020-8251-6.

Onyx, J. (2014) 'A Theoretical Model of Social Impact', *Cosmopolitan Civil Societies Journal*, 6(1), pp. 1837–5391. Available at: http://utsescholarship.lib.uts.edu.au/epress/journals/index.php/mcs (Accessed: 23 April 2018).

Orr, J. M. ;, Sackett, P. R. and Dubois, C. L. Z. (1991) *Outlier Detection and Treatment in I/O Psychology: A Survey*, *Personnel Psychology; Autumn*.

Osborne, J. W. and Overhay, A. (2004) 'The power of outliers (and why researchers should ALWAYS check for them)', *Practical Assessment, Research & Evaluation*, 9(6), pp. 1–8. Available at: https://doaj.org/article/5dde4103b4a7487c8184d567a1ebfe61.

Oxford Dictionary (2018a) *beetle bank | Definition of beetle bank in English by Oxford Dictionaries*. Available at: https://en.oxforddictionaries.com/definition/beetle_bank (Accessed: 11 April 2018).

Oxford Dictionary (2018b) *phenomenalism | Definition of phenomenalism in English by Oxford Dictionaries*. Available at: https://en.oxforddictionaries.com/definition/phenomenalism (Accessed: 10 January 2018).

Oxford Dictionary (2018c) *social capital | Definition of social capital in English by Oxford Dictionaries*. Available at: https://en.oxforddictionaries.com/definition/social_capital (Accessed: 19 April 2018).

Packard, M. D. (2017) 'Where did interpretivism go in the theory of entrepreneurship?', *Journal of Business Venturing*. Elsevier, 32(5), pp. 536–549. doi: 10.1016/J.JBUSVENT.2017.05.004.

Pain, D. J. *et al.* (2010) 'Potential Hazard to Human Health from Exposure to Fragments of Lead Bullets and Shot in the Tissues of Game Animals', *PLoS ONE*. Edited by A. Iwaniuk. Public Library of Science, 5(4), p. e10315. doi: 10.1371/journal.pone.0010315.

Paine, A. E., Mckay, S. and Moro, D. (2013) *Does volunteering improve employability? Evidence from the British Household Panel Survey*. Available at: https://www.birmingham.ac.uk/generic/tsrc/documents/tsrc/working-papers/working-paper-100.pdf (Accessed: 11 April 2018).

Parkin, F. (1979) *Marx's Theory of History: A Bourgeois Critique*. New York: Columbia University Press.

Paterson-Young, C. *et al.* (2017) 'Developing a social impact measurement framework to enhance outcomes for young people in custody – what to measure?', in *British Criminology Conference*. Available at: http://www.britsoccrim.org/wp-content/uploads/2017/12/Developing-a-social-impact-measurement-framework-.pdf (Accessed: 17 April 2018).

Paterson-Young, C. (2018) *'Inspiring Futures' - How social impact measurement as a for of organisational performance management can enhance outcomes for children and young people in custody*. Univerity of Northampton.

Paterson-Young, C., Hazenberg, R. and Bajwa-Patel, M. (2019) *The Social Impact of Custody on Young People in the Criminal Justice System*, *The Social Impact of Custody on Young People in the Criminal Justice System*. doi: 10.1007/978-3-030-18422-3.

Peasgood, T. *et al.* (2014) *A Conceptual Comparison of Well-Being Measures Used in the UK*. Available at: http://www.eepru.org.uk/wp-content/uploads/2017/11/eepru-report-a-conceptual-comparison-of-well-being-measures-sept-2014-026.pdf (Accessed: 15 May 2018).

Pevalin, D. J. and Rose, D. (2003) 'Social capital for health: Investigating the links between social capital and health using the British Household Panel Survey', (January 2003). Available at: papers3://publication/uuid/05ADB49C-6877-48D3-91A7-E05BC5D30CE9.

Pinder, R. *et al.* (2009) 'Exploring perceptions of health and the environment: A qualitative study of Thames Chase Community Forest', *Health & Place*. Pergamon, 15(1), pp. 349–356. doi: 10.1016/J.HEALTHPLACE.2008.06.006.

Pollard, J. (2010) 'No sweat… encouraging reluctant men to exercise', *Practice Nurse*, 39(10), pp. 16–18. Available at: http://web.a.ebscohost.com/ehost/detail/detail?vid=0&sid=f7b3fa1d-7c9f-47eb-aacf-67927de53704%40sessionmgr4006&bdata=JkF1dGhUeXBlPWNvb2tpZSxpcCxzaGliJnNpdGU9ZWhvc3QtbGl2ZQ%3D%3D#AN=51457502&db=buh (Accessed: 19 June 2018).

Poortinga, W. (2006) 'Social relations or social capital? Individual and community health effects of bonding social capital', *Social Science and Medicine*. Pergamon, 63(1), pp. 255–270. doi: 10.1016/j.socscimed.2005.11.039.

Porpora, D. V. (2015) *Reconstructing sociology : the critical realist approach*. Cambridge: Cambridge University Press.

Portes, A. (1998) 'Social Capital: Its Origins and Applications in Modern Sociology', *Annual Review of Sociology*, 24(1), pp. 1–24. doi: 10.1146/annurev.soc.24.1.1.

Press Association (2014) 'Cost of obesity "greater than war, violence and terrorism" - Telegraph', *The Telegraph (online)*, 20 November. Available at: https://www.telegraph.co.uk/news/health/news/11242009/Cost-of-obesity-greater-than-war-violence-and-terrorism.html (Accessed: 13 June 2018).

Pretty, J. *et al.* (2005) *A countryside for health and well-being: the physical and mental health benefits of green exercise. Report for the Countryside Recreation Network*.

Pretty, Jules *et al.* (2005) 'The mental and physical health outcomes of green exercise', *International Journal of Environmental Health Research*, 15(5), pp. 319–337. doi: 10.1080/09603120500155963.

Pringle, H. *et al.* (2019) 'Associations between gamebird releases and generalist predators', *Journal of Applied Ecology*. Edited by A. Smith. Blackwell Publishing Ltd, 56(8), pp. 1365-2664.13451. doi: 10.1111/1365-2664.13451.

Public and Corporate Economic Consultants (PACEC) (2012) *The Role of Game Shooting in Exmoor Final Report*. Available at: www.pacec.co.uk (Accessed: 5 February 2018).

Public and Corporate Economic Consultants (PACEC) (2014a) *The Value of Shooting: The economic, environmental, and social benefits of shooting sports in the UK*.

Public and Corporate Economic Consultants (PACEC) (2014b) *The Value of Shooting (Summary report)*.

Public Health England (PHE) (2016) *Health matters: getting every adult active every day*. Available at: https://www.gov.uk/government/publications/health-matters-getting-every-adult-active-every-day/health-matters-getting-every-adult-active-every-day (Accessed: 10 June 2020).

Putnam, R. D. (2000) *Bowling Alone. The Collapse and Revival of American Community*. New York: Simon & Schuster.

Quy, R. (2010) 'Review of evidence concerning the contamination of wildlife and the environment arising from the use of lead ammunition'. Available at: http://www.leadammunitiongroup.org.uk/wp-content/uploads/2015/07/Lead_Shot_Review_of_evidence_report.pdf (Accessed: 10 April

2018).

Räikkönen, M. *et al.* (2016) 'A framework for assessing the social and economic impact of sustainable investments', *Management and Production Engineering Review*. De Gruyter Open, 7(3), pp. 79–86. doi: 10.1515/mper-2016-0027.

Rampersad, G. and Troshani, I. (2013) 'High-speed broadband: assessing its social impact', *Industrial Management & Data Systems*. Emerald Group Publishing Limited, 113(4), pp. 541–557. doi: 10.1108/02635571311322784.

Rao, V. (2002) 'Experiments in "Participatory Econometrics": Improving the Connection between the Economic Analysis and the Real World', *Economic and Political Weekly*, 37(20), pp. 1887–1889. doi: 10.2307/4412126.

Rattle, R. and Kwiatkowski, R. (2003) 'Integrating health and social impact assessment', in Becker, H A; Vanclay, F. (ed.) *The international handbook of social impact assessment,*. Cheltenham: Edward Elgar, pp. 92–107.

Reynolds, S. . *et al.* (2017) 'Effects of cover crops on phosphatase activity in a clay arable soil in the UK', *Aspects of Applied Biology*, 136, pp. 215–220. Available at: https://www.gwct.org.uk/research/scientific-publications/2017/reynolds2017/ (Accessed: 19 December 2017).

Rieger, K. L. (2019) 'Discriminating among grounded theory approaches', *Nursing Inquiry*. Blackwell Publishing Ltd, 26(1), p. e12261. doi: 10.1111/nin.12261.

Robertson, G. S. *et al.* (2017) 'Does rotational heather burning increase red grouse abundance and breeding success on moors in northern England?', *Wildlife Biology*. Nordic Board for Wildlife Research , p. wlb.00227. doi: 10.2981/wlb.00227.

Robertson, P. A. *et al.* (2017) 'Pheasant release in Great Britain: long-term and large-scale changes in the survival of a managed bird', *European Journal of Wildlife Research*. Springer Verlag, 63(6). doi: 10.1007/s10344-017-1157-7.

Robinson, D. (2005) 'The Search for Community Cohesion: Key Themes and Dominant Concepts of the Public Policy Agenda', *Urban Studies*. Sage PublicationsSage UK: London, England, 42(8), pp. 1411–1427. doi: 10.1080/00420980500150755.

Rossi, J. S. (1990) 'Statistical power of psychological research: What have we gained in 20 years?', *Journal of Consulting and Clinical Psychology*. American Psychological Association (APA), 58(5), pp. 646–656. doi: 10.1037/0022-006x.58.5.646.

Royal Society for the Prevention of Cruelty to Animals (RSPCA) (2014) 'RSPCA policies on animal welfare'.

Royal Society for the Protection of Birds (RSPB) (2017) *Trustees' report and accounts*.

Royal Society for the Protection of Birds (RSPB) (2018a) *Grouse Shooting | Agriculture and Land-Use - The RSPB*. Available at: https://www.rspb.org.uk/our-work/our-positions-and-casework/our-positions/agriculture-and-land-use/farming-land-use-and-nature/uplands/grouse-shooting (Accessed: 27 April 2018).

Royal Society for the Protection of Birds (RSPB) (2018b) *Royal Society for the Protection of Birds (RSPB)*. Available at: www.rspb.org.uk.

Ruane, J. M. (2015) *Introducing social research methods : essentials for getting the edge*. ProQuest Ebook Central: John Wiley * Sons. Available at: https://ebookcentral.proquest.com/lib/northampton/detail.action?docID=4187341. (Accessed: 3 September 2018).

Russell, R. V. (1987) 'The importance of recreation satisfaction and activity participation to the life satisfaction of age-segregated retirees', *Journal of Leisure Research*. Routledge, 19(4), pp. 273–283. doi: 10.1080/00222216.1987.11969698.

Ryan, R. M. *et al.* (2010) 'Vitalizing effects of being outdoors and in nature', *Journal of Environmental Psychology*, 30(2), pp. 159–168. doi: 10.1016/j.jenvp.2009.10.009.

Sage, R. B. *et al.* (2009) 'The flora and structure of farmland hedges and hedgebanks near to pheasant release pens compared with other hedges', *Biological Conservation*. Elsevier, 142(7), pp. 1362–1369. doi: 10.1016/j.biocon.2009.01.034.

Sage, R. B. *et al.* (2018) 'Predation of released pheasants Phasianus colchicus on lowland farmland in the UK and the effect of predator control', *European Journal of Wildlife Research*. Springer Verlag, 64(2). doi: 10.1007/s10344-018-1174-1.

Sairinen, R. and Kumpulainen, S. (2006) 'Assessing social impacts in urban waterfront

regeneration', *Environmental Impact Assessment Review*. Elsevier, 26(1), pp. 120–135. doi: 10.1016/J.EIAR.2005.05.003.

Sánchez-García, C., Buner, F. D. and Aebischer, N. J. (2015) 'Supplementary winter food for gamebirds through feeders: Which species actually benefit?', *The Journal of Wildlife Management*, 79(5), pp. 832–845. doi: 10.1002/jwmg.889.

Sarracino, F. (2010) 'Social capital and subjective well-being trends: Comparing 11 western European countries', *The Journal of Socio-Economics*. North-Holland, 39(4), pp. 482–517. doi: 10.1016/J.SOCEC.2009.10.010.

Saunders, M. N. K. *et al.* (2009) 'Understanding research philosophy and approaches to theory development', in Saunders, M. N. K., Lewis, P., and Thornhill, A. (eds) *Research Methods for Business Students. Harlow: Pearson Education*. 5th edn. Harlow.

Savills (2017) 'Savills Shoot Benchmarking Survey'. Available at: https://www.gwct.org.uk/media/771424/ShootBenchmarkingSurvey-final.pdf (Accessed: 29 May 2018).

Sayer, R. A. (2010) *Method in social science : a realist approach*. 2nd edn. London : Routledge.

Schwarzer, R. (2014) 'Documentation of the General Self-Efficacy Scale Everything you wanted to know about the General Self-Efficacy Scale but were afraid to ask'. Available at: http://userpage.fu-berlin.de/~health/selfscal.htm (Accessed: 20 February 2018).

Schwazer, R. and Jerusalem, M. (1995) 'Generalized Self-Efficacy scale', in Weinman, J., Wright, S., and Johnston, M. (eds) *Measures in health psychology: A user's portfolio. Causal and control beliefs*. Windsor, UK: NFER-NELSON, pp. 35–37.

Scott, J. and Marshall, G. (2009) *A Dictionary of Sociology*. Oxford University Press. doi: 10.1093/acref/9780199533008.001.0001.

Scottish Government (2012) *Employability & Skills in Rural Scotland*.

Scottish Government (2017) *Grouse Moor Management Group - gov.scot*. Available at: https://www.gov.scot/groups/grouse-moor-management-group/ (Accessed: 2 June 2020).

Sellars, R. (1916) *Critical Realism: A Study of the Nature and Conditions of Knowledge*.

1969th edn. New York: Russell and Russell.

Shooting Times (2013) 'Lead ban: A world without lead - Shooting UK'. Available at: http://www.shootinguk.co.uk/features/lead-ban-a-world-without-lead-452 (Accessed: 9 April 2018).

Siisiäinen, M. (2003) 'Two Concepts of Social Capital: Bourdieu vs. Putnam', *International journal of contemporary sociology*, 40(2), pp. 183–204. doi: 10.1083/jcb.200611141.

Sirven, N. and Debrand, T. (2012) 'Social capital and health of older Europeans: Causal pathways and health inequalities', *Social Science & Medicine*. Pergamon, 75(7), pp. 1288–1295. doi: 10.1016/J.SOCSCIMED.2012.05.009.

Sloan, L. (2017) 'Who Tweets in the United Kingdom? Profiling the Twitter Population Using the British Social Attitudes Survey 2015', *Social Media + Society*. SAGE Publications Ltd, 3(1), p. 205630511769898. doi: 10.1177/2056305117698981.

Smart, M. (2018) 'Thousands of birds released from North Devon farm by vigilante animal rights group', *North Devon Gazette*. Available at: http://www.northdevongazette.co.uk/news/birds-released-yarnscombe-1-5481590 (Accessed: 20 April 2018).

Starkey, J. (2018a) 'Rogue pheasant shoots under fire for harming conservation efforts', *The Times*, July.

Starkey, J. (2018b) 'Shooting Times takes aim at greed of estates', *The Times*, July.

Stephens, P. (2018) *New hedgerow planted at Scottish Partridge demonstration site*, *Interreg North Sea Region PARTRIDGE*. Available at: http://www.northsearegion.eu/partridge/press-releases/new-hedgerow-planted-at-scottish-partridge-demonstration-site/?utm_source=All+Contacts&utm_campaign=9d66cabf5a-MB230418&utm_medium=email&utm_term=0_dd843c5cb6-9d66cabf5a-22620599&goal=0_dd843c5cb6-9d66 (Accessed: 24 April 2018).

Steptoe, A. and Fancourt, D. (2019) 'Leading a meaningful life at older ages and its relationship with social engagement, prosperity, health, biology, and time use', *Proceedings*

of the National Academy of Sciences of the United States of America. National Academy of Sciences, 116(4), pp. 1207–1212. doi: 10.1073/pnas.1814723116.

Stets, J. E. and Burke, P. J. (2000) 'Identity theory and social identity theory', *Social Psychology Quarterly*, 63(3). Available at: https://search.proquest.com/docview/212780126/fulltextPDF/FED1B7E908934BE1PQ/1?accountid=12834 (Accessed: 15 May 2018).

Strauss, A. L. and Corbin, J. M. (1990) *Basics of qualitative research : grounded theory procedures and techniques*. Sage Publications.

Stryker, S. (1987) 'Identity theory: Developments and extensions', in *Self and identity: Psychosocial perspectives.*

Stryker, S. (2007) 'Identity Theory and Personality Theory: Mutual Relevance', *Journal of Personality*. Wiley/Blackwell (10.1111), 75(6), pp. 1083–1102. doi: 10.1111/j.1467-6494.2007.00468.x.

Stryker, S. and Burke, P. J. (2000) 'The Past , Present , and Future of an Identity Theory', *Social Psychology Quaryterly*, 64(4), pp. 284–297.

Sullivan, G. M. and Artino, A. R. (2013) 'Analyzing and Interpreting Data From Likert-Type Scales', *Journal of Graduate Medical Education*. Journal of Graduate Medical Education, 5(4), pp. 541–542. doi: 10.4300/jgme-5-4-18.

Swift, J. (2015) 'Letter Lead Ammunition Group to Liz Truss MP'. Available at: http://www.leadammunitiongroup.org.uk/wp-content/uploads/2015/09/LAG-Letter-to-SoS-Environment-030615_Redacted.pdf (Accessed: 10 April 2018).

Tajfel, H. and Turner, J. (1986) 'The social identity theory of inter-group behaviour', in Worchel, S. and Austin, W. (eds) *Psychology of intergroup relations*. 2nd edn. Chicago: Nelson Hall, pp. 7–24.

Tajfel, H. and Turner, J. C. (1979) 'An integrative theory of intergroup conflict.', in Austin, W. G. and Worchel, S. (eds) *The social psychology of intergroup relations*. Monterey: Scientific Research Publishing, pp. 33–37. Available at: https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?R

eferenceID=757561 (Accessed: 1 June 2020).

Tauppinen, K. (2011) 'Human impact assessment as a framework for integration', in F. Vanclay, M. A. E. (ed.) *New directions in social impact assessment: conceptual and methodological advances*. Cheltenham: Edward Elgar, pp. 341–354.

The Commission for Rural Communities (2012) *Barriers to education, employment and training for young people in rural areas*. Available at: http://dera.ioe.ac.uk/15199/1/Barriers-to-education-employment-and-training-for-young-people-in-rural-areas.pdf (Accessed: 9 April 2018).

The King's Fund (2013) *Access to green and open spaces and the role of leisure services | The King's Fund*. Available at: https://www.kingsfund.org.uk/projects/improving-publics-health/access-green-and-open-spaces-and-role-leisure-services (Accessed: 2 April 2018).

The Labour Party (2018) *Animal Welfare Plan*. Available at: https://labour.org.uk/issues/animal-welfare-plan/ (Accessed: 3 April 2018).

The Scottish Government (2003) *Let's Make Scotland More Active - A strategy for physical activity*. Available at: http://www.gov.scot/Resource/Doc/47032/0017726.pdf (Accessed: 9 May 2018).

The Telegraph (2002) 'Thousands March for Countryside', *The Telegraph (online)*, 22 September. Available at: https://www.telegraph.co.uk/news/1407980/Thousands-march-for-countryside.html.

Thompson Coon, J. *et al.* (2011) 'Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Wellbeing than Physical Activity Indoors? A Systematic Review', *Environmental Science & Technology*. American Chemical Society, 45(5), pp. 1761–1772. doi: 10.1021/es102947t.

Tomlinson, D. (2017) 'Is this the solution for excess game? - Shooting UK', *Shooting UK*, 20 December. Available at: http://www.shootinguk.co.uk/shooting/game-shooting/is-this-the-solution-for-excess-game-97098 (Accessed: 6 February 2018).

Trinogga, A. *et al.* (2013) 'Are lead-free hunting rifle bullets as effective at killing wildlife as conventional lead bullets? A comparison based on wound size and morphology', *Science of*

The Total Environment. Elsevier, 443, pp. 226–232. doi: 10.1016/J.SCITOTENV.2012.10.084.

Turner, J. C. and Reynolds, K. J. (2012) 'Self-categorization theory', in *Handbook of Theories of Social Psychology*. SAGE Publications Inc., pp. 399–417. doi: 10.4135/9781446249222.n46.

Tzanakis, M. (2013) 'Social capital in Bourdieu's, Coleman's and Putnam's theory: empirical evidence and emergent measurement issues', *Educate*, 13(2), pp. 2–23. Available at: http://educatejournal.org/index.php/educate/article/view/366.

UK Data Service (2017) 'Understanding Society: Waves 1-8, 2009-2017. Survey Number 6614.'

UK Data Service (2018) 'Community Life Survey 2017 - 18. Survey Number 8478.'

UK Data Service (2019) *UK Data Service*. Available at: https://www.ukdataservice.ac.uk/ (Accessed: 30 September 2019).

UK Government (2000) 'Countryside and Rights of Way Act 2000'. Statute Law Database. Available at: http://www.legislation.gov.uk/ukpga/2000/37/contents (Accessed: 14 December 2019).

UK Government (2011) *Localism Act 2011*. Statute Law Database. Available at: http://www.legislation.gov.uk/ukpga/2011/20/resources (Accessed: 17 April 2018).

UK Government (2012) *Public Services (Social Value) Act 2012*. Available at: http://www.legislation.gov.uk/ukpga/2012/3/pdfs/ukpga_20120003_en.pdf.

UK Government (2020a) *Countryside Stewardship - GOV.UK*. Available at: https://www.gov.uk/government/collections/countryside-stewardship (Accessed: 9 June 2020).

UK Government (2020b) *Environmental Stewardship: guidance and forms for agreement holders - GOV.UK*. Available at: https://www.gov.uk/government/collections/environmental-stewardship-guidance-and-forms-for-existing-agreement-holders (Accessed: 9 June 2020).

Umberson, D. and Montez, J. K. (2010) 'Social relationships and health: a flashpoint for health policy.', *Journal of health and social behavior*. NIH Public Access, 51 Suppl(Suppl), pp.

S54-66. doi: 10.1177/0022146510383501.

United Nations (UN) (2017) *Sustainable Development Goals Report 2017*. Available at: https://unstats.un.org/sdgs/report/2017/ (Accessed: 17 April 2018).

United Nations Educational Scientific and Cultural Organisation (UNESCO) (2003) 'Text of the Convention for the Safeguarding of Intangible Cultural Heritage'. Available at: https://ich.unesco.org/en/convention (Accessed: 8 May 2018).

United Nations Educational Scientific and Cultural Organization (UNESCO) (2018) *Social practices, rituals and festive events - intangible heritage - Culture Sector - UNESCO*. Available at: https://ich.unesco.org/en/social-practices-rituals-and-00055 (Accessed: 8 May 2018).

United Nations Public Administration Network (UNPAN) (2006) 'A Comprehensive Guide for Social Impact Assessment'. Available at: http://unpan1.un.org/intradoc/groups/public/documents/cgg/unpan026197.pdf (Accessed: 5 February 2018).

University of Leeds (2014) 'Grouse moor burning causes widespread environmental changes', *NewsRx Health & Science*, p. 85.

Valtorta, N. K. *et al.* (2018) 'Loneliness, social isolation and risk of cardiovascular disease in the English Longitudinal Study of Ageing', *European Journal of Preventive Cardiology*. SAGE Publications Inc., 25(13), pp. 1387–1396. doi: 10.1177/2047487318792696.

Vanclay, F. (2003) 'Impact Assessment and Project Appraisal SIA principles International Principles For Social Impact Assessment', *Impact Assessment and Project Appraisal*. Beech Tree Publishing, 21(10), pp. 5–11. Available at: https://www.iaia.org/uploads/pdf/IAIA-SIA-International-Principles.pdf (Accessed: 9 December 2017).

Veenhoven, R. (1984) *Conditions of Happiness*. Dordrecht, Holland: D.Reidel.

Wallwork, J. and Dixon, J. A. (2004) 'Foxes, green fields and Britishness: On the rhetorical construction of place and national identity', *British Journal of Social Psychology*, 43(1), pp. 21–39. doi: 10.1348/014466604322915962.

Walsh, K. and Gordon, J. (2008) 'Creating an individual work identity', *Human Resource Management Review*, 18(1), pp. 46–61. doi: 10.1016/j.hrmr.2007.09.001.

Ward, N. (1999) 'Foxing the nation: the economic (in)significance of hunting with hounds in Britain', *Journal of Rural Studies*. Pergamon, 15(4), pp. 389–403. doi: 10.1016/S0743-0167(99)00005-4.

Webb, E. . *et al.* (1966) *Unobtrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.

Weber, M. (1905) *The Protestant Ethic and the Spirit of Capitalism (German: Die protestantische Ethik und der Geist des Kapitalismus , translated into English by T Parsons, 1930)*.

Weber, M. (1978) *Economy and Society: an Outline of Interpretive Sociology*. Edited by G. Roth and C. Wittich. Berkeley, California.

Wells, P. (2012) 'Understanding social investment policy: evidence from the evaluation of Futurebuilders in England', *Voluntary Sector Review*, 3(2), pp. 157–177. Available at: http://shura.shu.ac.uk/5746/ (Accessed: 5 June 2020).

West, R. L. and Turner, L. H. (2018) *Introducing communication theory : analysis and application*. Sixth edition. Available at: https://www.worldcat.org/title/introducing-communication-theory-analysis-and-application/oclc/967775008 (Accessed: 15 May 2018).

White, M. P. *et al.* (2013) 'Would You Be Happier Living in a Greener Urban Area? A Fixed-Effects Analysis of Panel Data', *Psychological Science*, 24(6), pp. 920–928. doi: 10.1177/0956797612464659.

White, M. P. *et al.* (2019) 'Spending at least 120 minutes a week in nature is associated with good health and wellbeing', *Scientific Reports*. Nature Publishing Group, 9(1), pp. 1–11. doi: 10.1038/s41598-019-44097-3.

White, P. J. C. *et al.* (2014) 'Predator reduction with habitat management can improve songbird nest success', *The Journal of Wildlife Management*, 78(3), pp. 402–412. doi: 10.1002/jwmg.687.

Whiteside, M. A., Sage, R. and Madden, J. R. (2015) 'Diet complexity in early life affects survival in released pheasants by altering foraging efficiency, food choice, handling skills and gut morphology', *Journal of Animal Ecology*. Edited by L. Börger. Blackwell Publishing Ltd,

84(6), pp. 1480–1489. doi: 10.1111/1365-2656.12401.

Wild Justice (2020) *Wild Justice seeks judicial review of gamebird releases - Wild Justice*. Available at: https://wildjustice.org.uk/general/wild-justice-seeks-judicial-review-of-gamebird-releases/ (Accessed: 11 June 2020).

Winter, M. (2012) 'The Land and Human Well-being', in Smith, A. G. C. (Alan G. C. . and Hopkinson, J. (eds) *Faith and the future of the countryside : pastoral and theological perspectives on rural sustainability*. Canterbury Press, pp. 24–44.

Winter, M. *et al.* (2016) *Is there a future for the small family farm in the UK?* Available at: https://ore.exeter.ac.uk/repository/bitstream/handle/10871/25485/Is there a future for the small family farm in the UK report June 2016.pdf?sequence=1&isAllowed=y (Accessed: 29 July 2019).

Winter, M. and Lobley, M. (2005) 'An introduction to contemporary rural economies', in Soffe, R. (ed.) *The countryside notebook*. Blackwell Pub, p. 370. Available at: https://www.wiley.com/en-ad/The+Countryside+Notebook-p-9781405112314 (Accessed: 29 July 2019).

Wolton, R. *et al.* (2014) 'Regulatory services delivered by hedges : The evidence base. LM0106 Report for Defra and Natural England', (April), p. 99.

Woolcock, M. and Narayan, D. (2000) 'Social Capital: Implications for Development Theory, Research, and Policy', *The World Bank Research Observer*. Oxford University Press, 15(2), pp. 225–249. doi: 10.1093/wbro/15.2.225.

World Health Organisation (WHO) (2019) *Health Economic Assessment Tool (HEAT) for walking and cycling by WHO/Europe v4.2*. Available at: https://www.heatwalkingcycling.org/#homepage.

Zachariadis, M. *et al.* (2010) *Working Paper Series Exploring critical realism as the theoretical foundation of mixed-method research: evidence from the economics of IS innovations*. 3. Cambridge. Available at: https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp1003.pdf (Accessed: 12 January 2018).

Zhang, Z. (2017) ‘Outdoor group activity, depression, and subjective well-being among retirees of China: The mediating role of meaning in life’, *Journal of Health Psychology*. SAGE PublicationsSage UK: London, England, p. 135910531769542. doi: 10.1177/1359105317695428.

Zumbo, B. D. and Zimmerman, D. W. (1993) ‘Is the selection of statistical methods governed by level of measurement?’, *Canadian Psychology/Psychologie canadienne*. American Psychological Association (APA), 34(4), pp. 390–400. doi: 10.1037/h0078865.

Glossary

Bag size	Shooting days are often sold by the 'bag size'. The bag size is based on the number of birds expected to be shot within the time provided and the number of 'drives' allowed for.
Beater	Person who flushes game during a shooting day (Public and Corporate Economic Consultants (PACEC), 2014a)
Beetle Bank	A ridge or bank made or set aside on cultivated land (and often sown with perennial grasses) to provide a suitable habitat for insects (especially aphid-eating beetles) and other creatures which prey on crop pests (Oxford Dictionary, 2018a). The insects provide food for game birds and wildlife.
Boundary Day	A boundary day is a smaller bag size day, where the drives take place along the boundaries of the estate where fewer pheasants are found. It provides a way to move an estate's pheasant back into the main shoot estate area and offer cheaper driven game shooting days.
Commercial Shoots	Commercial Shoots sell shooting days to individuals or teams of individuals at a rate per bird, based on the expected 'bag' size. The bag size is based on the number of birds expected to be shot within the time provided and the number of 'drives' allowed for.
Cover crops	Crops (such as maize, kale and millet) planted on shoots to provide gamebirds (and wildlife) with food and shelter (Public and Corporate Economic Consultants (PACEC), 2014a)
Drive	A Drive is the name for the process where birds are flushed over the guns. A shooting day will consist of several 'drives'.
Fieldsports Magazine	A print-based shooting publication
Gross Value Added (GVA):	The standard monetary measure of the value of economic activity. Equal to the sum of employment costs plus profits. Also equivalent to the value of goods and services produced minus the inputs (raw materials, services etc) required to produce them. (Public and Corporate Economic Consultants (PACEC), 2014a)
Guns	The individual people or 'shooters' who shoot the guns.
Guns-on-Pegs	A website that offers a place for individuals and teams of guns to find shooting days. It also circulates a regular online newsletter called the 'Game Card'.

Picker up	Picker-ups usually stand behind the guns, watch where the birds have fallen and once it is safe, send their dogs to retrieve the birds. Their role is to ensure all birds shot are found and despatched humanely and that there is no wastage. The picker-up often works with their own gun dog or dogs. Many have no interest in shooting themselves and training and working dogs is considered a sport in itself
Quarry	Collective name for the different game birds that are shot
Shooting Times	A print-based shooting publication
Social prescribing	Social prescribing, sometimes referred to as community referral, is a means of enabling GPs, nurses and other primary care professionals to refer people to a range of local, non-clinical services. (King's Fund, 2 Feb 2017) https://www.kingsfund.org.uk/publications/social-prescribing
Sporting Gun	A print-based shooting publication
Syndicate (roving)	A group of guns who travel to individual shooting days together as a team.
Syndicate Shoots (location based)	A type of shooting 'club' or collective where members pay an annual subscription as a gun (a person who shoots) and in return are able to engage in a specified number of days shooting throughout the season. Some offer 'full-gun' and 'half-gun' memberships. Full guns shoot on every day the syndicate Shoots, whereas half guns shoot on alternate shooting days in the season. Some syndicates include 'gun' working parties to raise the pheasants and maintain the landscape for the Shoot.
Beat - stand syndicate.	A form of syndicate shoot where guns take a peg and shoot for half the day and take part as a beater for the other half of the day. If the shoot day consists of eight drives, for example, each gun shoots four drives and is a member of the beating team for four drives.

Appendices

[73] Canva is a simplified graphic design tool, used for print and web media, that allows photographs and writing to be blended together to create promotional images that attract individuals to stop and review social media posts or advertisements.

Appendix A: Participant Information Sheet (Interviews)

Thank you for agreeing to take part in this study.

Nature of the research

I am a Higher Research Student at the University of Northampton. The project is funded by a studentship from the University of Northampton. I am completing a PhD looking at the social impacts of driven game shooting. As you may be aware, a lot of work has been done on environmental and economic impacts of the sport, but there has been little insight into why people engage, including beaters and pickers not just guns, and the potential social impacts such as better health, both mental and physical and community identity/cohesion. This may well translate into potential savings in healthcare costs for example. The study will be unbiased and highlight both positive and, if identified, any negative impacts, seeing if there are any mitigations for negative impacts, if any are found.

What will the research involve?

Participation in this study involves both observation and engagement at Driven Game Shoots and interviews with selected participants. I am looking to write 'case studies' on a number of different kinds of shoots, ensuring coverage of both small and large commercial and 'DIY' syndicate shoots. I plan to visit a selection of shoots and then separately interview a number of people from both within and outside of the case study shoots via telephone.

A sample of people who are engaged with Driven Game shooting both internally, as beaters/pickers/guns/loaders etc. and externally such as landowners, suppliers will answer a short questionnaire and be interviewed via a one-to-one interview, either face to face or by telephone, which would last approximately 30 minutes to 1 hour. Ideally, the interview will be tape-recorded or notes will be taken during the interview. The interview aims to gather information about the social impacts of driven game shooting both personally and in a wider societal context. There are no right or wrong answers and you will be encouraged to share your perspective on driven game shooting and its social impacts. Your recorded interview, or the notes taken, will be transcribed (typed up) by me and will be analysed in terms of key themes which emerge across all interviews.

Will other people know what I say in the interview?

Any recorded interviews, and their transcripts, will only be shared with myself and my supervisors. The audio recordings will be stored in a password protected file on a password protected computer. Shoots will be identified by type and size, not named location, and your real name will not be used. However, I may quote something you have said in the final report. In place of your name I will allocated a reference or alternative name so that your details are not shared with anyone other than myself and my supervisors. Additionally, everything you tell me will remain confidential and anonymity is guaranteed.

What if I don't want to answer a question or take part in the study anymore?

You only have to answer questions you are happy to answer and you may stop the interview at any time. I will not ask why you do not want to answer any questions. The interview is an opportunity to share your perception of the social impacts of driven game shooting and to put your views across – I am only here to ask questions. You can ask for your interview not to be included in the writing up if you wish but you would need to let me know after the interview has taken place, but no later than 31st Jan 2019 so I can delete your recording/dispose of your interview notes as applicable.

What will happen to this research?

This research will remain the property of the University of Northampton but it is hoped that the findings will be shared with the wider country sports community and submitted for publication to bodies such as conferences, academic and journals. These submissions will add to the body of research which seeks to understand more fully the social impacts of driven game shooting and how these can be measured and compared in the future.

Privacy Notice:

This privacy notice tells you about the information we collect from you during the interview. In collecting this information, we are acting as a data controller and, by law, we are required to provide you with information about us, about why and how we use your data, and about the rights you have over your data.

Who are we?

We are The University of Northampton, Park Campus, Boughton Green Road, Northampton, NN2 7AL. You can contact us by post at the above address, by email at tracey.latham-green@northampton.ac.uk

We are required to have a data protection officer, so any enquiries about our use of your personal data should be addressed to the researcher in the first instance tracey.latham-green@northampton.ac.uk or a member of the project team either richard.hazenberg@northampton.ac.uk or simon.denny@northapton.ac.uk. If none of the above are available please contact recordsmanager@northampton.ac.uk.

What personal data do we collect?

When you agree to be interviewed, we ask you for your name and your email address and/or telephone number.

Why do we collect this information?

We will use your information to send you updates regarding the study on a quarterly basis and if we want to reach you regarding this research. We ask for your consent to do this, and we will only send you our newsletter for as long as you continue to consent.

What do we do with your information?

Your information is stored in our database and is not shared with any third parties. It is not sent outside of the UK. We will not use the information to make any automated decisions that might affect you.

In line with our ethical policy, if any issues of concern, or evidence of past, present or probable harm or malpractice are disclosed the researcher may have to report it.

How long do we keep your information for?

Personal details will only be kept for the sole purpose of the research. Personal data will be archived after 2 years and only accessible to the project team. It may be used to contact you if a future study in the area of driven game shooting is considered. If you would like your personal data removed from the database at any time this can be done by emailing the researcher Tracey Latham-Green or, in her absence, a member of the project team Richard Hazenberg or Simon Denny. The anonymised data within the research will be kept in perpetuity.

Your rights over your information

By law, you can ask us what information we hold about you, and you can ask us to correct it if it is inaccurate. You can also ask for it to be erased and you can ask for us to give you a copy of the information. You can also ask us to stop using your information – the simplest way to do this is to withdraw your consent, which you can do at any time, either by unsubscribing from the newsletter directly, or by emailing or writing to us using the contact details above.

Your right to complain

If you have a complaint about our use of your information, in the first instance there are University procedures which can be followed. If you wish to make a formal complaint, please set it out in writing identified as a formal complaint, and send it to Mrs. Jane Bunce, Director of Student and Academic Services, at The University of Northampton, Park Campus, Boughton Green Road, Northampton, NN2 7AL.

You can contact the Information Commissioner's Office via their website at www.ico.org/concerns or write to them at: Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire.

Appendix B: Interview Consent Form

Research project title: What is the social impact of Driven Game Shooting?

Research investigator: Tracey Latham-Green

Research Participants name:_____

The interview will take approximately 20 mins. We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project.

Ethical procedures for academic research undertaken from UK institutions require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information sheet and then sign this form to certify that you approve the following:

• the interview will be recorded and a transcript will be produced or notes will be taken and a summary produced

• you will be sent the transcript/summary notes and given the opportunity to correct any factual errors

• the transcript of the interview will be analysed by Tracey Latham-Green as research investigator

• access to the interview transcript will be limited to Tracey Latham-Green and academic colleagues and researchers with whom she might collaborate as part of the research process

• any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed.

• the actual recording will be retained in a secure, password protected file on a secure, password protected computer. It will be deleted from the original recording device.

• any variation of the conditions above will only occur with your further explicit approval.

Quotation Agreement

I also understand that my words may be quoted directly. With regards to being quoted, please indicate your agreement or not to this below by entering your initial the appropriate box.

YES	NO	n/a	
			I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
			I agree to be quoted directly.
			I agree to be quoted directly if my name is not published and a made-up name (pseudonym) is used.
			I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used;

In academic papers, policy papers or news articles

On our website and in other media that we may produce such as spoken

presentations

On other feedback events

In an archive of the project as noted above

By signing this form I agree that (please enter your initial the appropriate box to confirm your understanding and agreement with each statement);

Yes	No	
		1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
		2. The transcribed interview or extracts from it may be used as described above;
		3. I have read the Information Sheet;
		4. I don't expect to receive any benefit or payment for my participation;
		5. I can request a copy of the transcript/notes of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality;
		6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Printed Name: _____

Participants Signature Date

_____ _____

Researchers Signature Date

_____ _____

Contact Information

This research has been reviewed and approved by the University of Northampton Research Ethics Board. If you have any further questions or concerns about this study, please contact:

Name of researcher: Tracey Latham-Green

Full address: The University of Northampton, Park Campus, Boughton Green Road, Northampton NN2 7AL

E-mail: tracey.latham-green@northampton.ac.uk

You can also contact one of my supervisors, Professor Simon Denny or Professor Richard Hazenberg

Full address: The University of Northampton, Park Campus, Boughton Green Road, Northampton NN2 7AL

E-mail: Simon.denny@northampton.ac.uk Richard.hazenberg@northampton.ac.uk

What if I have concerns about this research? If you are worried about this research, or if you are concerned about how it is being conducted, you can contact the Chair of the Ethics Committee. Full address: The University of Northampton, Park Campus, Boughton Green Road, Northampton NN2 7AL (or email at John.Horton@northampton.ac.uk).

Appendix C: Verbal Consent Script & Information sheet for field work at shoots

My name is Tracey Latham-Green and I am a post-graduate researcher at the University of Northampton.

I am completing a PhD looking at the social impacts of driven game shooting. As you may be aware, a lot of work has been done on environmental and economic impacts of the sport, but there has been little insight into why people engage, including beaters and pickers not just guns, and the potential social impacts such as better health, both mental and physical and community identity/cohesion. This may well translate into potential savings in healthcare costs for example. The study will be unbiased and highlight both positive and, if identified, any negative impacts, seeing if there are any mitigations for negative impacts, if any are found.

I am here today to observe how your driven game shoot works and investigate potential social impacts, through informal discussion with yourselves and observation. I will write a summary reflective record of emerging social impacts along with the size and type of shoot I am at today. It would be really helpful if you could complete this short questionnaire before you leave so I can gather some statistical data to compliment this work.

I may also ask a few of you to take part in longer interviews by telephone of approx. 30 minutes at a later date to provide a more in-depth perspective of potential social impacts.

I will use this information to write case studies comparing different types of shoot and to try and identify social impacts and potential ways of measuring them in future.

All contributions will remain confidential.

Please indicate to me if you do not want to be involved in the study and I will ensure your contribution/comments/actions are not included in the reflective record.

This research will remain the property of the University of Northampton but it is hoped that the findings will be shared with the wider country sports community and submitted for publication to bodies such as conferences, academic and journals. These submissions will add to the body of research which seeks to understand more fully the social impacts of driven game shooting and how these can be measured and compared in the future.

I can be contacted at tracey.latham-green@northampton.ac.uk

Appendix D: Wider Questionnaire

University of Northampton
Institute for Social Innovation and Impact

How does your involvement in driven game shooting affect you?

Thank you for looking at this questionnaire. It has been designed to gather information for research into the impacts on people resulting from their participation in driven game shooting. This study, funded by the University of Northampton, and endorsed by a number of organisations including the GWCT, Guns on Pegs and the National Organisation of Beaters and Pickers Up (NOBS), is gathering information that has not been considered before. By completing the questionnaire, you will be making an important contribution to the evidence base for driven game shooting.

The questionnaire asks you some questions about why you take part in driven game shooting (DGS), and the impact your participation has on you. Please answer the questions carefully and honestly. There are no 'right' answers. The questionnaire is designed to provide some data that can be used to compare the responses from those involved in Driven game shooting with responses from a wider population group gathered in national surveys utilised to evaluate well-being and social networks. The questionnaire uses some of the questions that are used in national surveys, which is why some of the wording may seem a little unusual!

The questionnaire has eight sections. Not all sections have to be answered by everyone:

Sections 1-5 are to be answered by all DGS participants

Section 6 is to be answered by individuals who regularly attend driven game shoots as a beater/picker-up

Section 7 is to be answered by paying guns only

Section 8 is to be answered by syndicate members (including roving syndicates) only

The final question about organisational membership is to be answered by all participants

Please remember that you are not asked to give your name. It is very important that the responses to the questionnaires are anonymous. Your answers cannot, and will not, be linked to you in any way.

If you want to discuss any aspect of the questionnaire, please contact me at the following email address: tracey.latham-green@northampton.ac.uk.

Please tick the relevant box or boxes. Questions are printed on both sides of the pages.

Once completed, please retain this page for your information and return the remaining pages 3-10 to:

T Latham-Green, PO Box 1122, WOODHALL SPA, LN10 6XE

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Section 1: Your involvement in Driven game shooting (DGS)

1.1 How do you engage in Driven game shooting? (please select all that apply)

☐Beater ☐Picker-up ☐Loader ☐Paying Gun
☐Guest Gun ☐Game-keeper ☐Shoot Owner/Manager ☐Other

1.2 Did you originally get involved in Driven game shooting via word of mouth/recommendation?

☐Yes ☐No

1.3 How often do you participate in Driven game shooting within the season in the following roles?

	Over twice a week	Two times a week	Once a week	Once or twice a month	Once every 2 - 3 months	Once or twice a year
As a beater/picker-up	☐	☐	☐	☐	☐	☐
As a gun	☐	☐	☐	☐	☐	☐
Otherwise	☐	☐	☐	☐	☐	☐

1.4 For how many years have you taken part in Driven game shooting (to nearest full year)? _____

1.5 What kind of driven game shoots do you attend? - select all that apply

☐Family Shoot (A shoot not created for commercial purposes and primarily used for friends and family that occasionally sell individual shooting days)
☐Small Syndicate (Syndicate costing £3000 a year or less for a full gun)
☐Large Syndicate (Syndicate costing over £3000 a year for a full gun)
☐Small Commercial (A shoot day of 150 birds or less)
☐Larger Commercial (Shoots offering days of over 150 birds)

1.6 Were you one of the sampled individuals from shoots visited by the researcher who were interviewed by telephone/face to face at length by the researcher during the 2018/19 shoot season? ☐Yes ☐No

Section 2: Demographics

2.1 How old are you (in years)? _____

2.2 What is your gender? ☐ Male ☐ Female ☐ Prefer not to say/other

2.3 How would you describe the area in which you live now?

☐Rural ☐Village ☐Town ☐City

2.4 How would you describe the area in which you grew up?

☐Rural ☐Village ☐Town ☐City

2.5 What is your postcode? _____

(If you are unhappy to give a full postcode please just share the first half e.g. NN1 or LN10, for example, if you are the only property in your postcode). This is only used to give an idea of the spread of participation across the UK.

2.6 What is your employment status? (please select all that apply)

☐ Employed full-time ☐ Employed part-time ☐ Self-employed ☐ Retired/semi-retired
☐ Student ☐ Unemployed ☐ Other (e.g. full-time carer)

2.7 What is your occupation? If you have retired, or semi-retired, from full-time work please select the description that best matches your former occupation.

☐1. Higher managerial, administrative & professional occupations. Examples: Lawyers, Architects, Medical doctors, Chief executives, Economists
☐2. Lower managerial, administrative & professional occupations. Examples: Social workers, Nurses, Journalists, Retail managers, Teachers
☐3. Intermediate occupations. Examples: Armed forces up to sergeant, Paramedics, Nursery Nurses, Police up to Sgt, Bank staff
☐4. Small employers and own account workers. Examples: Farmers, Shopkeepers, Taxi drivers, Driving instructors, Window cleaners
☐5. Lower supervisory and technical occupations. Examples: Mechanics, Chefs, Train drivers, Plumbers, Electricians
☐6. Semi-routine occupations. Examples: Traffic wardens, Receptionists, Shelf-stackers, Care workers, Telephone Salespersons
☐7. Routine occupations. Examples: Bar staff, cleaners, labourers, Bus drivers, Lorry drivers
☐8. Never worked and long-term unemployed
☐9. Full- time student
☐10. Housewife or husband/full-time carer

2.8 Do you currently (or in your last job before retirement if applicable) predominantly work indoors or outdoors?
☐Indoors ☐Outdoors

2.9 Education: Please could you indicate the highest level of qualification you hold:

☐No Qualifications
☐ Level 1: Examples: 1 - 4 O levels /CSEs /GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level1, Foundation GNVQ, Basic Skills
☐Level 2: Examples: 5+ O levels (passes) /CSEs (grade 1) /GCSEs (grades A*-C or 9-4), School Certificate, 1 A level / 2-3 AS levels /VCEs, Higher Diploma. NVQ Level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First /General Diploma, RSA Diploma
☐ Level 3: Examples: 2+ A levels /VCEs, 4+ AS levels, Higher School Cert, Progression /Advanced Dip, NVQ L3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National
☐ Level 4-5: Examples: Foundation Degree, NVQ Level 4 -5, HNC, HND, RSA Higher Diploma, BTEC Higher Level, Certificate or Diploma of higher education, Higher Apprenticeship
☐Level 6: Examples: Honours Degree (e.g. BA (hons), BSc (hons)), degree apprenticeship, graduate diploma/certificate
☐ Level 7-8: Examples: Higher degree (for example MA, PhD, PGCE)

2.10 Ethnicity: Please can you indicate your self-defined ethnicity:

☐White: British ☐White: Irish ☐Any other White background
☐Black: African ☐Black: Caribbean ☐Any other Black background
☐Asian/Asian British ☐Chinese ☐Arab ☐Any other ethnic group

☐Mixed Race: White & Black Caribbean ☐Mixed Race: White & Black African
☐Mixed Race: White and Asian ☐Any other Mixed/Multiple ethnic background

Section 3: Personal Relationships and Well-being

This section contains national dataset questions which is why some of them may seem a little unusual.

As part of the National Well-being Survey the government uses a set of questions that make up what is known as a 'verified scale', which means that the set of questions answered together have been tested rigorously to ensure they provide an appropriate measure for the area of interest. The statements you read below may seem a little unusual but it is vitally important for my study that I get answers for this question against all 7 statements. That way, once I have answers for my set of respondents or population (i.e. the people taking part in driven game shooting) I can compare them against a national dataset of responses from a sample of the general population. Once again, I reiterate, your responses are entirely anonymous.

3.1 Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	☐	☐	☐	☐	☐
I've been feeling useful	☐	☐	☐	☐	☐
I've been feeling relaxed	☐	☐	☐	☐	☐
I've been dealing with problems well	☐	☐	☐	☐	☐
I've been thinking clearly	☐	☐	☐	☐	☐
I've been feeling close to other people	☐	☐	☐	☐	☐
I've been able to make up my own mind about things	☐	☐	☐	☐	☐

3.2 How many people do you meet with on average regularly at a shoot? ☐1-9 ☐10-20 ☐Over 20

3.3 Have you ever found employment opportunities for either yourself or a friend or family member via contacts from DGS?

☐Yes ☐ No

3.4 Have you ever found training opportunities for either yourself or a friend or family member via contacts from DGS?

☐Yes ☐ No

3.5 Are you confident in using online forms of communication and social media? ☐Yes ☐ No

3.5a If yes, please indicate which of the following social media applications/online communications you regularly use ☐ Facebook ☐ Instagram ☐ twitter ☐ LinkedIn ☐ Email

3.6 The next question again is a national survey based question, which is why it may seem a bit unusual. However, its inclusion is important to the research and its validity. Thank you.

How often do you feel lonely?

☐ Often/always ☐ Some of the time ☐ Occasionally ☐ Hardly ever/never

Section 4: Physical Health & Well-being

4.1 How far would you say you walk on average at a shoot in km? ☐

KM	Miles (approx.)		KM	Miles (approx.)		KM	Miles (approx.)		KM	Miles (approx.)
1	0.6		5	3.1		9	5.6		13	8.1
2	1.3		6	3.8		10	6.2		14	8.7
3	1.9		7	4.4		11	6.9		15	9.4
4	2.5		8	5.0		12	7.5		16	10

4.2 Have you ever been injured as a result of participation in DGS? ☐Yes ☐No

4.3 To what extent do you agree/disagree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
DGS enables me to get away from the stresses of the working week	☐	☐	☐	☐	☐
I spend more time outdoors that I otherwise would because of my involvement in DGS	☐	☐	☐	☐	☐
My involvement in DGS allows me to access countryside I would otherwise not be able to visit.	☐	☐	☐	☐	☐

4.4 Is engagement in DGS your main form of exercise? ☐Yes ☐ No

Health Optional Section: *It would be really helpful if you could answer this next section question 4.5 about health. This questionnaire is completely anonymous. The data collected below is useful in assessing whether any long-term health conditions are helped via your participation in DGS*

4.5 Do you have a long-term physical health condition such as diabetes or high blood pressure? ☐Yes ☐No

If you have a long-term physical health condition:	Yes	No
4.5a Is your condition managed well?	☐	☐
4.5b Have you been hospitalised due to this condition in the last 12 months?	☐	☐

4.5c How would you describe your long-term physical health condition?

☐*Heart Disease (Cardiovascular Disease)* ☐*Diabetes* ☐*High Blood Pressure*

☐*Asthma* ☐*COPD (Chronic Obstructive Pulmonary Disorder)*

☐*Other, please specify:*

Section 5: Opinions

5.1 Social Networks. To what extent do you agree/disagree with the following statements:

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
If I needed help, I can rely on my friends from within the shooting community	☐	☐	☐	☐	☐
Friendship and camaraderie are key reasons for me to participate in DGS	☐	☐	☐	☐	☐
I have made some close, long-term friends from my involvement in DGS	☐	☐	☐	☐	☐

5.2 Identity & Heritage. To what extent do you agree/disagree with the following statements

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me	☐	☐	☐	☐	☐
I participate in DGS because shooting is a past time regularly practised in the area in which I now live	☐	☐	☐	☐	☐
I participate in DGS because I feel a connection to the countryside and rural life	☐	☐	☐	☐	☐

5.3 Wider Impact/Perceptions. To what extent do you agree/disagree with the following statements:

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I sometimes feel alienated from my non-shooting friends as a result of participating in DGS	☐	☐	☐	☐	☐
I would be wary of wearing shooting attire in certain areas of the country or on public transport travelling to a shoot	☐	☐	☐	☐	☐
People in towns and cities don't understand DGS is a part of rural life.	☐	☐	☐	☐	☐
I am concerned that 'big bag' days can present shooting in a poor light.	☐	☐	☐	☐	☐
As long as all birds go into the food chain 500+ bird days are not an issue for me.	☐	☐	☐	☐	☐

Section 6: Additional questions for beaters/pickers up

Please answer this section questions B1-B6 if you regularly attend driven game shoots as a beater/picker-up. Otherwise please go to section 7 on page 9.

B1. Do you own one, or more, gun dogs? ☐Yes ☐ No

B2. What kind of shoot(s) do you work for as a beater/picker-up? (select all that apply)

☐Family Shoot (A shoot not created for commercial purposes and primarily used for friends and family that occasionally sell individual shooting days)
☐Small Syndicate (Syndicate costing £3000 a year or less for a full gun)
☐Large Syndicate (Syndicate costing over £3000 a year for a full gun)
☐Small Commercial (A shoot day of 150 birds or less)
☐Larger Commercial (Shoots offering days of over 150 birds)

B3. Do you get paid for your beater/picker-up role? ☐ Yes, always ☐Yes, sometimes ☐No

B3a. If yes or sometimes, how far do you agree/disagree with the following statements:	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
The payment is the most important element for me	☐	☐	☐	☐	☐
The social aspect is the most important element for me	☐	☐	☐	☐	☐
The payment covers my costs of involvement (e.g. travel expenses, clothing, gun dog costs if appl.)	☐	☐	☐	☐	☐
The payment goes towards my costs of involvement (e.g. travel expenses, clothing, gun dog costs if applicable) but does not cover them entirely.	☐	☐	☐	☐	☐

B4. How far do you agree/disagree with the following statement:	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
It is important that myself (and my dog(s) if applicable) do a good job to contribute to the success of the shoot day	☐	☐	☐	☐	☐

B5. Do you also shoot? (any type of shooting including pigeon, clay pigeon etc.) ☐Yes ☐ No

B5a. If yes, do you also gain access to land for other shooting e.g. pigeon shooting, throughout the year as a result of your participation in DGS? ☐Yes ☐ No

B6. If applicable, please define the type of shoots you attend that arrange the following events:

	Family Shoot	Small Syndicate/Club	Large Syndicate/Club	Small Commercial	Larger Commercial
Annual, subsidised 'beaters' shooting day	☐	☐	☐	☐	☐
Christmas and/or end of season party	☐	☐	☐	☐	☐
Summer BBQ or similar	☐	☐	☐	☐	☐
Competitions and social activities during the shoot day (e.g.at lunch time)	☐	☐	☐	☐	☐

Section 7: Additional Questions for paying guns only

Please answer this section questions G1-G2 if you pay for shoot days or are a member of a syndicate as a gun. If you are not a paying or syndicate gun, please go to the next section.

G1 What kind of paid shoots do you attend? - select all that apply

☐Family Shoot (A shoot not created for commercial purposes and primarily used for friends and family that occasionally sell individual shooting days)
☐Small Syndicate (Syndicate costing £3000 a year or less for a full gun)
☐Large Syndicate (Syndicate costing over £3000 a year for a full gun)
☐Small Commercial (A shoot day of 150 birds or less)
☐Larger Commercial (Shoots offering days of over 150 birds)

G2. How far do you agree/disagree with the following statements	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
The most important aspect of the day for me is the social element	☐	☐	☐	☐	☐
Shooting the expected number of birds is important to me	☐	☐	☐	☐	☐
I prefer to eat lunch with other guns only rather than with beaters and pickers-ups	☐	☐	☐	☐	☐

Section 8: Additional questions for syndicate/family shoot members

Please only answer this section if you are a paying member of a syndicate/club, including roving syndicate, or run a family shoot. Otherwise answer the final question at the bottom of this page.

S1. What type of syndicate(s) are you part of?

☐Roving (a group of people who regularly buy commercial days together at shoots)
☐Location/place-based standing gun only
☐Location/place-based standing gun & beating (paying guns beat one drive/shoot one drive alternately)

S2. Do the syndicate/club paying members maintain their own sites with working parties?

☐ Yes, most of them are involved ☐ Yes, some of them are involved ☐ No

S3. Do you have volunteer or paid beaters and pickers-up?

☐ Paid ☐ Volunteer ☐ Mix of paid and volunteer

S4. Do you both shoot and pick-up/beat at your syndicate. (for example you are a half gun and come and beat on non-shooting weekends or you choose to beat and let a guest take your peg on some or all occasions)

☐Yes ☐ No

S5. How many members does the syndicate have? ☐ 1-9 ☐ 10-20 ☐ Over 20

S6. If applicable, what is the cost per year approximately in £ for the above syndicate?

(please enter a whole number, for example for £1000 per annum you would enter 1000)

S7. How many days per season do you shoot in the syndicate?

S8. Do all shoot participants in the syndicate shoot, including beaters, picker-ups and guns etc have breaks, drinks, lunch together and socialise at the end of the day? ☐Yes ☐No

S9. Do syndicate members meet up INSIDE of the shoot season for social events? ☐Yes ☐No

S10 Do syndicate members meet up OUTSIDE of the shoot season for social events? ☐Yes ☐No

Final Question: Organisational membership

Which of the following organisations are you a member of? (please select all that apply)

☐British Association of Shooting and Conservation (BASC)

☐Game and Wildlife Conservation Trust (GWCT)

☐The Countryside Alliance

☐National Organisation of Beaters and Pickers-up (NOBS)

☐Gamekeepers Welfare Trust

☐Moorland Association

☐Greater Exmoor Shoots Association

☐Other If you selected Other, please specify: _____

END OF QUESTIONNAIRE

You have reached the end of the questionnaire, thank you for completing it. Remember, your responses are entirely anonymous and cannot be linked back to you in any way.

Please encourage your friends, family and other contacts involved in DGS to complete the survey if you can. Online and/or hard copies of the survey can be obtained via email from tracey.latham-green@northampton.ac.uk.

Your help is much appreciated!

Please fold the stapled pages 3-10 in half and return them to:

Tracey Latham-Green

(University of Northampton – freepost address included)

Please retain the first page for your information/reference.

If you would like a summary of the results from the analysis of the questionnaires, please email tracey.latham-green@northampton.ac.uk

The summary will be ready in Summer 2020

Tracey

Tracey Latham-Green

PhD Research Student, University of Northampton

tracey.latham-green@northampton.ac.uk

Appendix E: Wider questionnaire email to contact list (example)

Survey: Questionnaire PhD Social Impacts of Driven Game Shooting

Dear

I understand that you are interested in <personalised message>. I am keen to get responses from everyone involved across a wide range of shoot sizes and types from the small syndicate or family shoot up to the large commercial shoot participants.

I have attached a link below to my questionnaire along with an email to accompany it. I would be very grateful for any help you could give in gaining responses. The more responses I get, the greater the weight of the research, important when the focus is on sports shooting in the media, for example as a result of the recent general licensing issues. If you could complete the questionnaire yourself and also forward the email below to your contacts who engage in driven game shooting - for example as beaters, pickers-up, guns, gamekeepers, loader and others - with an encouraging opening comment from yourself I would be much obliged. The link must not be shared in open social media posts, as this risks it being hijacked by anti-shooting representatives which could skew my results. I can also provide hard copies if needed. Thank you Tracey

Email:

How does your involvement in Driven game shooting affect you?

Thank you for your interest in my research project into the impacts on people resulting from their participation in driven game shooting (DGS).

The study is funded by the University of Northampton, and endorsed by a number of organisations including the GWCT, Guns on Pegs and the National Organisation of Beaters and Pickers Up (NOBS) and is gathering information that has not been considered before. By completing the questionnaire, accessed via the link below, you will be making an important contribution to the evidence base for driven game shooting. The questionnaire has been developed over a year of research, including background documentation research and visits to a number of different sizes and types of shoot, including interviews with a selection of guns, beaters, pickers-up and other involved in DGS.

The questionnaire should take 5-10 minutes to complete. If you can share it as widely as possible via direct email/message that would be helpful, but the link must not be shared in open social media posts as this risks people who are anti-shooting giving responses which could impact on the results. Please click the link below to proceed.

https://northampton.onlinesurveys.ac.uk/sidgs

Please note that you are not asked to give your name. It is very important that the responses to the questionnaires are anonymous. Your answers cannot, and will not, be linked to you in any way. If you want to discuss any aspect of the questionnaire, please contact me at tracey.latham-green@northampton.ac.uk

Thank you

Tracey Latham-Green

Postgraduate Research Student

tracey.latham-green@northampton.ac.uk

Appendix F: Newsletter sent to share wider questionnaire

NEWSLETTER

Social Impacts of Driven Game Shooting

Issue 6: Summer 2019

CONTACTS

Tracey Latham-Green
tracey.latham-green@northampton.ac.uk

IN THIS ISSUE

shooting affect you? - link below, please share!

Timetable

About this newsletter

Hello, my name is Tracey Latham-Green. I am a PhD student at the University of Northampton. You are receiving this newsletter as you have kindly expressed an interest into my project on the social impact of driven game shooting to Professor Simon Denny or myself. Your details are not shared, are used only by the research team for the purposes of research and are held securely. Full details of the privacy policy can be found here.

This study is looking at the social impacts of driven game shooting. By 'social impacts' I mean what difference being involved in some aspect of driven game shooting has on people's social and work lives and perhaps their health and well-being. To keep everyone who has an interest in getting involved in the study updated with progress, and explaining how and when they can get involved, I am producing a quarterly newsletter in Spring, Summer, Autumn & Winter. If you know of anyone else who would be interested in receiving this newsletter and/or being involved in the study please forward this newsletter to them. They can contact me at tracey.latham-green@northampton.ac.uk and I will add their details to the circulation list.

Update

Dear All.

As we finally move into the summer and the weather (hopefully) continues to improve, I am now at a stage where I am sharing my

wider questionnaire. On 2nd June I went to the Rutland Show where Simpson Brothers Gun Shop kindly allowed me promote the study alongside their stall. I received a lot of interest, along with offers of support in sharing my survey, and went home with a box of completed survey questionnaires.

Many of you will already have received the link and completed the survey, so thank you. I would really appreciate any assistance you can give in gaining responses. The more results I get the greater the weight of the study, in an area that currently has very little research, the social impacts of driven game shooting.

You can share the survey with your friends and colleagues in a number of ways: by forwarding this newsletter to them, copying and pasting the section below and sending it to them by email or you can download a hard copy here. Hard copies may be useful to take along to a summer barbecue perhaps or for people who are not comfortable completing surveys online.

I am not posting in open social media posts, to avoid the potential impact of those against shooting on the result, but I am sharing in some small, closed groups on Facebook. Please let me know if you can think of any groups that would be suitable via email tracey.latham-green@northampton.ac.uk.

I thank you all again for your assistance.

Tracey.

Survey: How does your involvement in Driven Game Shooting affect you?

This survey is being carried out for a PhD Research student looking at how taking part in driven game shooting, as a beater, picker-up, gun or otherwise, affects individuals. Please could help by answering a short, 5-10 minute survey?

The study is funded by the University of Northampton, and endorsed by a number of organisations including the GWCT, Guns on Pegs and the National Organisation of Beaters and Pickers Up (NOBS) and is gathering information that has not been considered before. The questionnaire has been developed over a year of field research, visiting driven game shoots and talking to those involved and background research. By completing the questionnaire, accessed via the link below, you will be making an important contribution to our knowledge about the impacts of driven game shooting on the people that participate in it.

https://northampton.onlinesurveys.ac.uk/sidgs

Please note that you are not asked to give your name. It is very important that the responses to the questionnaires are anonymous. Your answers cannot, and will not, be linked to you in any way. If you want to discuss any aspect of the questionnaire, please contact tracey.latham-green@northampton.ac.uk

Please do not share this link onward in open Facebook posts, however it can be shared by direct message/email to people who take part in driven game shooting. If you have any ideas about other places where people can be found who may complete the survey, please contact the research student by email. It would be very helpful if you could encourage friends and family who take part in driven game shooting to complete the survey as well.

Thank you

Tracey
tracey.latham-green@northampton.ac.uk

Timetable

To keep everyone abreast of the proposed timetable for the project, I have included the amended timetable again below:

Month and Year	Activities
December 2017 to February 2018	*Initial project background research*
March 2018 to September 2018	*Scoping, booking visits*

October 2018 to December 2018	*Visits to shoots and interviews*
October - December 2018	*Analysis of initial case studies, initial social impact identification*
October 2018	*Preliminary data presentation at degree transfer ceremony*
January 2019 to April 2019	*Further Analysis of Data* *Development of questionnaires to be sent via email*
May 2019 to August/September 2019	Wider questionnaire distribution via email and completion
September 2019 to November 2019	Analysis of questionnaire data and compilation of full dataset
December 2019 to January 2020	Initial findings presentations during shoot season
December 2019 to January 2020	Development of social impact measurement framework
Summer/Autumn 2020	Final Full and Summary Report production

Thank you for your interest, I will keep you updated on progress.

The funding for this study:

This study is funded by the University of Northampton using a bursary. The University are always looking for innovative ways to partner with both individuals and business to widen participation in university study, through bursaries and sponsorship and the provision of outstanding facilities. The new UoN campus has a number of opportunities available for sponsorship of bursaries, buildings and lecture theatres via its Advancement Campaign, full details of which can be found here.

If you are interested in sponsoring a building or would like to know

more about investing in bursaries, maybe in a key area of interest for yourself or your family or linked to your industry, contact Alanah Gelling, Advancement Office Team Leader on 01604 892753 or email alanah.gelling2@northampton.ac.uk for more details.

If you want to forward to a friend who may be interested in the project and this newsletter then click here: http://us17.forward-to-friend.com/forward?u=0d0683a9c10ba579a5ff32c07&id=01c87d4e02&e=[UNIQID]
They can subscribe by clicking here: https://northampton.us17.list-manage.com/subscribe?u=0d0683a9c10ba579a5ff32c07&id=3a49038757

If you do not want to receive further editions of this newsletter, please let me know.

Appendix G: Social Media Canva

Appendix H: Follow up email to those requesting results

Email Title: Survey-How does driven game shooting affect you? PLEASE HELP GET AS MANY REPSONSES AS POSSIBLE, SURVEY CLOSING 31ST JULY 2019

Dear……

Thank you for completing the questionnaire. I confirm I have added your email to the list of people wanting results next year. If you are able, it would be very helpful if you could share the link and email below with anyone you know who also engages in driven game shooting in any capacity but please do not share in open social media posts.

Thank you, Tracey

Survey Link and Message:
How does your involvement in driven game shooting affect you?

This email is being circulated on behalf of a PhD Research student looking at how taking part in driven game shooting, as a beater, picker-up, gun, gamekeeper or otherwise, affects individuals. Could you help by answering a short, 5-10 minute survey? Perhaps you could also encourage your friends to complete it too?

The study, funded by the University of Northampton, and endorsed by a number of organisations including the GWCT, is gathering information that has not been considered before. The questionnaire has been developed over a year of field research, visiting driven game shoots and talking to those involved and background research. By completing the questionnaire, accessed via the link below, you will be making an important contribution to our knowledge about the impacts of driven game shooting on the people that participate in it.

https://northampton.onlinesurveys.ac.uk/sidgs

Please note that you are not asked to give your name. It is very important that the responses to the questionnaires are anonymous. Your answers cannot, and will not, be linked to you in any way. If you want to discuss any aspect of the questionnaire, please contact the researcher at tracey.latham-green@northampton.ac.uk

Please do not share this link onward in open Facebook posts, however it can be shared by direct message/email to people who take part in driven game shooting. If you have any ideas about other places where the researcher could find people who may complete the survey, please contact her using the above email. The survey will close on 31st July 2019.

Thank you

Tracey Latham-Green

Postgraduate Research Student

tracey.latham-green@northampton.ac.uk

University of Northampton

Appendix I: Example Newsletter

NEWSLETTER

Social Impacts of Driven Game Shooting

Issue 2: Summer 2018

CONTACTS

Tracey Latham-Green
tracey.latham-green@northampton.ac.uk

IN THIS ISSUE

About this newsletter

Hello, my name is Tracey Latham-Green. I am a PhD student at the University of Northampton. You are receiving this newsletter as you have kindly expressed an interest into my project on the social impact of driven game shooting to Professor Simon Denny or myself. Your details are not shared, are used only by the research team for the purposes of research and are held securely. Full details of the privacy policy can be found here.

To keep everyone who has an interest in getting involved in the study updated with progress, and explaining how and when they can get involved, I am producing a quarterly newsletter in Spring, Summer, Autumn & Winter. If you know of anyone else who would be interested in receiving this newsletter and/or being involved in the study please forward this newsletter to them. They can contact me at tracey.latham-green@northampton.ac.uk and I will add their details to the circulation list.

Update: Where has the time gone?

Dear All.

I can't believe it's been just over three months since my last newsletter. I have been busy completing the paperwork requirements and training courses I had to attend at the University – which are substantial as I am planning to interview people. I am almost there and just need to finalise my questionnaires and get them approved, which I hope to have done by the end of the summer...so I can start visiting some shoots and officially speaking to people at last! This issue I thought I would answer a question that many people have asked me: Why is the research project looking at driven game shooting?

Why Driven Game Shooting?

In my search for information, contacts and understanding I have been asked why this social impact study is focussing solely on Driven Game Shooting (DGS) and not including walked-up or rough shooting. I have discussed this with my supervisors and there are two key reasons why.

Firstly, the length and depth of the study. Whilst earlier reports have focussed on a wide range of game shooting areas, they have not gone into the depth required for a PhD study. In order to fully explore social impacts within a strong, theoretical framework and with sufficient depth, there is a need to narrow the study to small segment of the overall game shooting world. A PhD project is all about focus!

Secondly, this study is looking at the social impacts of DGS, focussing particularly on what is known as 'social capital', or relationships between people, and how this links to identity and health and well-being. Traditionally, game shooting has been seen as an elitist sport, inaccessible to groups without the status and resources to participate. However, DGS involves those who enjoy the company of people interested in shooting, and/or who perhaps do not wish to shoot themselves, as beaters and pickers-ups etc.

The public, I am told, often view DGS in the light of large, commercial shoots – which of course have their own form of social impact in potential health benefits of accessing nature, local community cohesion and local economies – but the wider public perhaps do not realise that there is a whole range of shoot sizes and types and lots of different ways in which people are involved. People may participate in DGS because it has a historical family connection for them, or DGS has been part of life in their local community for generations, or they may just like owning a gun dog and spending time with others with gun dogs.

The National Organisation of Beaters and Pickers Up (NOBS), an organisation created to provide help and support to its members and link them up with gamekeepers and shoot captains across the UK, has around 16,000 members, which is an indicator of the number of people who engage with DGS in this way. NOBS regularly visit events nationwide to promote their work and have visited schools, teaching children about where food comes from, how to prepare a pheasant and even sent them home with a pheasant breast and recipe for them to try – a wider community social impact.

It is my ultimate aim to try and formulate a framework for measuring social impact of different shoots, which could be a useful tool for the future. Once completed, perhaps another researcher could use the same methods to review the social impact of rough shoots, for example, to enable comparison between types of game shooting wider than DGS.

The above shows that Driven Game Shooting is the best place to start when considering social impacts, because of the diversity of participants from a range of class and income backgrounds.

As I continue the final administrative steps towards being able to begin my interviewing, I thank you again for your interest and look forward to meeting many of you soon.

Timetable

To keep everyone abreast of the proposed timetable for the project, I have included the current timetable again below:

Month and Year	Activities
December 2017 to February 2018	Initial project background research
March 2018 to September 2018	Scoping, booking visits
October 2018 to February 2019	Visits to shoots and interviews
December 2018	Analysis of initial case studies, initial social impact identification
January 2019	Preliminary data presentation at degree transfer ceremony
February 2019 to March 2019	Development of questionnaires to be sent via email Further interviews if required outside of shoot season
April 2019 to June 2019	Wider questionnaire distribution via email and completion
July 2019 to October 2019	Analysis of questionnaire data
November 2019 to Jan 2020	Initial findings presentations during shoot season

November 2019 to January 2020	Development of social impact measurement framework
October 2020	Final Full and Summary Report production

Thank you for your interest, I will keep you updated on progress.

The funding for this study:

This study is funded by the University of Northampton using a bursary. The University are always looking for innovative ways to partner with both individuals and business to widen participation in university study, through bursaries and sponsorship and the provision of outstanding facilities. The new UoN campus has a number of opportunities available for sponsorship of bursaries, buildings and lecture theatres via its Advancement Campaign, full details of which can be found here.

If you are interested in sponsoring a building or would like to know more about investing in bursaries, maybe in a key area of interest for yourself or your family or linked to your industry, contact Alanah Gelling by telephone on 01604 892753 or by email at Alanah.Gelling2@northampton.ac.uk for more details.

If you want to forward to a friend who may be interested in the project and this newsletter then click here: http://us17.forward-to-friend.com/forward?u=0d0683a9c10ba579a5ff32c07&id=0861996a55&e=[UNIQID]
They can subscribe by clicking here: https://northampton.us17.list-manage.com/subscribe?u=0d0683a9c10ba579a5ff32c07&id=3a49038757

If you do not want to receive further editions of this newsletter, please let me know.

Appendix J: Units of Analysis (qualitative interviews)

Code No.	Code	Concepts
1	Also does walked up shooting	Identity
2	Common interest: Work colleagues who shoot	Identity
3	Identity - Family Link to shooting	Identity
4	Identity - like-minded people/common interest	Identity
5	Identity - maintain rural link after illness	Identity
6	Identity - network Identity control theory?	Identity
7	Identity - Rural way of life/rural identity	Identity
8	Identity - Rurality and Nature	Identity
9	Identity - sense of belonging	Identity
10	Identity - shooting?	Identity
11	Identity - takes time to get accepted	Identity
12	Identity - understanding nature and animals	Identity
13	Identity -involved in DGS since childhood	Identity
14	Identity Rural pursuits family link	Identity
15	Identity: Suitable Attire	Identity
16	Identity-family heritage	Identity
17	Involved in shooting since childhood	Identity
18	Like other shooting - pigeon	Identity
19	rural pursuits	Identity
20	shooting background TA	Identity
21	Shooting since teenager	Identity
22	Traditions	Identity
23	achievement and purpose?	Mental Well-being
24	Connection to nature	Mental Well-being
25	Contrast to working life	Mental Well-being
26	Dog training suitable for older people difficult to replace	Mental Well-being
27	Enjoys being in the countryside outdoors	Mental Well-being
28	Gun - enjoys physical work of shoot - syndicate	Mental Well-being
29	Gun - happy to go out picking up	Mental Well-being
30	Gun Dog big part of life - MWB	Mental Well-being
31	Gun Dog Owner and/or trainer	Mental Well-being
32	Gun dog work - enjoys very much - MWB	Mental Well-being
33	Gun involved in manual work parties	Mental Well-being
34	hard work-must enjoy it?	Mental Well-being
35	HWB Beaters- help out gamekeeper unpaid -happiness?	Mental Well-being
36	Impact of stopping - depression or suicide	Mental Well-being
37	Impact of stopping - gun dogs no purpose	Mental Well-being
38	Impact of stopping - miss camaraderie	Mental Well-being
39	Impact of stopping - negative MWB	Mental Well-being
40	Impact of stopping - shooting season big part of life	Mental Well-being
41	Impact of stopping Retiree-risk of depression over winter	Mental Well-being

42	Impact stopping -would not have dogs	Mental Well-being
43	Impact of stopping reduce number of dogs	Mental Well-being
44	Inclusive shoot - syndicate	Mental Well-being
45	inclusivity - overall	Mental Well-being
46	Inclusivity - easier drives for older people	Mental Well-being
47	Inclusivity - just come for lunch when older	Mental Well-being
48	Interested in shooting - life satisfaction	Mental Well-being
49	Like a family - helping in times of need	Mental Well-being
50	Likes outdoor independent working	Mental Well-being
51	Mental Health Issues	Mental Well-being
52	MWB - Complemented on dogs' work	Mental Well-being
53	MWB - Personal enjoyment	Mental Well-being
54	MWB Avoiding ill health?	Mental Well-being
55	MWB Personal fulfilment-rewarding	Mental Well-being
56	No need to shoot - enjoys picking up	Mental Well-being
57	Older gun now prefers beating	Mental Well-being
58	Redundancy - new career/hobby	Mental Well-being
59	relaxation	Mental Well-being
60	Retirees - escaping wife	Mental Well-being
61	Retirees purpose - MWB	Mental Well-being
62	SC meeting new people	Mental Well-being
63	SCBo Friendship & Camaraderie	Mental Well-being
64	SCR - Exp Avoiding loneliness	Mental Well-being
65	SCR - Exp Camaraderie, good fun	Mental Well-being
66	SCR - Expr - avoiding depression	Mental Well-being
67	SCR - Expr - Forget stress of week	Mental Well-being
68	SCR - Expr - MWB feel fulfilled	Mental Well-being
69	SCR - Expr - MWB Happiness	Mental Well-being
70	SCR - Expr - only social interest MWB	Mental Well-being
71	SCR - Expr - Social event mental well-being	Mental Well-being
72	SCR - Expr MWB Feeling valued	Mental Well-being
73	SCR - Gaining knowledge improving self	Mental Well-being
74	SCR - Retirees - avoiding loneliness	Mental Well-being
75	SCR - Retirees - Live for shooting season	Mental Well-being
76	Seasonal friendships only	Mental Well-being
77	Shooting Season structures year?	Mental Well-being
78	Struggles to make friends in normal life	Mental Well-being
79	Well-being - being connected to the countryside	Mental Well-being
80	Used to shoot - now prefers working dogs	Mental Well-being-maintain link to pastimes of youth
81	Used to shoot - older now just beats	Mental Well-being-maintain link to pastimes of youth
82	Lack of bridging social capital perceived	Negative - lack of SC
83	Lack of SC Bridging between guns and 'workers'	Negative - lack of SC
84	Learned about negative 'them and us' aspects	Negative - lack of SC
85	More costly shoots limit participation	Negative - lack of SC

86	SC lack of bonding them and us	Negative - lack of SC
87	HWB Fresh air	Physical and Mental Well-being
88	Impact of stopping - well-being?	Physical and Mental Well-being
89	Older - team or outdoor sport replacement?	Physical and Mental Well-being
90	SCR - Beating encourages exercise etc otherwise at home alone	Physical and Mental Well-being
91	SCR -Expr -Reason to go out in winter	Physical and Mental Well-being
92	SCR Instr Access to otherwise inaccessible countryside	Physical and Mental Well-being
93	Avoiding obesity	Physical Well-Being
94	Encourages activity in all weather	Physical Well-Being
95	Enjoy outdoor sport	Physical Well-Being
96	Exercise - retirees - maintains mobility	Physical Well-Being
97	Exercise -being paid to do it	Physical Well-Being
98	LTC Management?	Physical Well-Being
99	SCR - Exp Exercise - HWB	Physical Well-Being
100	SCR - Expr Keeping fit and healthy	Physical Well-Being
101	Reciprocity	Reciprocity
102	Started via word of mouth	SC Bonding
103	alternative country pursuits less social	SC Bonding
104	Long standing syndicate	SC Bonding
105	Long-term participant	SC Bonding
106	Loyalty-likes this shoot	SC Bonding
107	network of friends	SC Bonding
108	Other shoot - no lunch - likes going?	SC Bonding
109	SC Bonding	SC Bonding
110	SC Bonding - Beaters Day	SC Bonding
111	SC Bonding - common interest	SC Bonding
112	SC Bonding - friends involved in DGS	SC Bonding
113	SC Bonding - like a family	SC Bonding
114	SC Bonding - Long-term relationships	SC Bonding
115	SC Bonding - maintains seasonal friendships	SC Bonding
116	SC Bonding - on social media groups too	SC Bonding
117	SC Bonding - part of a team	SC Bonding
118	SC Bonding - social support network activated	SC Bonding
119	SC Bonding - syndicate members shoot elsewhere together	SC Bonding
120	SC Bonding - Syndicate participation	SC Bonding
121	SC Bonding -create strong friendships	SC Bonding
122	SC Bonding -meet up outside shoot season	SC Bonding
123	Sense of community	SC Bonding
124	Shoot community	SC Bonding
125	Social aspect	SC Bonding
126	Syndicate - no division	SC Bonding
127	Syndicate - SC Bonding - long friendships	SC Bonding
128	Syndicates - social side of most importance	SC Bonding
129	Acceptance into community	SC Bridging

130	SC Bridging - introducing new people to the sport	SC Bridging
131	SC Bridging - common interest and contacts	SC Bridging
132	SC Bridging - Estate owner beats	SC Bridging
133	SC Bridging - Guns and Beaters together some shoots	SC Bridging
134	SC Bridging - guns like to mix with beaters & pickers	SC Bridging
135	SC Bridging - important no division	SC Bridging
136	SC Bridging - no divisions	SC Bridging
137	SC Bridging - trusted by the estate	SC Bridging
138	SC Bridging - weak ties - meeting wide spectrum of people	SC Bridging
139	SC Bridging Diverse backgrounds	SC Bridging
140	SC Bridging Gun goes not like us and them divisions	SC Bridging
141	SC Bridging -guns and beaters lunch together	SC Bridging
142	SC Bridging leading to new career path?	SC Bridging
143	SC Bridging -outsider making friends	SC Bridging
144	Causal - avoiding mental illness	SCR - Expressive - activated
145	Causal - SCR - Exp recovery from mental illness	SCR - Expressive - activated
146	Causal - support network in time of need	SCR - Expressive - activated
147	reason to go out in rain	SCR - Expressive - activated
148	SC encourages going out - retirees	SCR - Expressive - activated
149	SCBo leading to better Physical HWB	SCR - Expressive - activated
150	SCR - MWB - Coping with bereavement	SCR - Expressive - activated
151	SCR - recovery from major operation	SCR - Expressive - activated
152	SCR -Expr - Help recovery from surgery/illness	SCR - Expressive - activated
153	Well-being – coping with the impact of a	SCR - Expressive - activated
154	Helped gamekeeper as youngster -interest?	SCR - Instrumental
155	Hot Lunch provided and snacks	SCR - Instrumental
156	SCR - Access to a few invite days otherwise unaffordable	SCR - Instrumental
157	SCR - Inst - Free shoot days for beaters	SCR - Instrumental
158	SCR - Inst - Beaters Day (Can shoot)	SCR - Instrumental
159	SCR - Instr - Lunch provided	SCR - Instrumental
160	SCR - Instr - sale of farm produce	SCR - Instrumental
161	SCR - Instr - shared knowledge	SCR - Instrumental
162	SCR - Instr - small payment covers expenses	SCR - Instrumental
163	SCR - Instr - work for caterer	SCR - Instrumental
164	SCR - Instr Access to services	SCR - Instrumental
165	SCR - Instr Expenses payment and lunch	SCR - Instrumental
166	SCR - Instr- Free shooting days - widening participation	SCR - Instrumental
167	SCR - Instrumental - free service provision	SCR - Instrumental
168	SCR - Instrumental - Work Opp	SCR - Instrumental
169	SCR Instr Work via Word of mouth	SCR - Instrumental
170	SDH - access to gamekeeper training	SCR - Instrumental
171	Shooting led to other country visits	SCR - Instrumental
172	Syndicate SCR Work	SCR - Instrumental
173	Work Experience provided	SCR - Instrumental

174	contributing to the wider economy	Social Cohesion
175	HWB Good Shoot looks after beaters	Social Cohesion
176	Impact of stopping - very rural areas	Social Cohesion
177	Local shoot	Social Cohesion
178	Rural social life - large part	Social Cohesion
179	Sell a few days - balance books	Social Cohesion
180	Shoot has good reputation	Social Cohesion
181	Shoot loyalty - people go because like shoot?	Social Cohesion
182	Social Cohesion - job means maintain life in rural area	Social Cohesion
183	Social Cohesion - local shop use	Social Cohesion
184	Social Cohesion - use of local businesses	Social Cohesion
185	Social Cohesion Cross Generation challenge	Social Cohesion
186	Social Enterprise - non-profit	Social Cohesion
187	Wider impact- next generation not interested in shooting	Social Cohesion
188	Impact of stopping - intergenerational bond - social cohesion	Social Cohesion - intergenerational
189	Lack of younger participants	Social Cohesion - intergenerational
190	Social Cohesion - intergenerational bonding	Social Cohesion - intergenerational
191	Contributes to day - provides catering voluntarily	Social Network
192	Enjoys providing good days shooting for others	Social Network
193	Impact of stopping - farm income diversification	Wider - Economic
194	Impact of stopping DGS - No Job financial	Wider - Economic
195	kids earn their own money	Wider - Economic
196	some need money - supplements income	Wider - Economic
197	Supplementary income	Wider - Economic
198	Supplementary income -seasonal work	Wider - Economic
199	Wider impact-Money funds local activities	Wider - Economic
200	Payment funds other social activities	Wider - Economic & Social
201	Straight and narrow - firearms licence cert - young	Wider - Economic & Social
202	supplementary income to enhance life	Wider - Economic & Social
203	Environmental Impact - UK countryside	Wider - Environmental
204	Impact of stopping – environment	Wider - Environmental
205	Wider impact Birds of Prey benefit	Wider - Environmental
206	Prepared food for those in need free of charge	Wider - Social
207	Spot wildlife	Wider - Social
208	Wider impact - helping those less fortunate	Wider - Social
209	Wider impact - less pigeon shooters, grain loss	Wider - Social
210	Doing it for the money - area lack of work	Wider - Social Determinants of Health
211	Flexible hours -fits in with other responsibilities	Wider - Social Determinants of Health
212	Human Capital -Training - skills (SDH)	Wider - Social Determinants of Health

213	Wider concern - all meat used	Wider concerns
214	Wider concern - anti shooting people?	Wider concerns
215	Wider concern - DGS community not media savvy	Wider concerns
216	Wider concern - impact of big bird bags 'birds as clays'	Wider concerns
217	Wider concern -big bird days	Wider concerns
218	Wider concern -lead going into the ground	Wider concerns
219	Art to shooting	Wider Impact - Perceptions
220	Gun more interested in experience than bird numbers	Wider Impact - Perceptions
221	Skill side - respect for birds	Wider Impact - Perceptions
222	widening understanding - non-shooting dog training	Wider Impact - Perceptions
223	Wider impact- all game used	Wider Impact - Perceptions
224	Wider Social Impact - concern re wastage - Sustainability & Reputation	Wider Impact - Perceptions
225	Wider Societal lack of understanding of food chain and nature	Wider Impact - Perceptions
226	Wider society - animal welfare	Wider Impact - Perceptions
227	Wider Impact - concern about unethical guns/shooters	Wider Impact - potential conflicts
228	Wider Impact - Conflict with anti-shoot newcomers	Wider Impact - potential conflicts
229	Wider Impact - getting used to dead birds?	Wider Impact - potential conflicts
230	Wider impact - non shooting neighbours	Wider Impact - potential conflicts
231	Wider society - town vs country	Wider Impact - potential conflicts
232	Understand how food is produced	Wider Impact – Understand nature/food production
233	Access to shooting ground year round - widening part	Wider Participation
234	New participant	Wider Participation
235	No family shooting links	Wider Participation
236	One invite to beat in teens led to interest - SC bridging?	Wider Participation
237	Rural life offered participation	Wider Participation
238	SC leading to wider participation	Wider Participation
239	SC led to DGS involvement	Wider Participation
240	Shared gun - wider participation cuts cost	Wider Participation
241	Shoot access widening participation	Wider Participation
242	Smaller shoots - egalitarian	Wider Participation
243	Social Enterprise -widens participation?	Wider Participation
244	Syndicate member - low cost	Wider Participation
245	Syndicate member - SC Bridging	Wider Participation
246	Wider participation - urban background	Wider Participation
247	Wider participation Beaters occasionally shoot on syndicate days	Wider Participation

Appendix K: Outlier tables and Boxplots

	Original dataset size	Standard outliers[2] found	Extreme outliers[2] found	Outliers removed	Final dataset size	Outliers left in data-set	% represented by outliers DGS dataset
DGS Dataset Age	2393	5	0	1[74]	2392	4	0.17%
DGS Dataset SWEMWBS	2425	16	5	1[4]	2424	20	0.80%

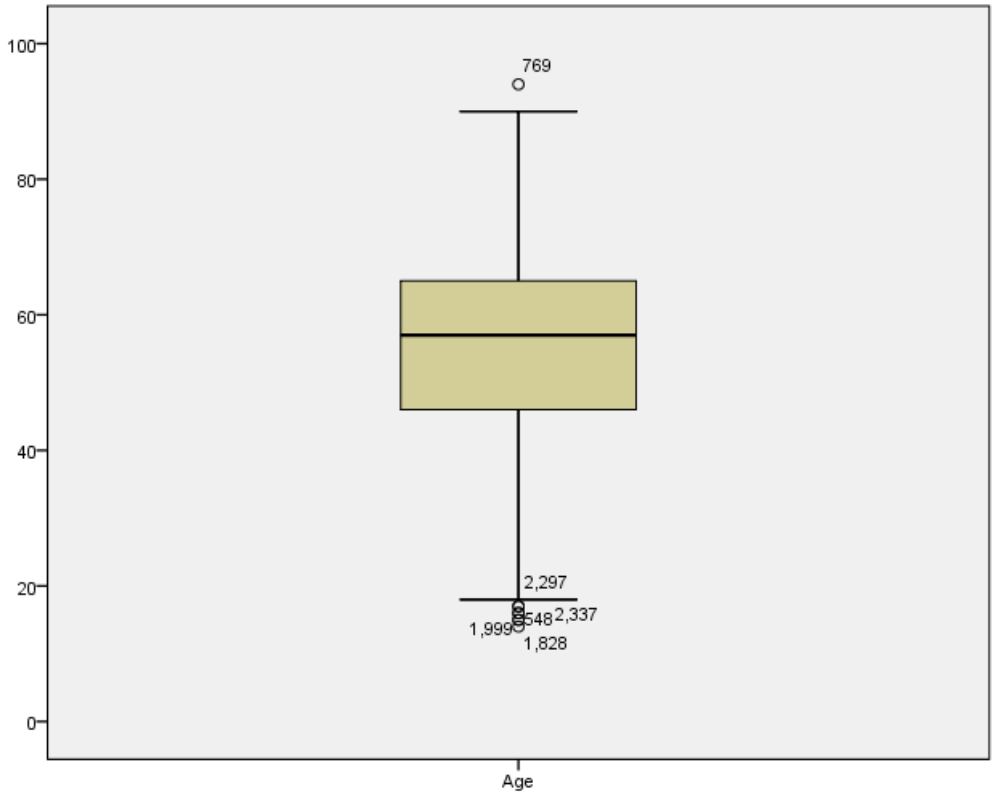
Retained outliers:

Response Details	Dataset size	Outliers left in data-set	% represented by outliers DGS dataset
National Dataset[75] SWEMWBS	37469	15	<0.01%
National Dataset Age	37469	0	<0.01%
SN1 If I needed help, I can rely on my friends from within the shooting community	2424	6	<0.01%
SN2 Friendship and camaraderie are key reasons for me to participate in DGS	2424	6	<0.01%
SN3 I have made some close, long-term friends from my involvement in DGS	2424	6	<0.01%
I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me	2424	0	0%
I participate in DGS because shooting is a past time regularly practised in the area in which I now live	2424	4	<0.01%
I participate in DGS because I feel a connection to the countryside and rural life	2424	6	<0.01%
People in towns and cities don't understand DGS is a part of rural life.	2424	6	<0.01%
I am concerned that 'big bag' days can present shooting in a poor light.	2424	6	<0.01%

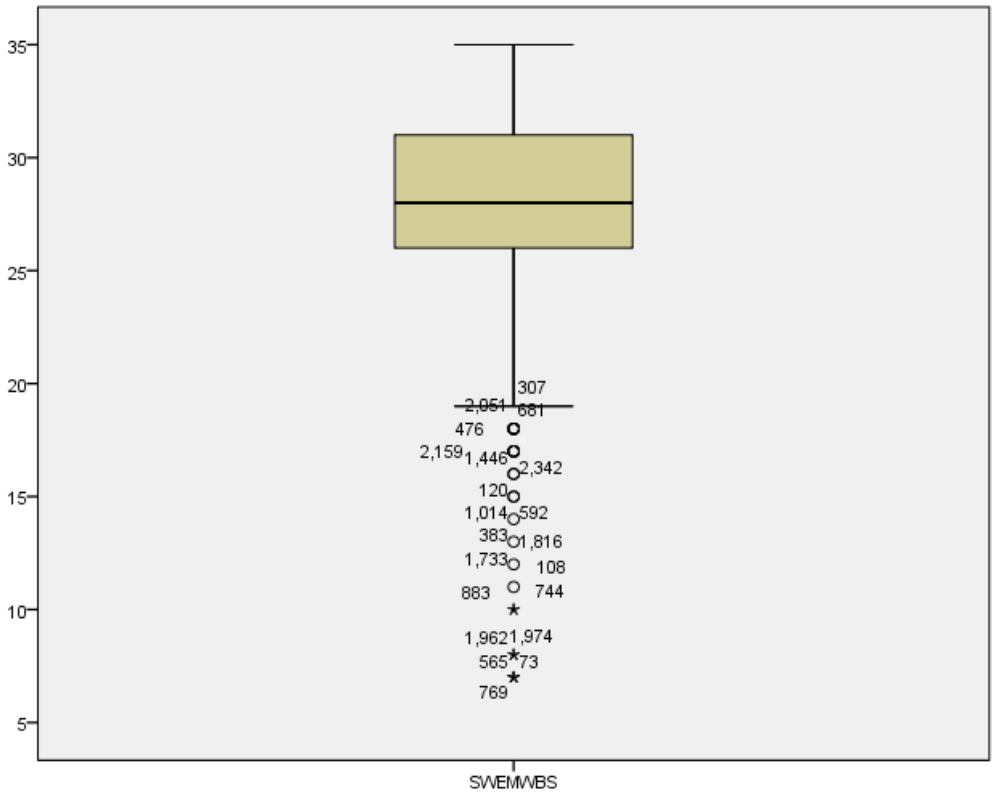
[74] The outlier removed for both SWEMWBS & age is the single response referred to in section 7.3.2.
[75] Only those respondents that had provided an age and SWEMWBS were included in the national dataset sample (Data selected for inclusion in comparative dataset using following in SPSS: age>=1&SWEMWBS>=1)

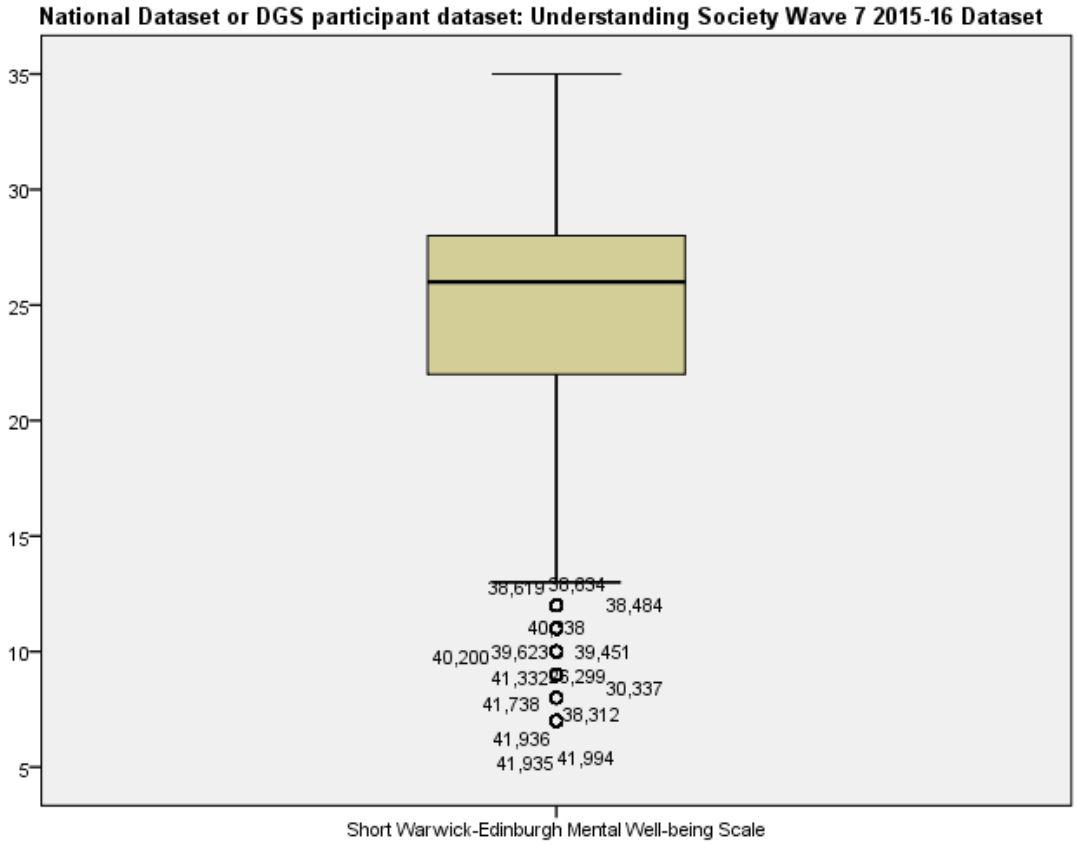
BOXPLOTS:

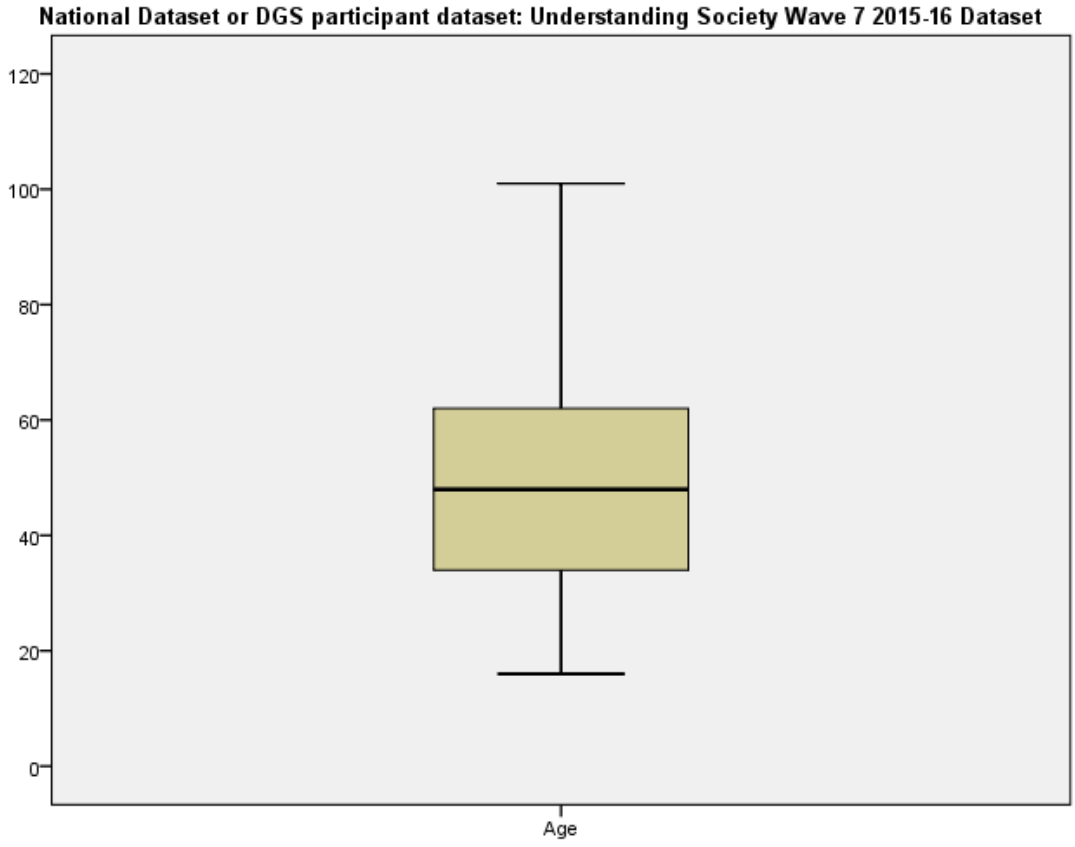
DGS Dataset AGE (769 removed from final dataset)

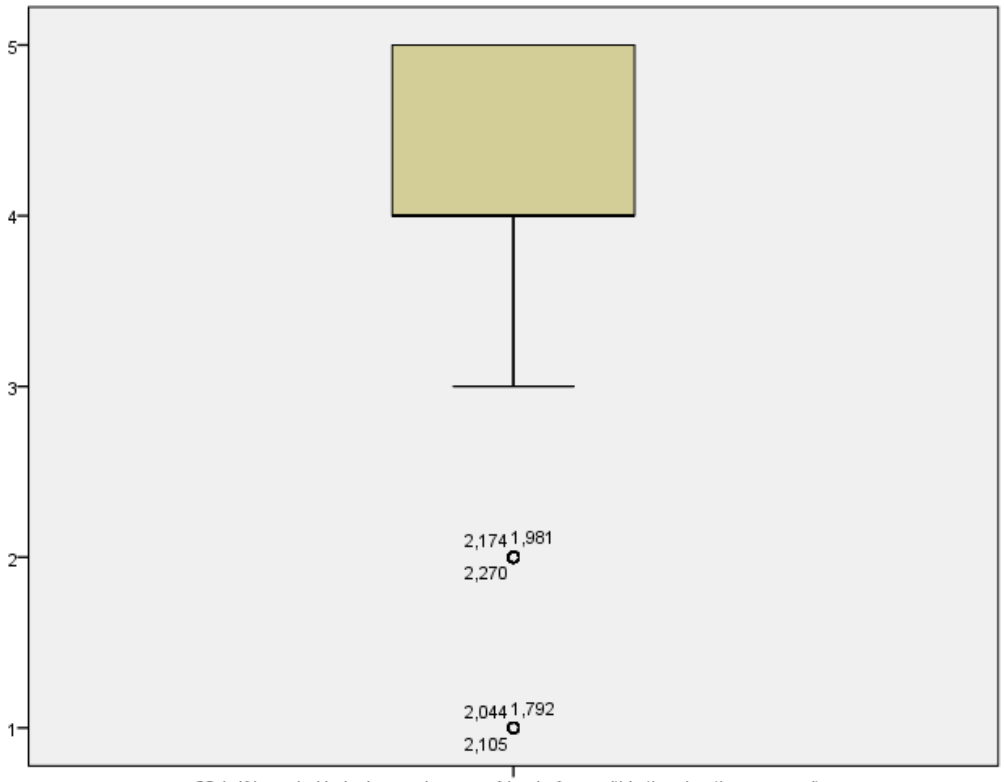


DGS Dataset SWEMWBS DGS (769 removed from final dataset)

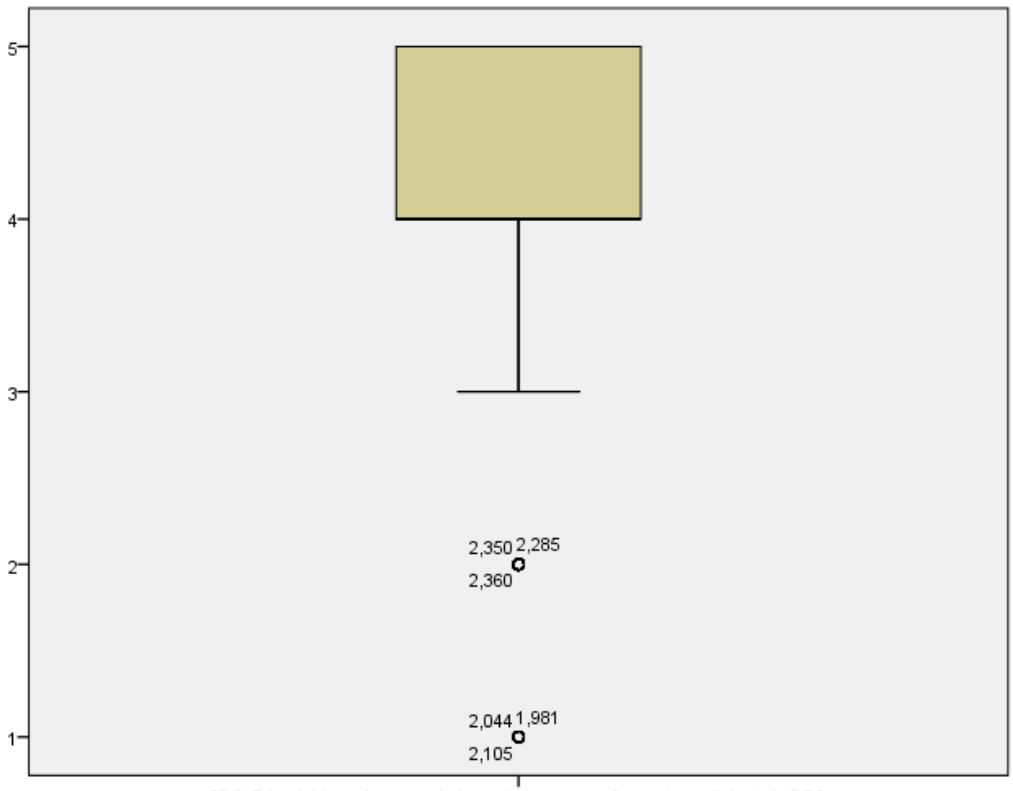



National Dataset or DGS participant dataset: Understanding Society Wave 7 2015-16 Dataset
35
30
25
20
15
10
5
38,619
38,484
40
38
40,200
39,623
39,451
41,332
30,337
41,738
38,312
41,936
41,935
41,994
Short Warwick-Edinburgh Mental Well-being Scale

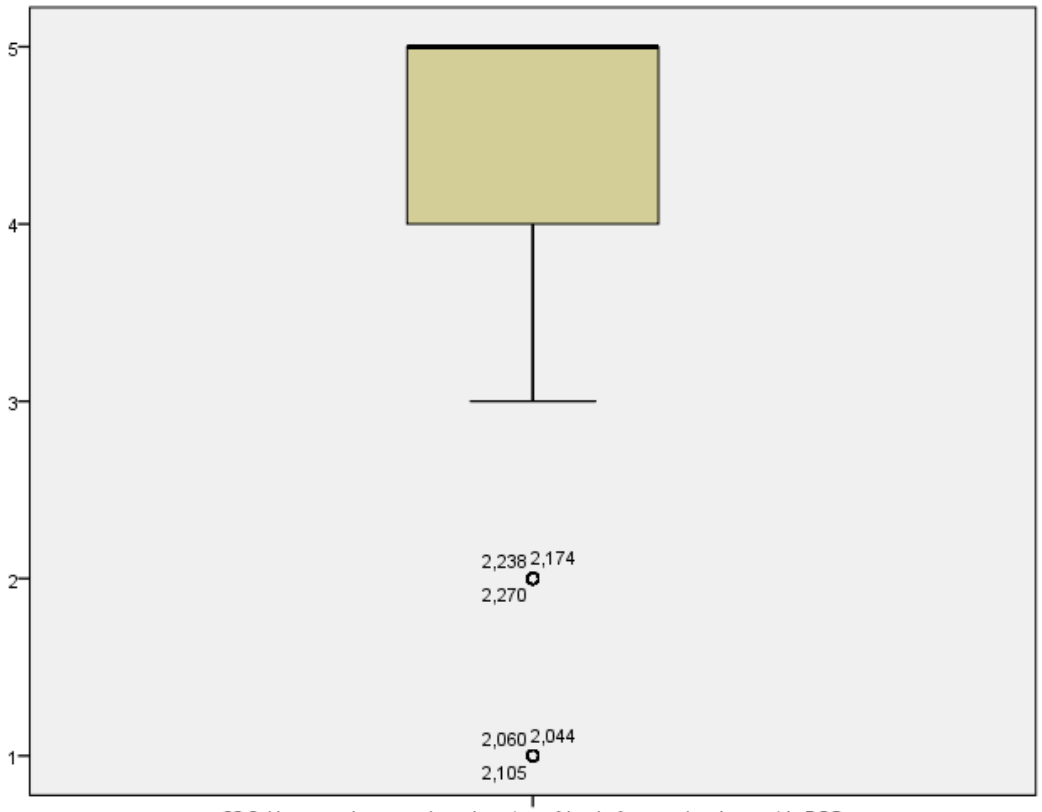

National Dataset or DGS participant dataset: Understanding Society Wave 7 2015-16 Dataset
120
100
80
60
40
20
0
Age



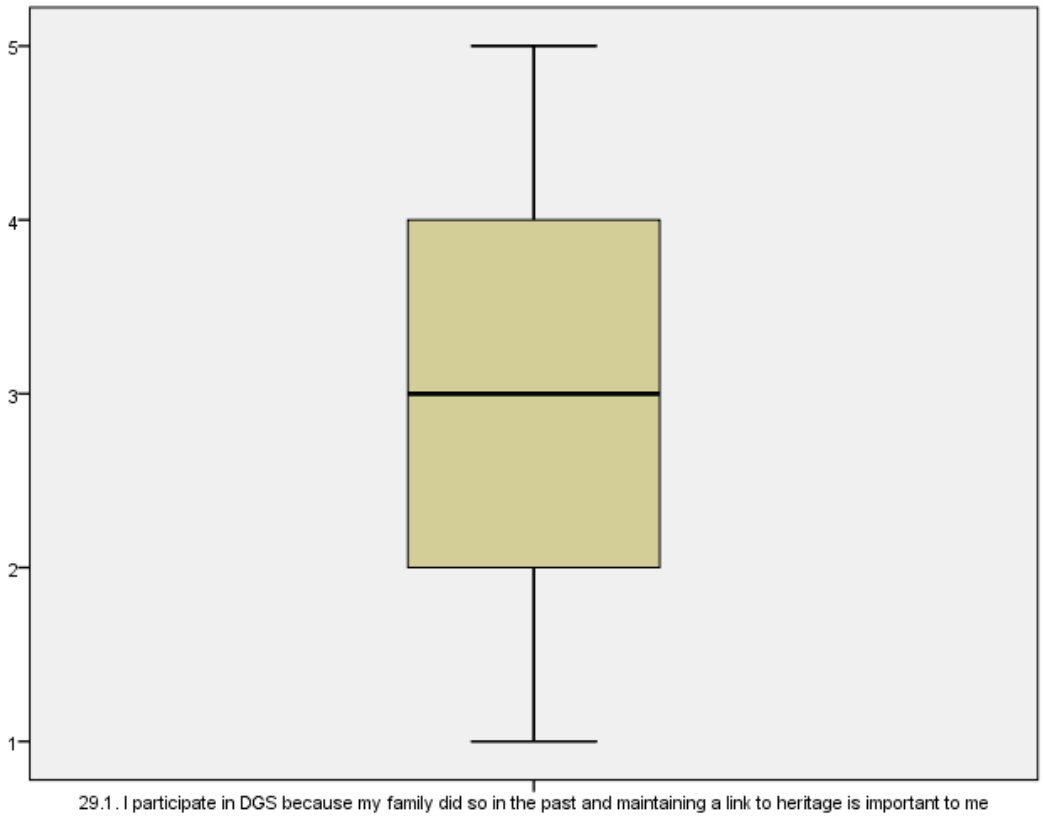
28.1. If I needed help, I can rely on my friends from within the shooting community



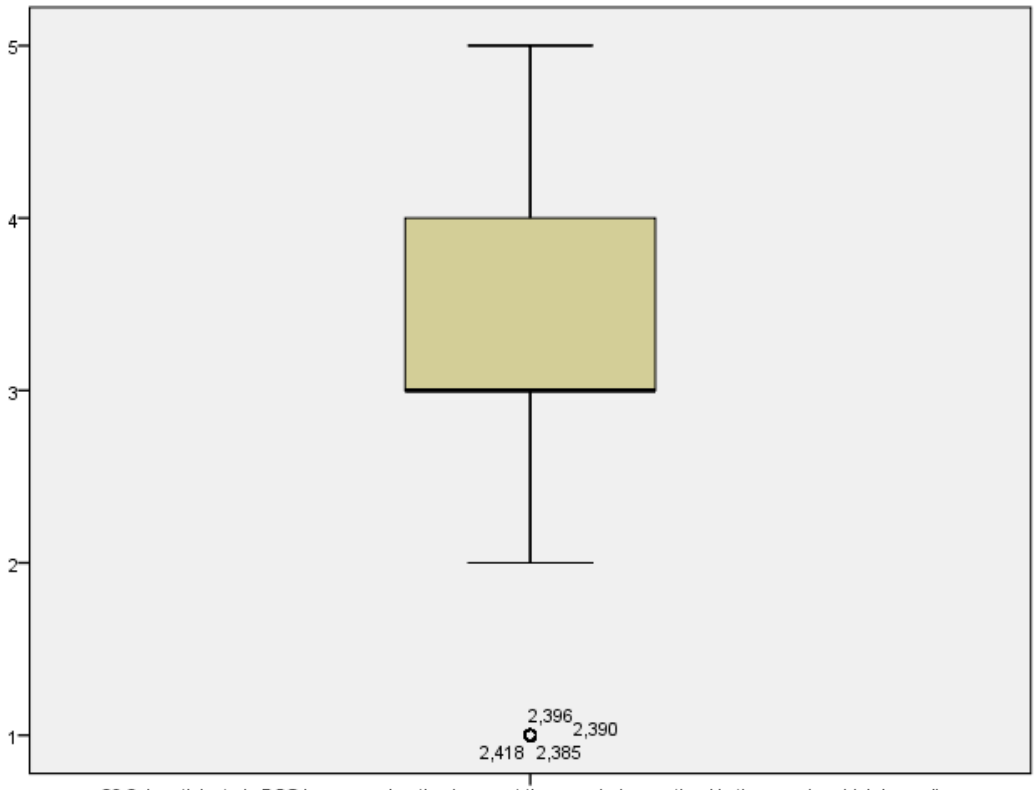
28.2. Friendship and camaraderie are key reasons for me to participate in DGS



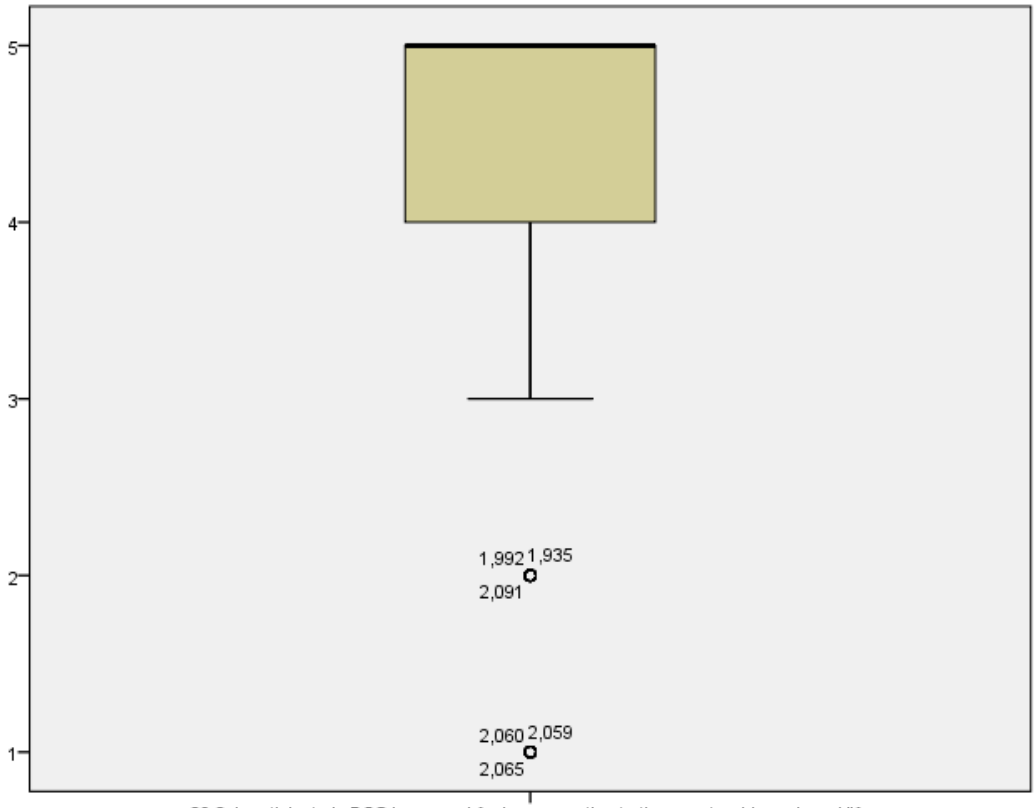
28.3. I have made some close, long-term friends from my involvement in DGS



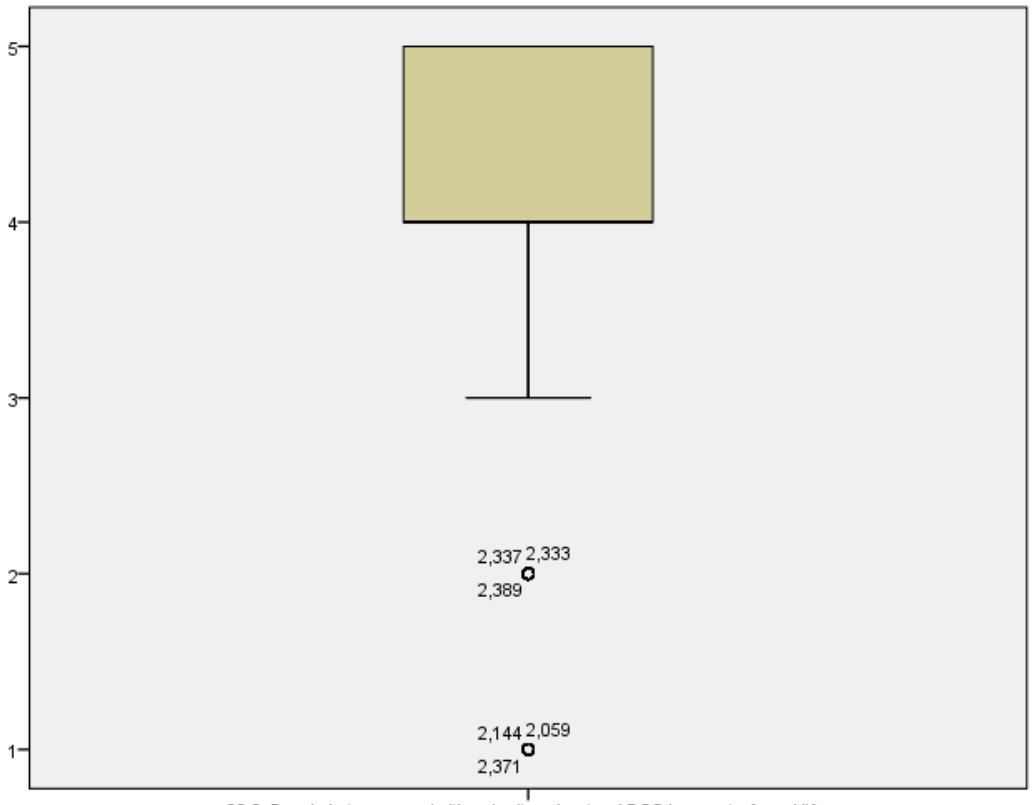
29.1. I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me



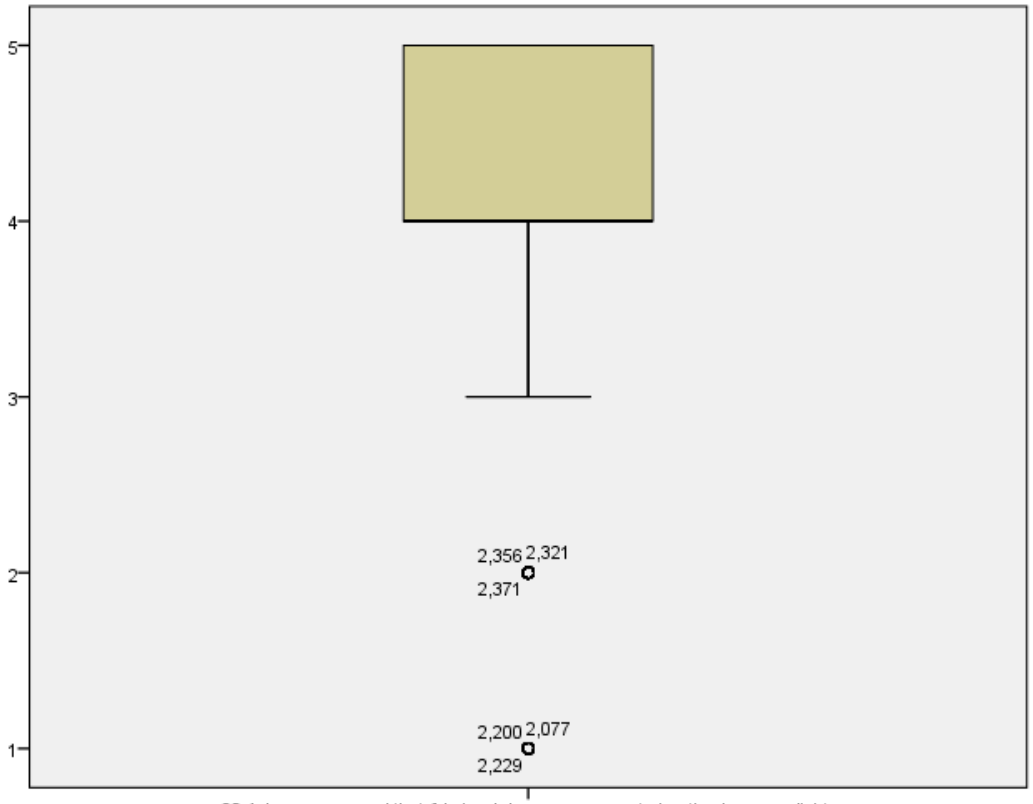
29.2. I participate in DGS because shooting is a past time regularly practised in the area in which I now live



29.3. I participate in DGS because I feel a connection to the countryside and rural life



30.3. People in towns and cities don't understand DGS is a part of rural life.



30.4. I am concerned that 'big bag' days can present shooting in a poor light.

Appendix L: Semi-structured interview questionnaire

Participant Number…… Name…… Telephone Number ……

Date……. Time…….

I am doing a research project into the 'social impacts' of driven game shooting. By 'social impacts' I mean what difference being involved in some aspect of driven game shooting has on people's social and work lives and perhaps their health and well-being. Some early work I have done suggests that there may be an impact on areas like relationships, friendship groups and social networks. The effects may be on you, or you and the people you know, or even the whole community. We don't know any of the answers to these questions and that is why I am speaking to you today.

I am interviewing guns, beaters, pickers-up and others involved in DGS across a range of different types of shoot. What you say is completely anonymous. I may quote something you have said in the final report, but I will change your name and ensure you are not identifiable from the comment. The results will be used to identify any key themes that emerge across all of the interviews. I will then build a questionnaire for wider distribution. The information gathered from the interviews and the questionnaire will be analysed and used to develop a way to better measure the social impacts of driven game shooting in the future.

First of all, could you please tell me a little bit about yourself?

Age ……

Sex …….

Background, job etc

……

……
……
……
……

How do you take part in DGS? (All that apply) How long?

Beater	Picker	Gun	Game-keeper	Other (specify)

2a. (non guns only) If also shoot ask how often. Type of shoot

……

……

……

……

Where do you live? How long? What is that like?

Rural	Village	Town	City	Suburb

……

……

……

……

……

What do you get out of beating/DGS involvement? Why do you do it on a rainy day in winter?

Meet like-minded people-bonding SC Identity control theory

Identity/heritage/family/rural pastime/return to home - Intangible cultural heritage/identity/Bonding SC

Exercise, fresh air – H&WB

Long-term condition?…-primarily non-guns

……

……

……

……

……

Question 5 – Choose appropriate question

Guns	Beaters no Gun Dog	Beaters/Pickers up with gun dog	Others
Typically, roughly how much do you spend on a day's shooting?	How often and do you get paid?	How often and do you get paid?	Are you paid for your role?/Do you earn income?
	How often beat	How often beat/pick up?	
		Payment?	
	Payment?		
How often shoot			Travel distances?
		Costs covered?	
Are you a member of a syndicate? – type – working parties	Costs covered?		
		Would you continue to own a gun dog if you stopped picking up?	
Syndicate-mix-size beat/shoot? Or just shoot?			
	How far do you travel to beat?	How far do you travel to take part in DGS?	
Types of shoot – just one or several -different types -some commercial some syndicate	Do you come on your own, or with somebody?	Do you come on your own, or with somebody?	

……
……
……
……

What type of people do you meet when shooting?

Beaters and guns together? (bridging) (does this differ if multiple shoot types attended)

business links (bridging/bonding/linking sc?)

social links (bonding sc/bridging sc?)

……

……

……

……

……

Do you meet up with anybody involved in driven game shooting outside of the shoot season?

Where/how often

Annual beaters day?

……

……

……

……

……

Do you think other people get anything out of being involved in DGS? What? Could you tell me about them please? (possible people below)

beaters/pickers up/local community

Health/social/money?

Guns?

……

……

……

How did you first get involved in DGS? (if not answered above)

……

……

Do you have any (historic) geographical or family connections to shooting? (if not answered above)?

……

……

Do you have any connections via work and your wider social circle to shooting? (if not answered above)?

……

……

……

Have you ever found employment opportunities and/or training opportunities for either yourself or a friend or family member via contacts from DGS?

If yes, please give brief details …….

……

……

……

If you could no longer be involved in DGS how do you think that would that affect you?

……

……

13a How might it affect others?

……

……

Is there anything else you would like to add?

……

……

……

As I am assessing well-being I wonder if you would be able to answer this short survey which measures well-being: Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5

Short Warwick Edinburgh Mental Well-being Scale (SWEMWBS)

Appendix M: Cronbach's Alpha tests

Full dataset (2424 responses)

Case Processing Summary			
		N	%
Cases	Valid	2424	100.0
	Excluded[a]	0	.0
	Total	2424	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.845	7

Inter-Item Correlation Matrix							
	17.1. I've been feeling optimistic about the future	17.2. I've been feeling useful	17.3. I've been feeling relaxed	17.4. I've been dealing with problems well	17.5. I've been thinking clearly	17.6. I've been feeling close to other people	17.7. I've been able to make up my own mind about things
17.1. I've been feeling optimistic about the future	1.000	.481	.422	.398	.343	.376	.290
17.2. I've been feeling useful	.481	1.000	.431	.497	.463	.453	.409
17.3. I've been feeling relaxed	.422	.431	1.000	.503	.498	.408	.391
17.4. I've been dealing with problems well	.398	.497	.503	1.000	.627	.419	.470
17.5. I've been thinking clearly	.343	.463	.498	.627	1.000	.481	.578
17.6. I've been feeling close to other people	.376	.453	.408	.419	.481	1.000	.391
17.7. I've been able to make up my own mind about things	.290	.409	.391	.470	.578	.391	1.000

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
17.1. I've been feeling optimistic about the future	24.52	11.692	.520	.309	.837
17.2. I've been feeling useful	24.17	11.698	.627	.405	.819
17.3. I've been feeling relaxed	24.46	11.418	.603	.372	.823
17.4. I've been dealing with problems well	24.16	11.589	.667	.486	.814
17.5. I've been thinking clearly	23.99	11.685	.683	.539	.812
17.6. I've been feeling close to other people	24.22	11.575	.570	.333	.829
17.7. I've been able to make up my own mind about things	23.70	12.405	.565	.377	.829

Item Statistics			
	Mean	Std. Deviation	N
17.1. I've been feeling optimistic about the future	3.68	.872	2424
17.2. I've been feeling useful	4.04	.763	2424
17.3. I've been feeling relaxed	3.74	.841	2424
17.4. I've been dealing with problems well	4.04	.749	2424
17.5. I've been thinking clearly	4.21	.718	2424
17.6. I've been feeling close to other people	3.99	.843	2424
17.7. I've been able to make up my own mind about things	4.50	.676	2424

Beaters and pickers-up only (1530 responses)

Case Processing Summary			
		N	%
Cases	Valid	1530	100.0
	Excluded[a]	0	.0
	Total	1530	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.844	.848	7

Inter-Item Correlation Matrix

	17.1. I've been feeling optimistic about the future	17.2. I've been feeling useful	17.3. I've been feeling relaxed	17.4. I've been dealing with problems well	17.5. I've been thinking clearly	17.6. I've been feeling close to other people	17.7. I've been able to make up my own mind about things
17.1. I've been feeling optimistic about the future	1.000	.470	.424	.385	.350	.367	.304
17.2. I've been feeling useful	.470	1.000	.428	.505	.466	.455	.425
17.3. I've been feeling relaxed	.424	.428	1.000	.488	.484	.399	.400
17.4. I've been dealing with problems well	.385	.505	.488	1.000	.620	.398	.470
17.5. I've been thinking clearly	.350	.466	.484	.620	1.000	.487	.589
17.6. I've been feeling close to other people	.367	.455	.399	.398	.487	1.000	.396
17.7. I've been able to make up my own mind about things	.304	.425	.400	.470	.589	.396	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
17.1. I've been feeling optimistic about the future	24.44	12.066	.518	.300	.837
17.2. I've been feeling useful	24.07	12.069	.631	.409	.818
17.3. I've been feeling relaxed	24.39	11.731	.597	.362	.823
17.4. I've been dealing with problems well	24.08	11.954	.654	.476	.814
17.5. I've been thinking clearly	23.90	12.008	.687	.542	.811
17.6. I've been feeling close to other people	24.14	11.950	.563	.332	.829
17.7. I've been able to make up my own mind about things	23.62	12.641	.580	.393	.826

Syndicate Members only (1289 responses)

Case Processing Summary			
		N	%
Cases	Valid	1289	100.0
	Excluded[a]	0	.0
	Total	1289	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.843	.848	7

Inter-Item Correlation Matrix

	17.1. I've been feeling optimistic about the future	17.2. I've been feeling useful	17.3. I've been feeling relaxed	17.4. I've been dealing with problems well	17.5. I've been thinking clearly	17.6. I've been feeling close to other people	17.7. I've been able to make up my own mind about things
17.1. I've been feeling optimistic about the future	1.000	.468	.422	.374	.315	.343	.276
17.2. I've been feeling useful	.468	1.000	.433	.486	.463	.440	.407
17.3. I've been feeling relaxed	.422	.433	1.000	.507	.487	.415	.381
17.4. I've been dealing with problems well	.374	.486	.507	1.000	.645	.434	.480
17.5. I've been thinking clearly	.315	.463	.487	.645	1.000	.471	.619
17.6. I've been feeling close to other people	.343	.440	.415	.434	.471	1.000	.432
17.7. I've been able to make up my own mind about things	.276	.407	.381	.480	.619	.432	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
17.1. I've been feeling optimistic about the future	24.66	11.225	.494	.292	.840
17.2. I've been feeling useful	24.32	11.202	.619	.393	.818
17.3. I've been feeling relaxed	24.60	10.893	.604	.375	.820
17.4. I've been dealing with problems well	24.30	11.082	.670	.500	.811
17.5. I've been thinking clearly	24.12	11.176	.684	.567	.809
17.6. I've been feeling close to other people	24.34	11.062	.571	.333	.826
17.7. I've been able to make up my own mind about things	23.83	11.777	.581	.421	.824

Paying Guns Only (1459 responses)

Case Processing Summary			
		N	%
Cases	Valid	1459	100.0
	Excluded[a]	0	.0
	Total	1459	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.846	.850	7

Inter-Item Correlation Matrix

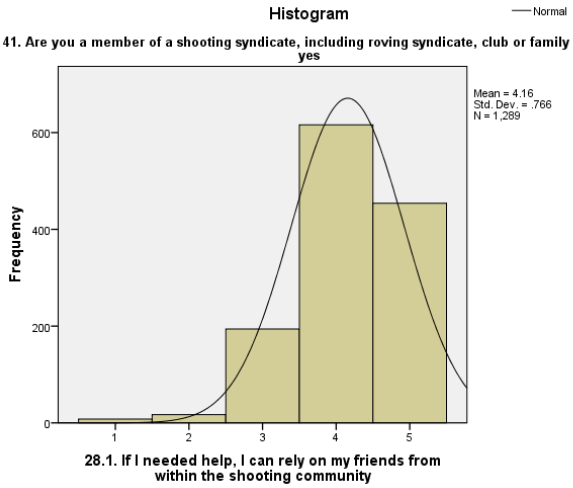
	17.1. I've been feeling optimistic about the future	17.2. I've been feeling useful	17.3. I've been feeling relaxed	17.4. I've been dealing with problems well	17.5. I've been thinking clearly	17.6. I've been feeling close to other people	17.7. I've been able to make up my own mind about things
17.1. I've been feeling optimistic about the future	1.000	.475	.410	.392	.315	.363	.281
17.2. I've been feeling useful	.475	1.000	.430	.492	.464	.461	.413
17.3. I've been feeling relaxed	.410	.430	1.000	.521	.495	.426	.381
17.4. I've been dealing with problems well	.392	.492	.521	1.000	.653	.447	.479
17.5. I've been thinking clearly	.315	.464	.495	.653	1.000	.464	.611
17.6. I've been feeling close to other people	.363	.461	.426	.447	.464	1.000	.414
17.7. I've been able to make up my own mind about things	.281	.413	.381	.479	.611	.414	1.000

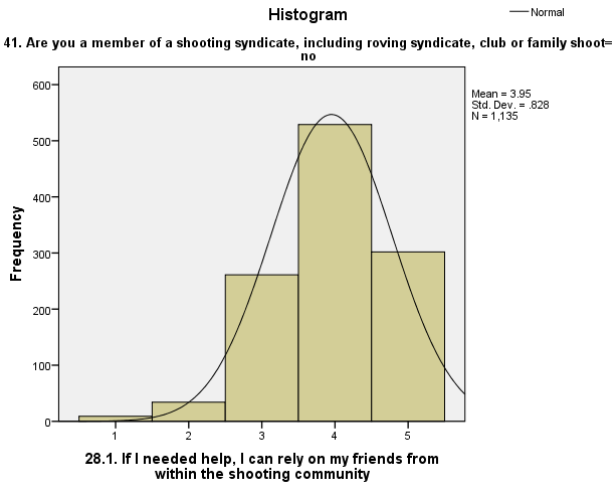
Item-Total Statistics

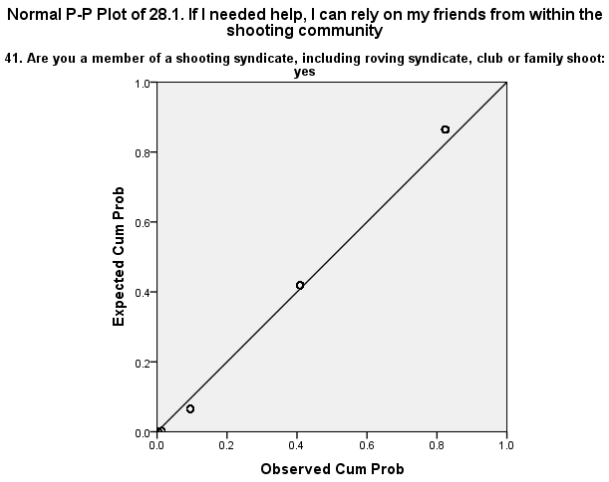
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
17.1. I've been feeling optimistic about the future	24.68	11.658	.500	.296	.842
17.2. I've been feeling useful	24.34	11.562	.626	.403	.821
17.3. I've been feeling relaxed	24.64	11.317	.604	.377	.825
17.4. I've been dealing with problems well	24.32	11.403	.684	.515	.813
17.5. I've been thinking clearly	24.17	11.503	.683	.567	.814
17.6. I've been feeling close to other people	24.39	11.376	.581	.341	.829
17.7. I've been able to make up my own mind about things	23.89	12.154	.576	.409	.829

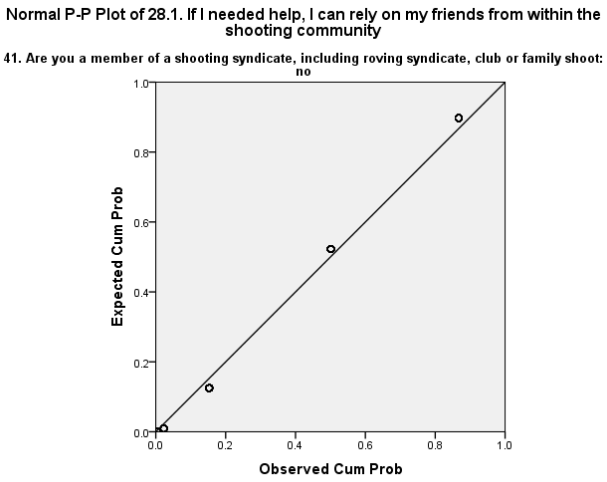
Appendix N: Normality Tests for each hypothesis.

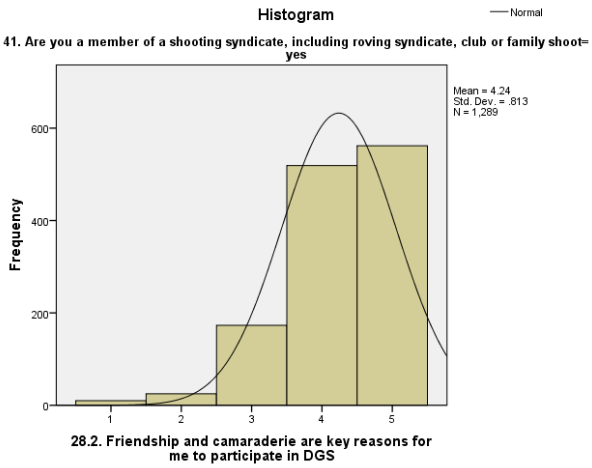
Hypothesis 1a

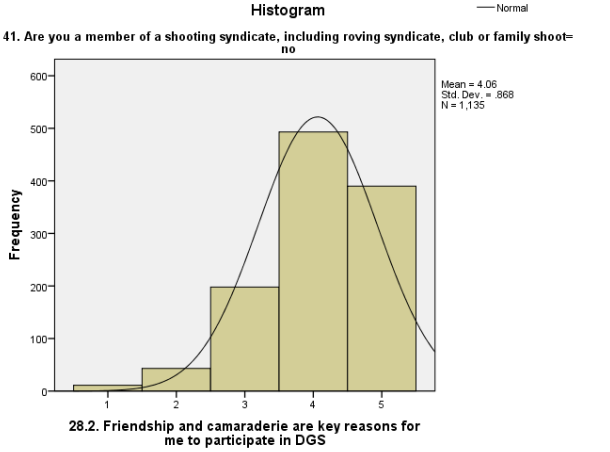






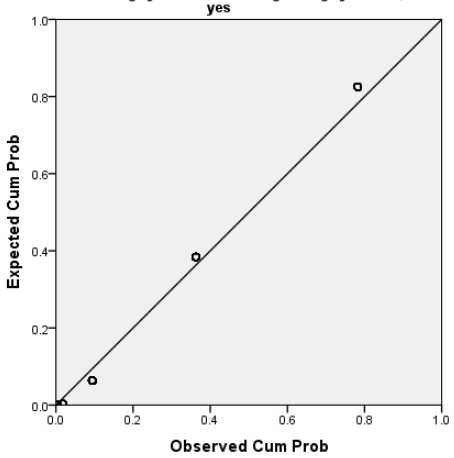






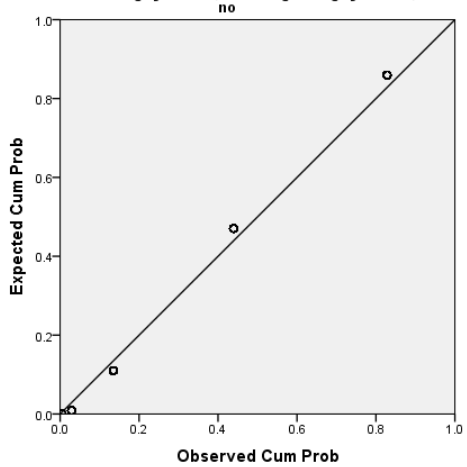
Normal P-P Plot of 28.2. Friendship and camaraderie are key reasons for me to participate in DGS

41. Are you a member of a shooting syndicate, including roving syndicate, club or family shoot: yes



Normal P-P Plot of 28.2. Friendship and camaraderie are key reasons for me to participate in DGS

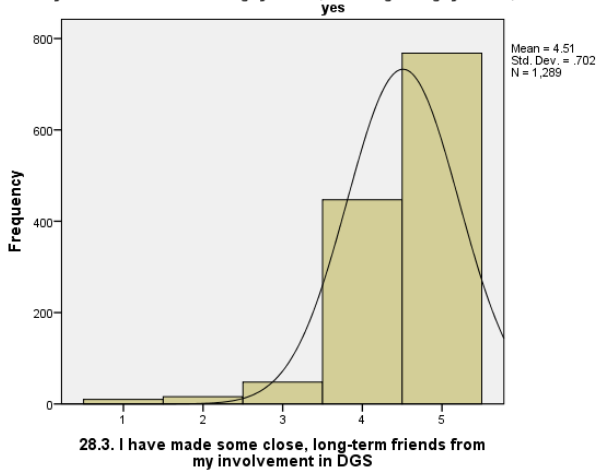
41. Are you a member of a shooting syndicate, including roving syndicate, club or family shoot: no



Histogram

Normal

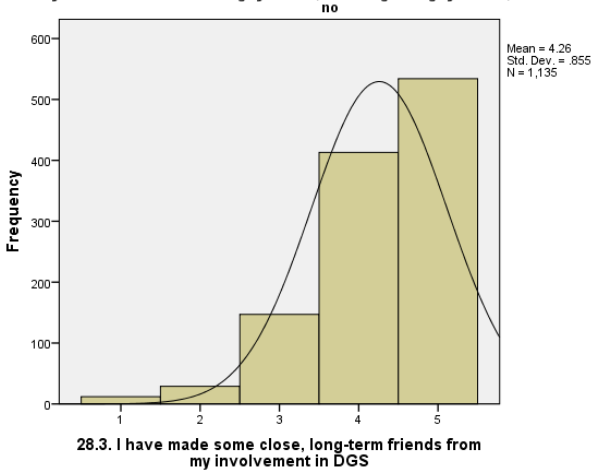
41. Are you a member of a shooting syndicate, including roving syndicate, club or family shoot= yes

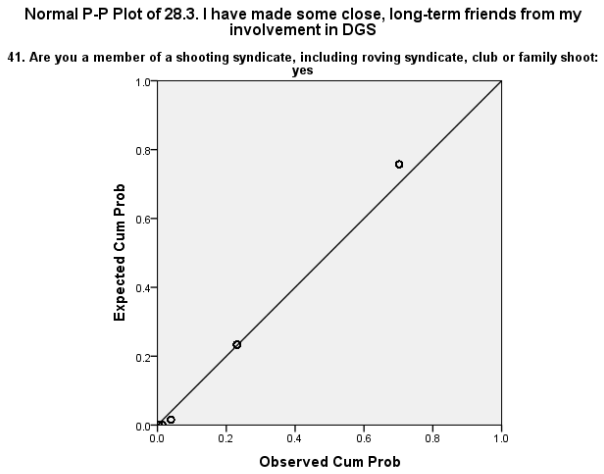


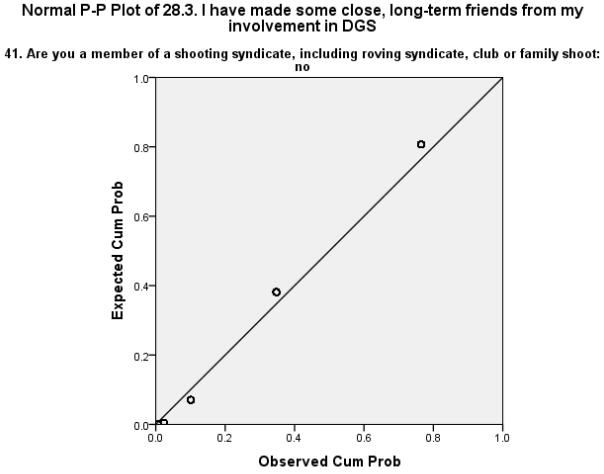
Histogram

Normal

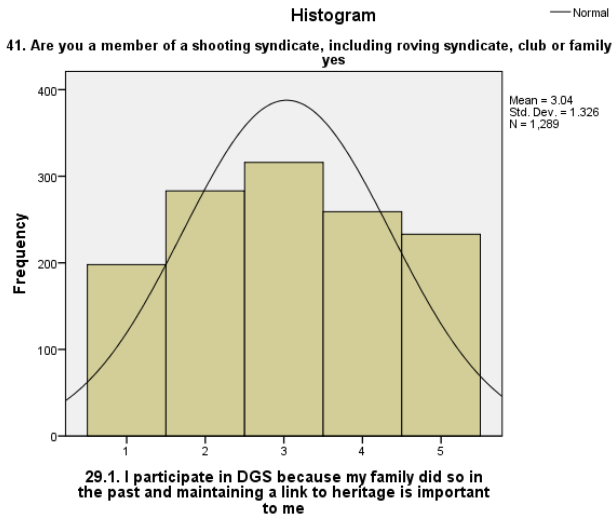
41. Are you a member of a shooting syndicate, including roving syndicate, club or family shoot= no

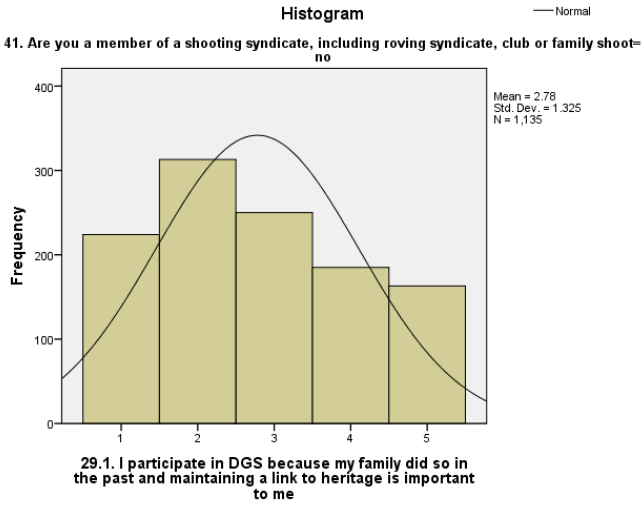


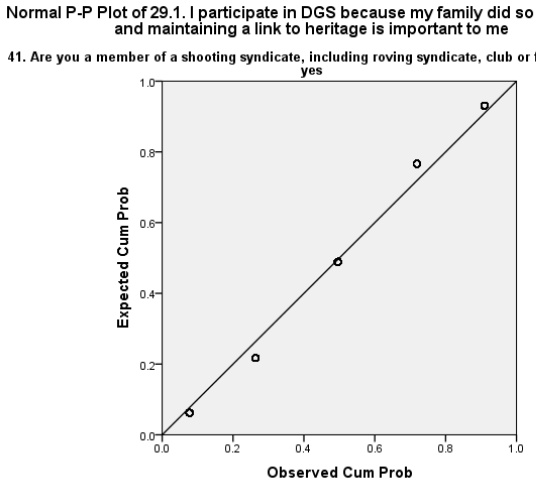


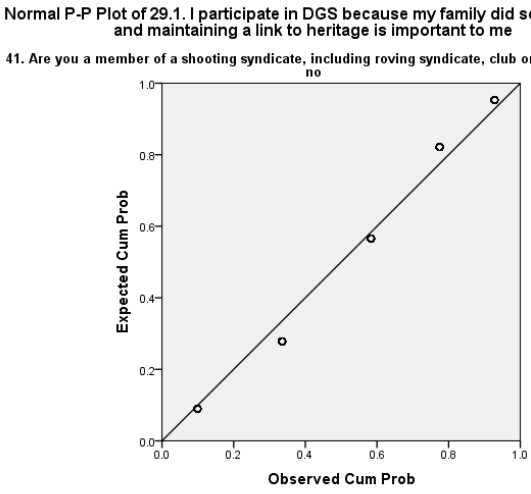


Hypothesis 1b

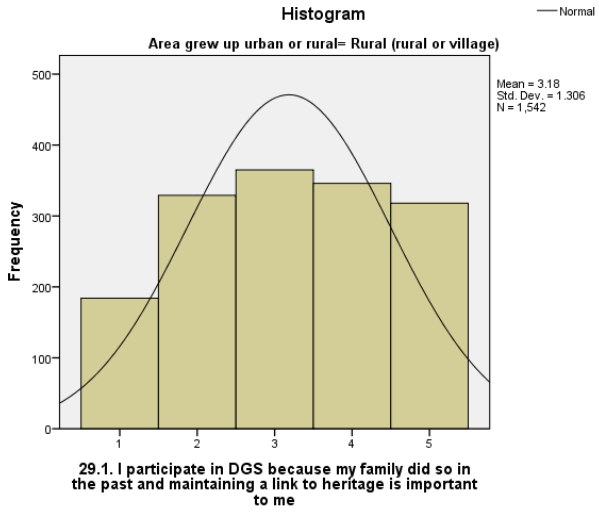


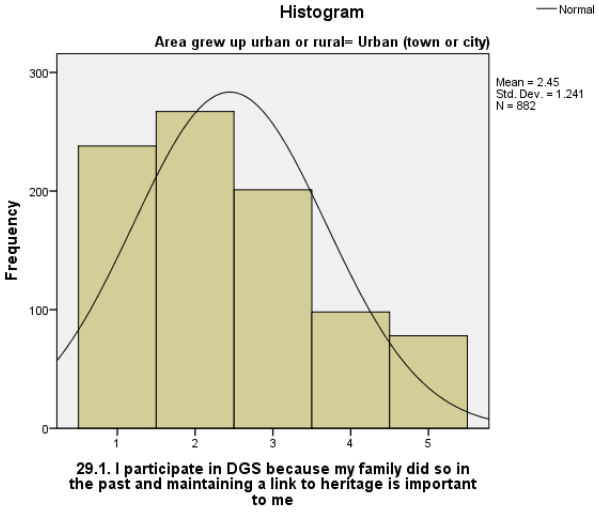


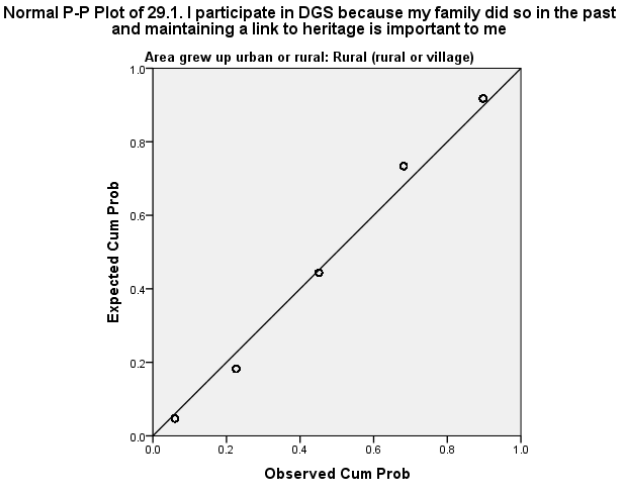


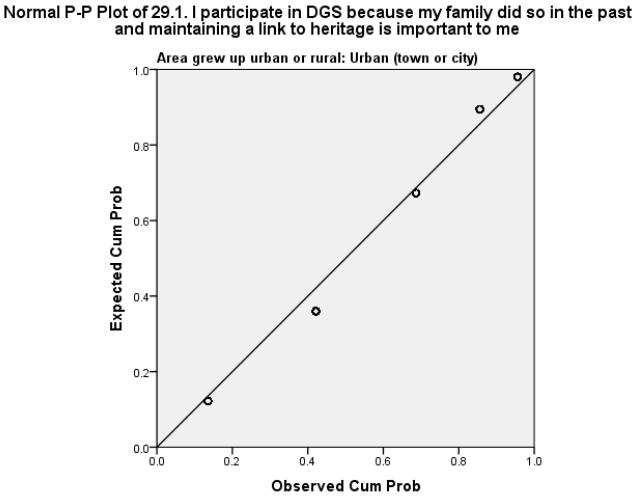


Hypothesis 1c

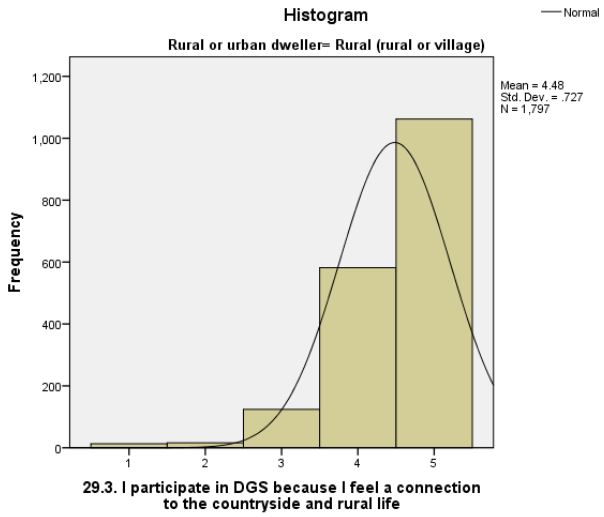


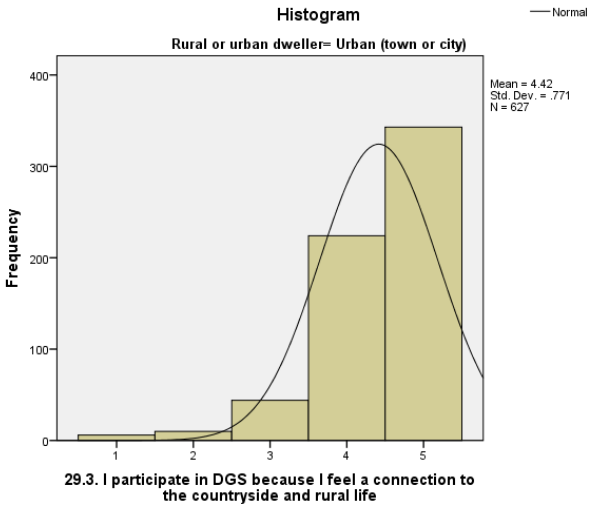


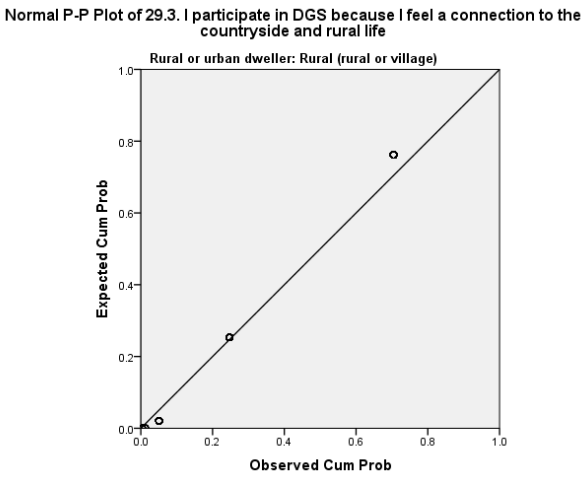


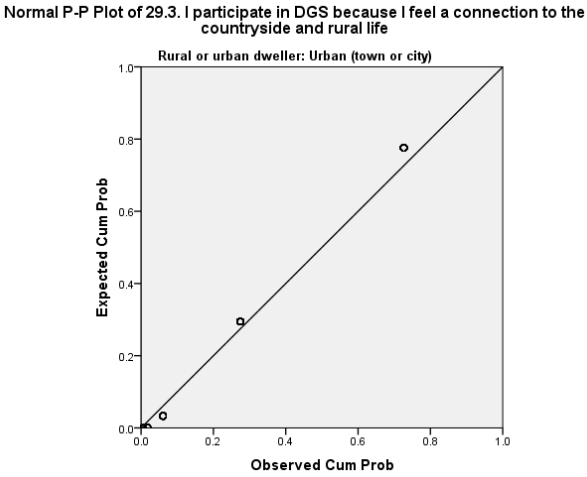


Hypothesis 1d

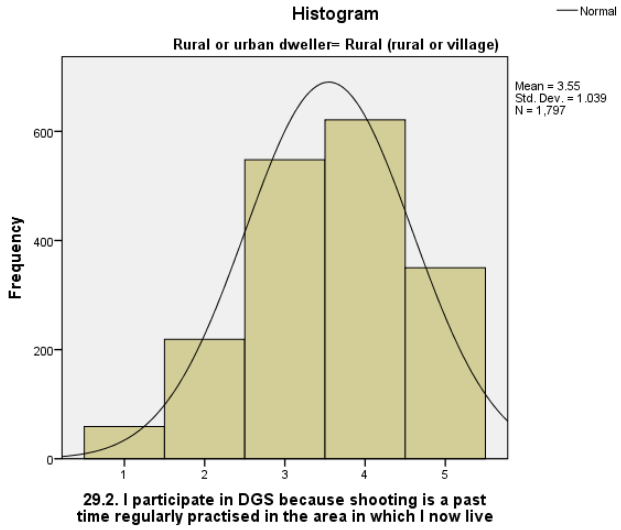


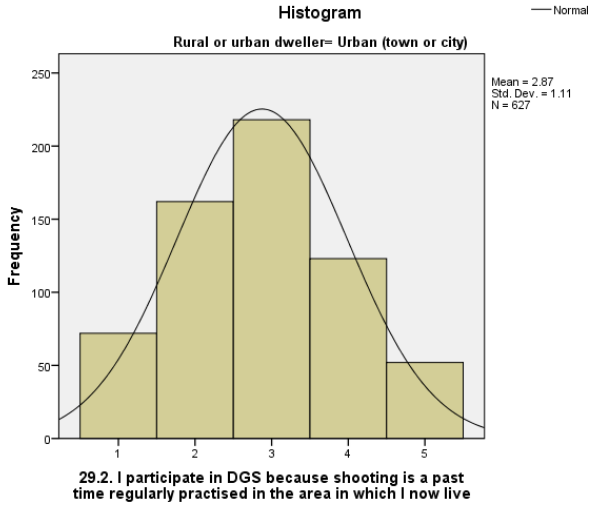


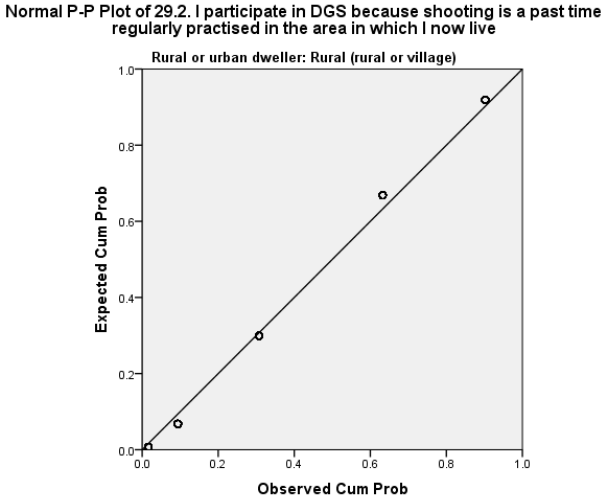


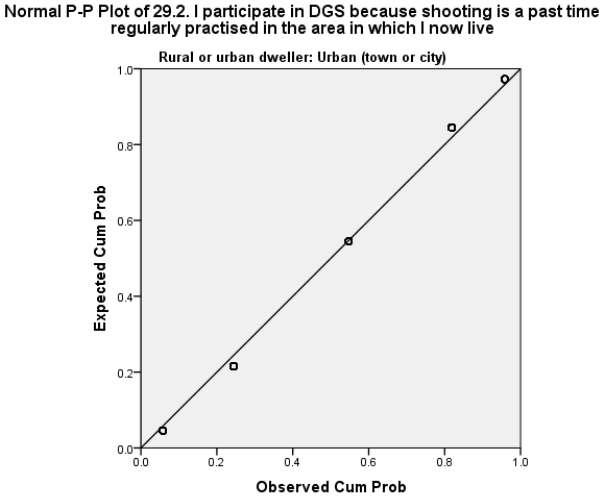


Hypothesis 1e

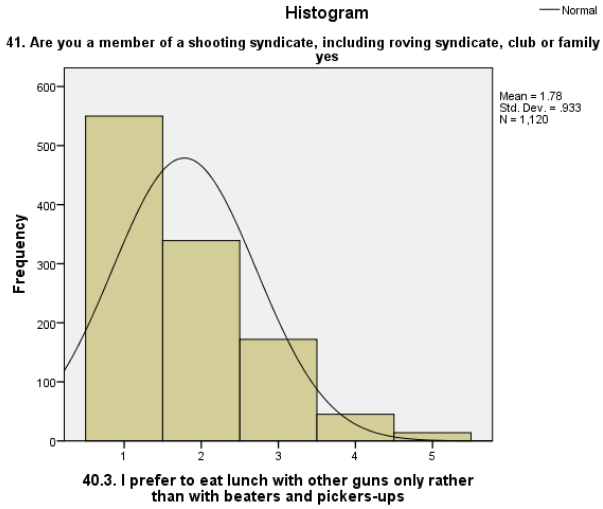


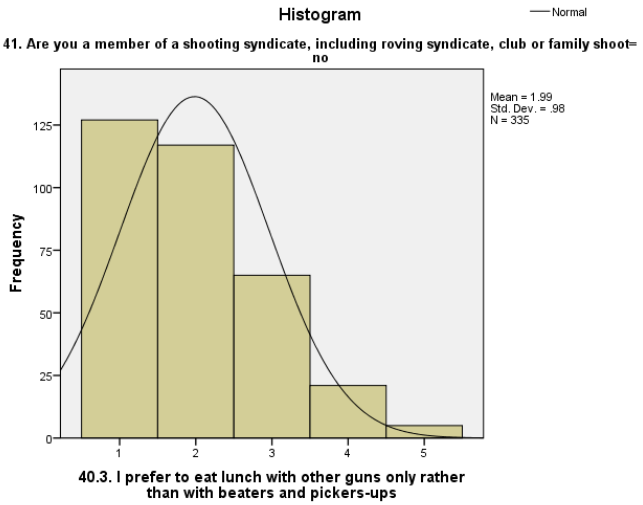


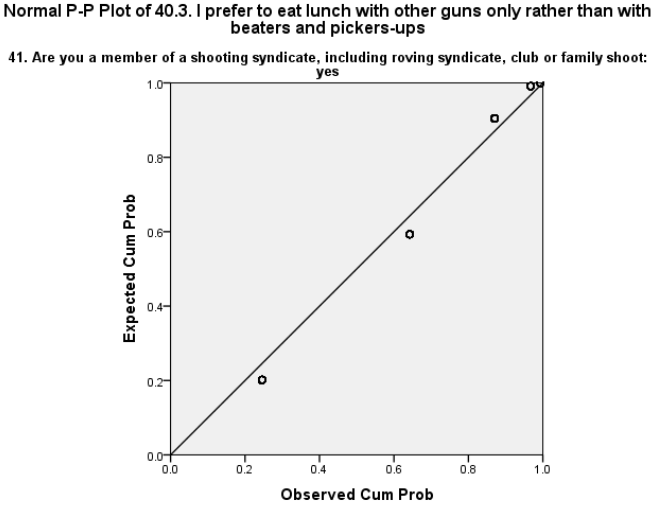


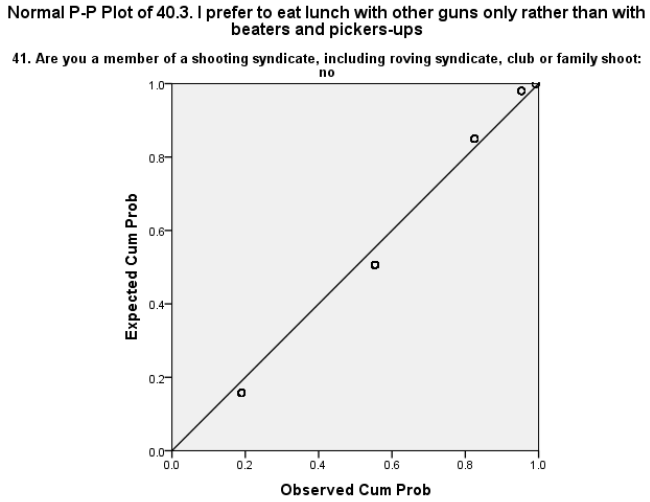


Hypothesis 1f



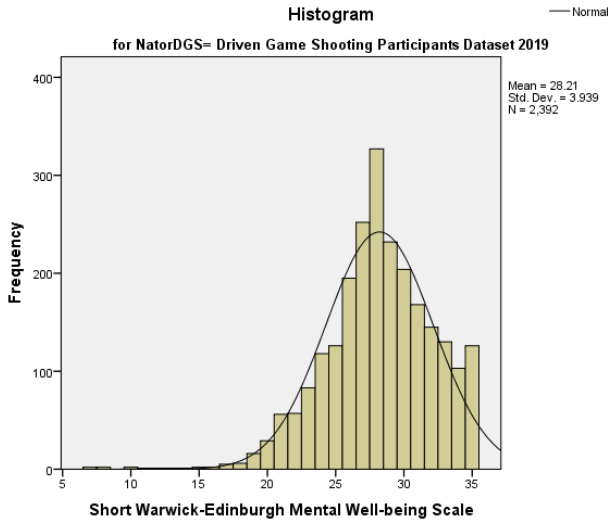


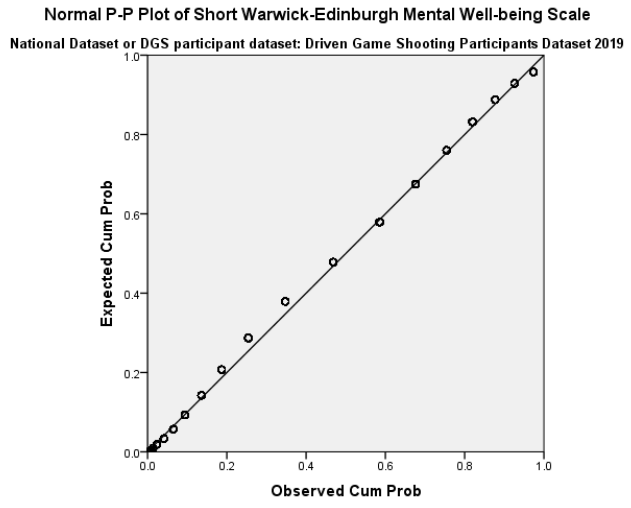




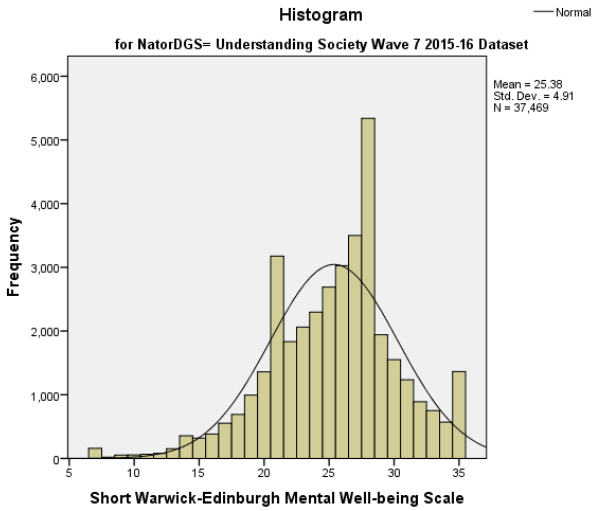
Hypothesis 2

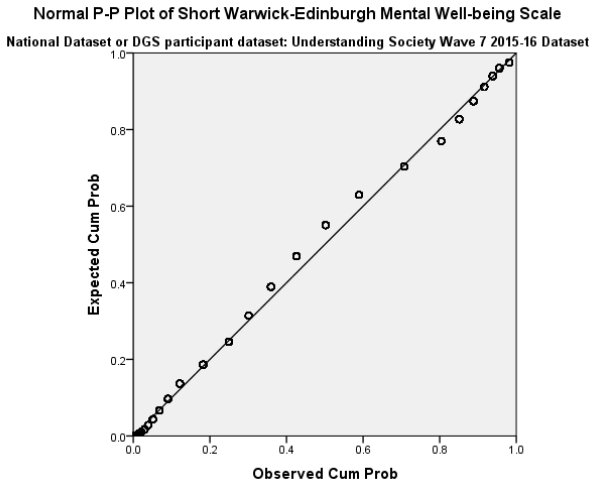
DGS Dataset

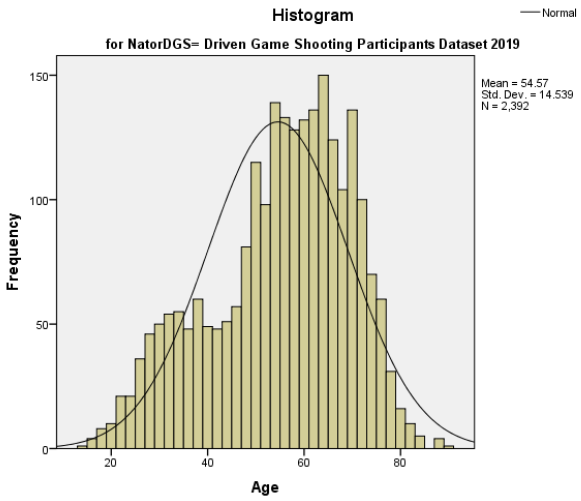


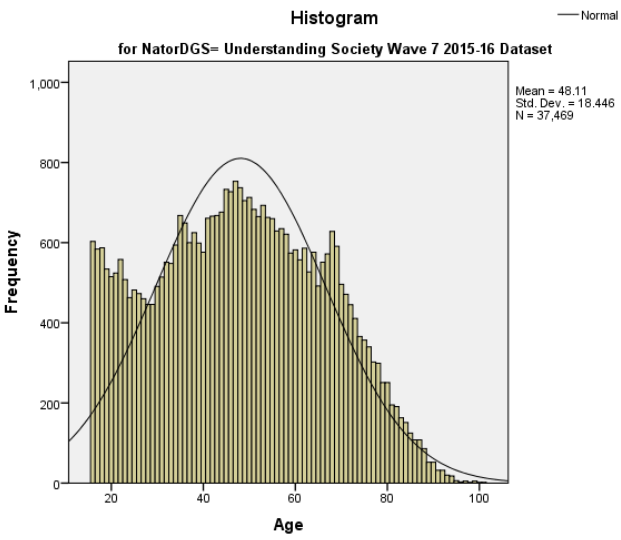


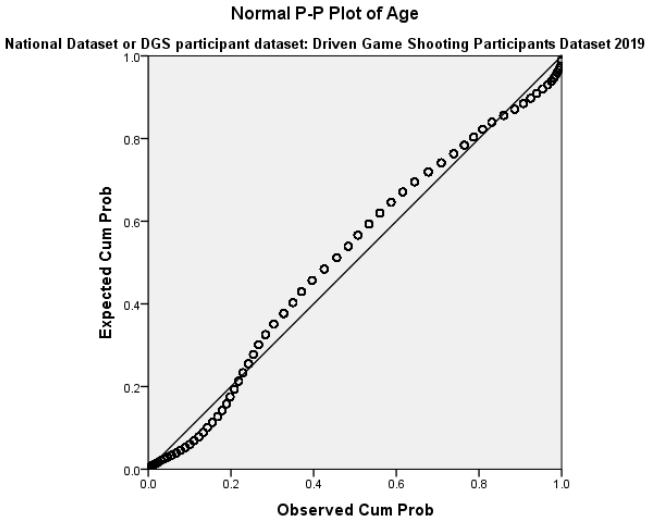
Understanding Society Wave 7 2015-16 dataset

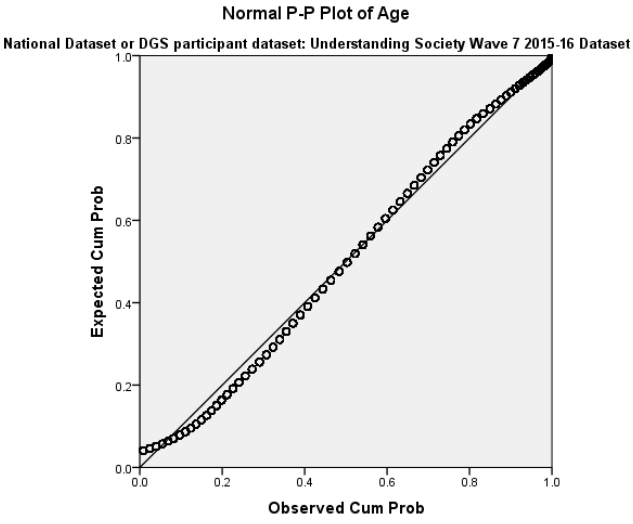




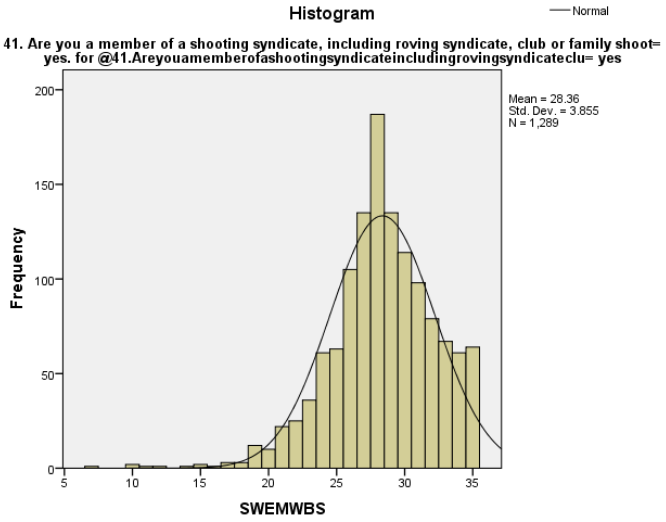

Histogram
for NatorDGS= Driven Game Shooting Participants Dataset 2019
Normal
Mean = 54.57
Std. Dev. = 14.539
N = 2,392
Frequency
Age

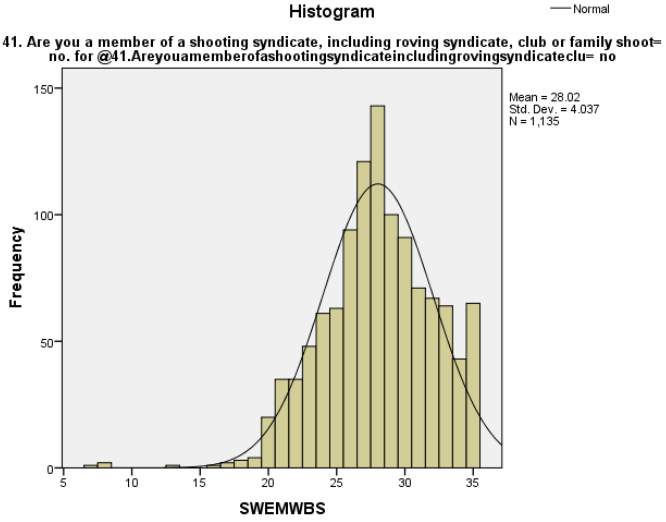

Histogram
for NatorDGS= Understanding Society Wave 7 2015-16 Dataset
Normal
Mean = 48.11
Std. Dev. = 18.446
N = 37,469
Frequency
Age

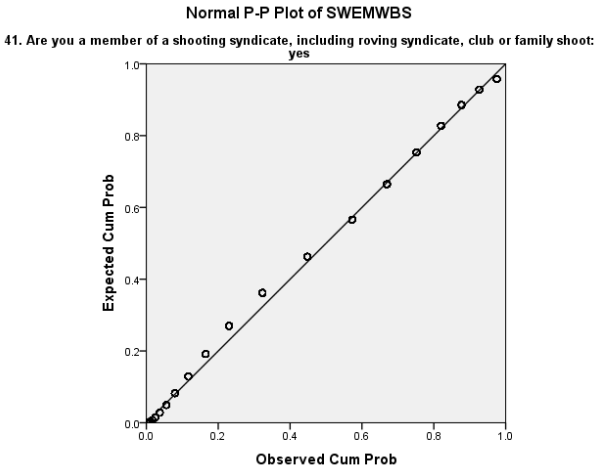

Normal P-P Plot of Age
National Dataset or DGS participant dataset: Driven Game Shooting Participants Dataset 2019
Expected Cum Prob
Observed Cum Prob

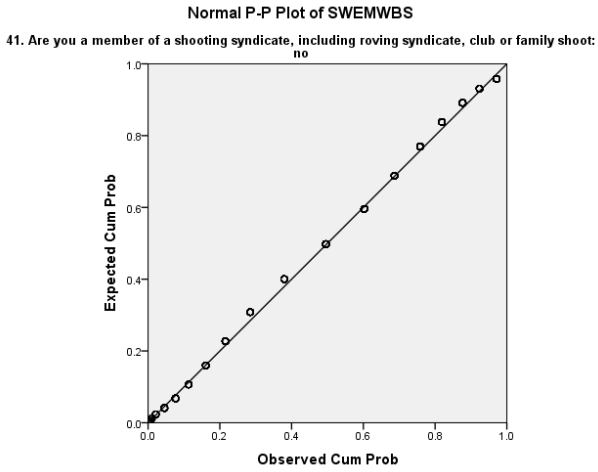

Normal P-P Plot of Age
National Dataset or DGS participant dataset: Understanding Society Wave 7 2015-16 Dataset
Expected Cum Prob
Observed Cum Prob

Hypothesis 2a

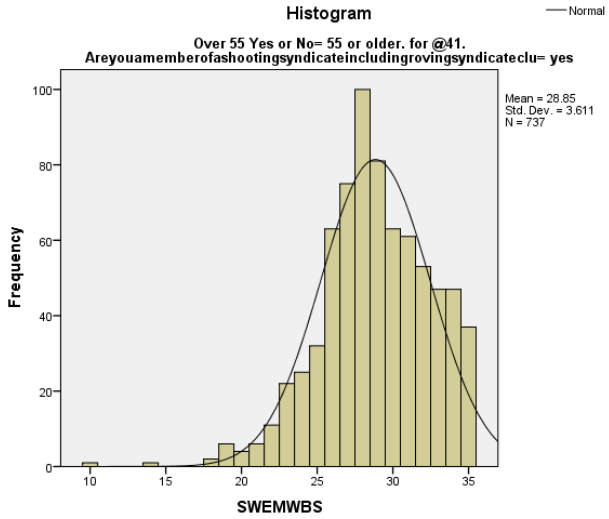


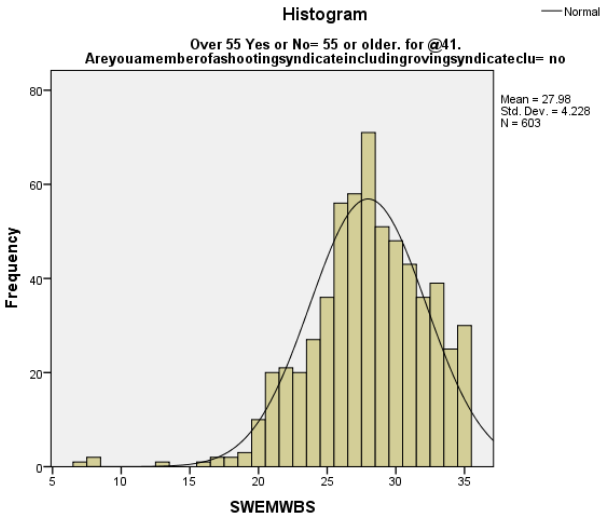


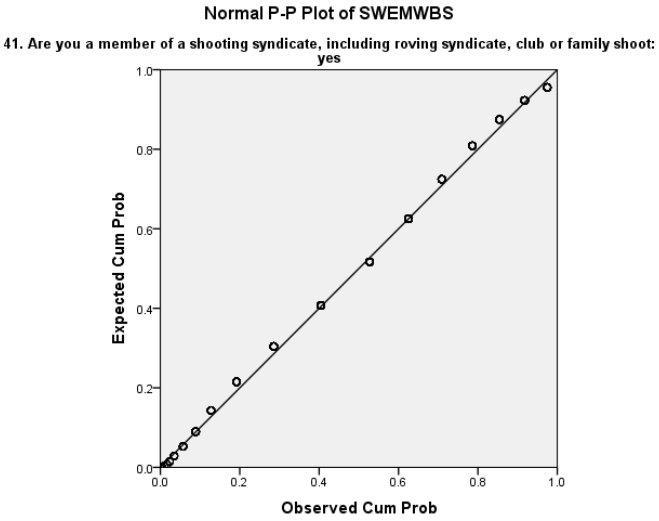


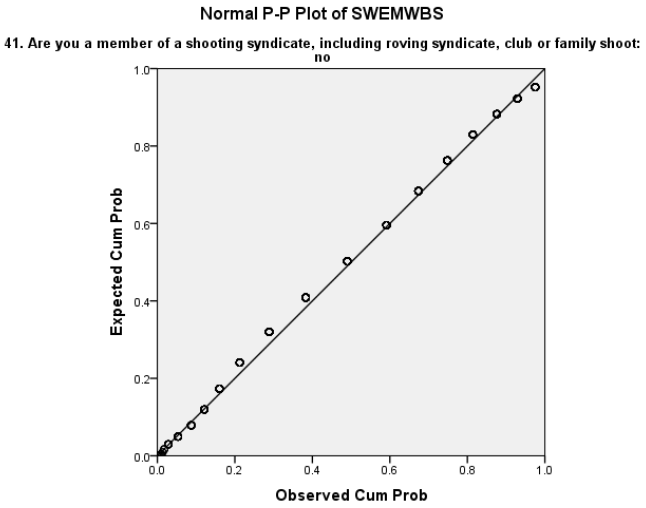


Hypothesis 2b

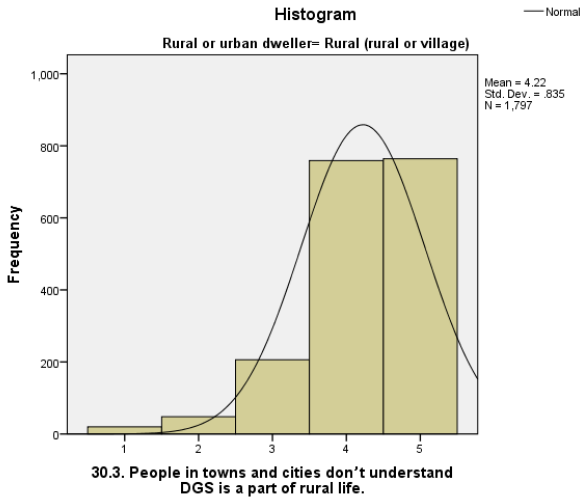


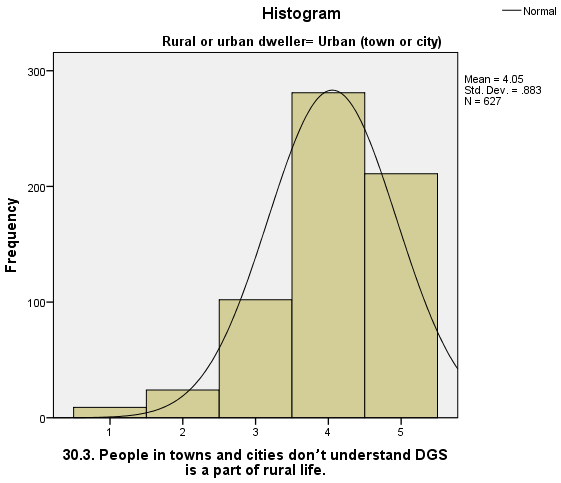


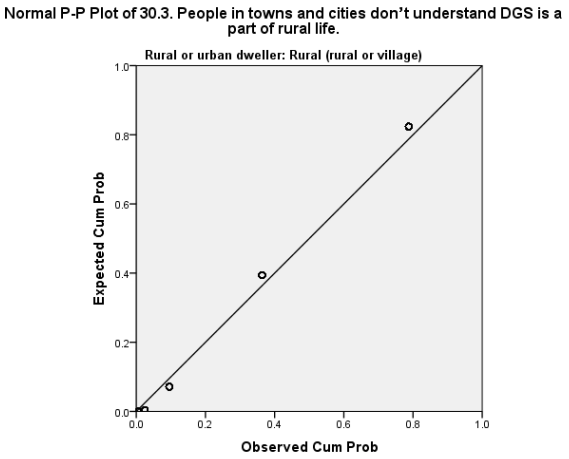


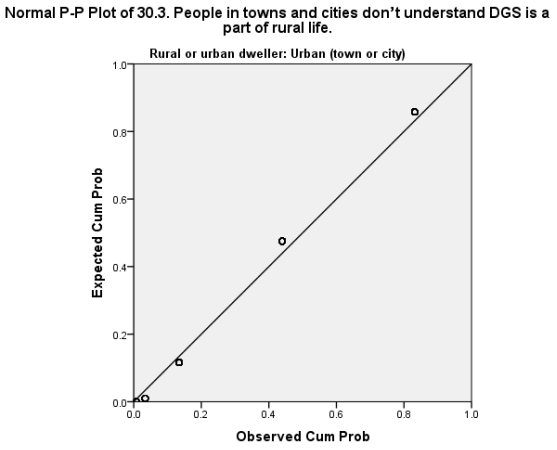


Hypothesis 3a

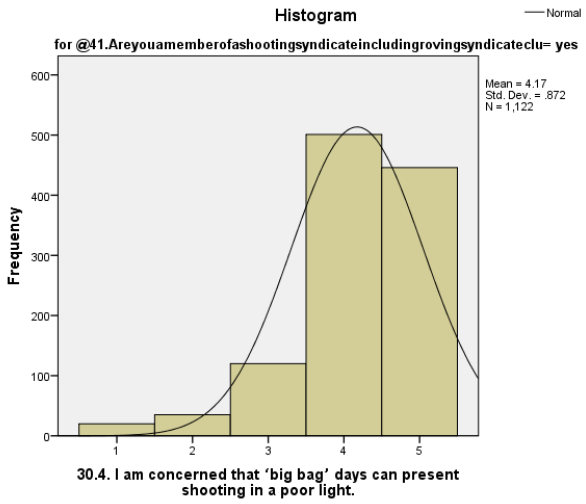


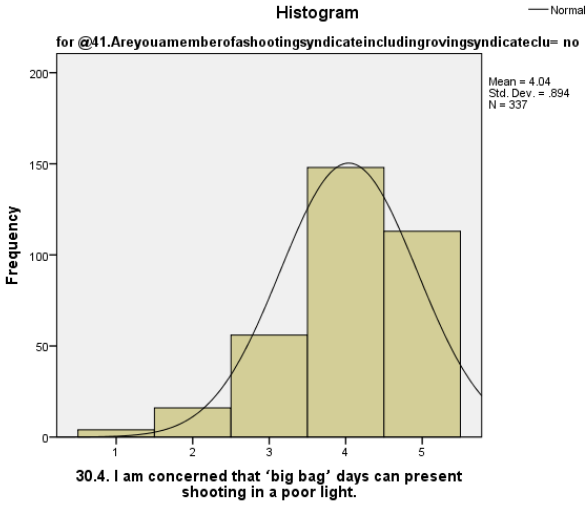


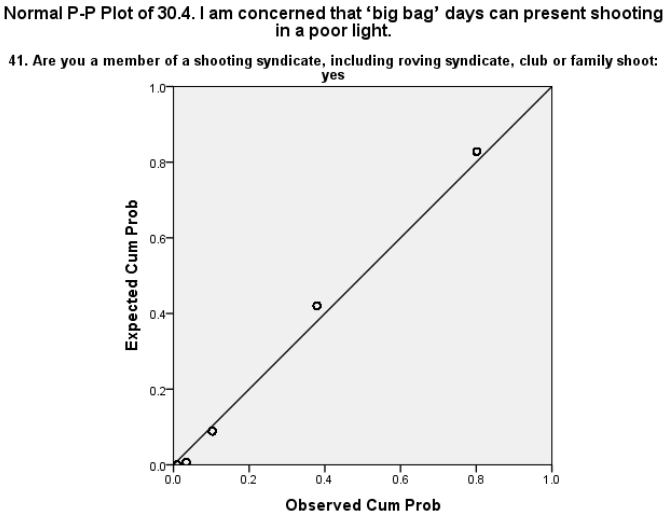


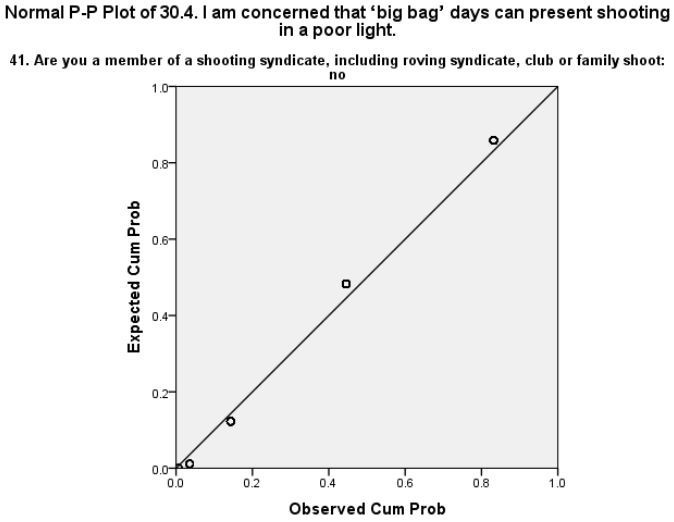


Hypothesis 3b

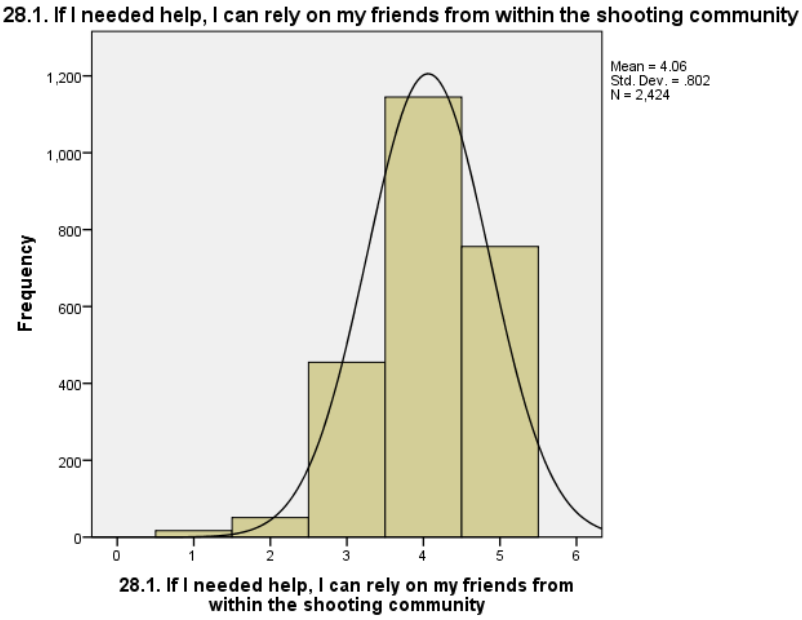


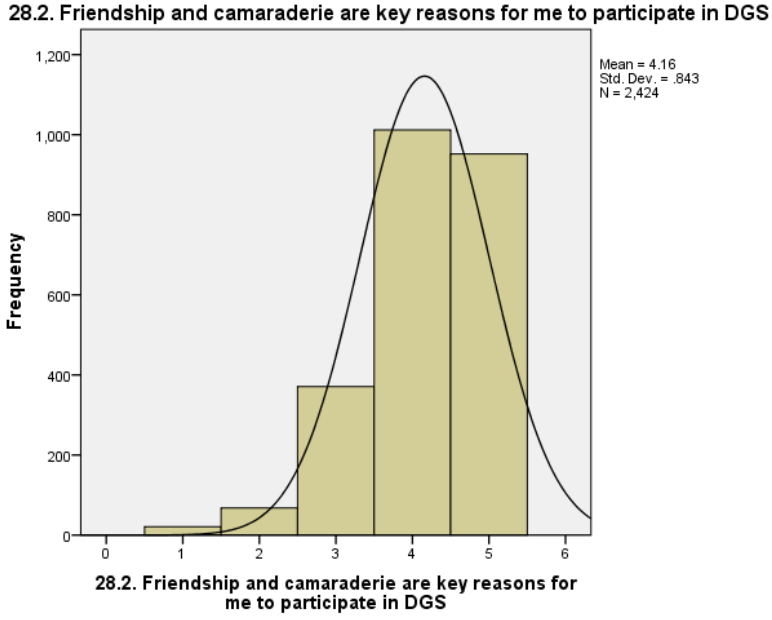




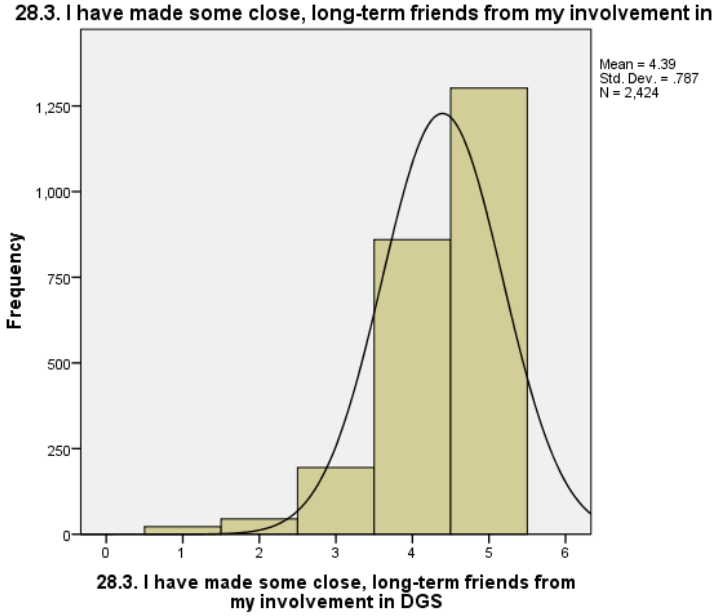


Full DGS response datasets normality histograms

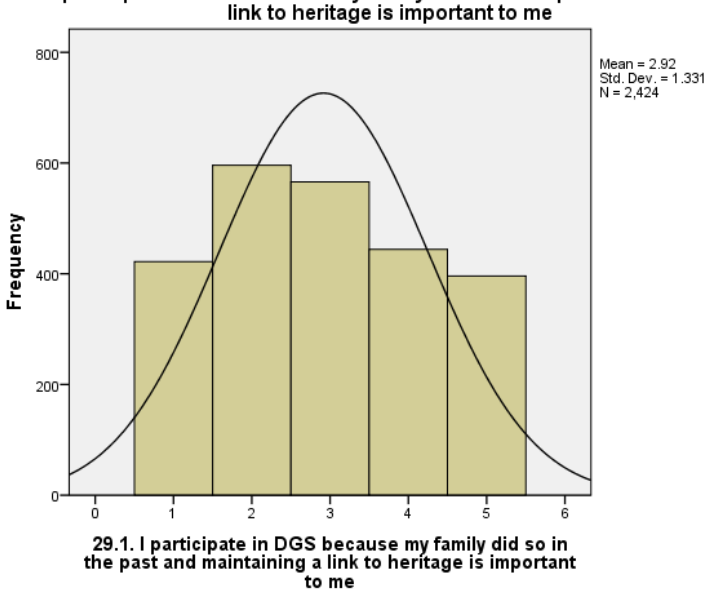


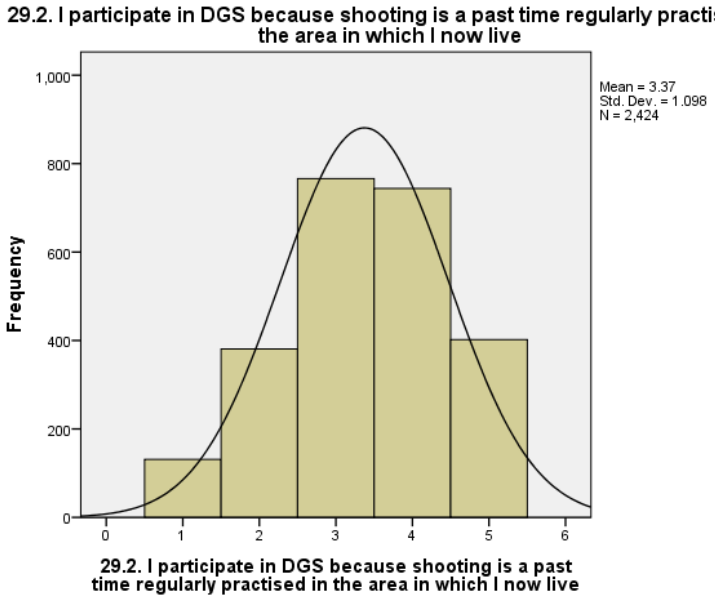


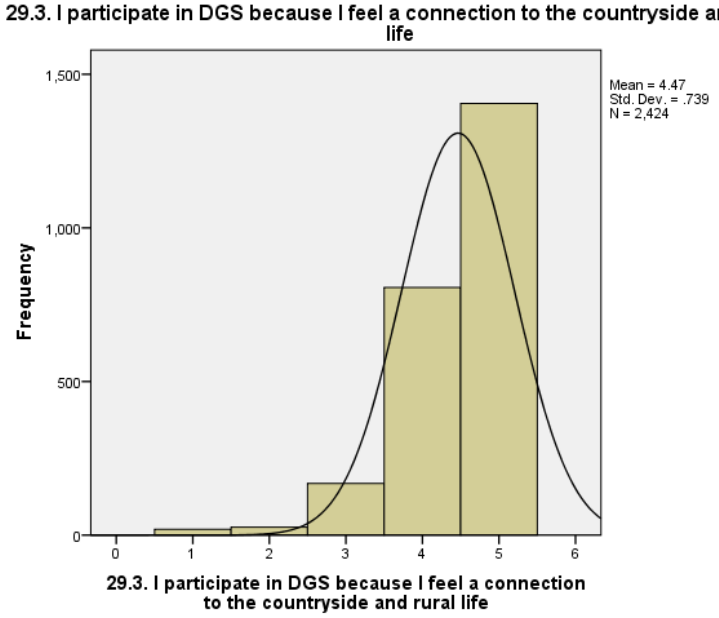
28.3. I have made some close, long-term friends from my involvement in DGS



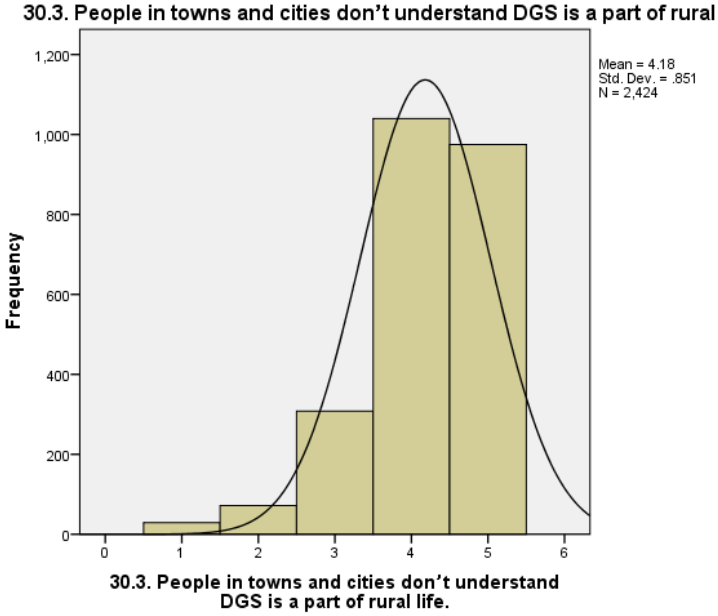
29.1. I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me



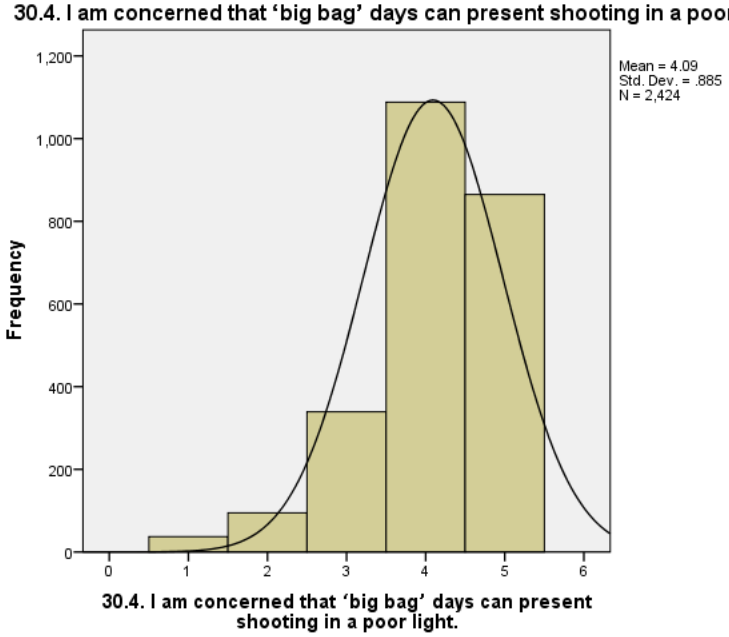

29.2. I participate in DGS because shooting is a past time regularly practised in the area in which I now live
Mean = 3.37
Std. Dev. = 1.098
N = 2,424
Frequency
1,000
800
600
400
200
0
0
1
2
3
4
5
6
29.2. I participate in DGS because shooting is a past time regularly practised in the area in which I now live


29.3. I participate in DGS because I feel a connection to the countryside and rural life
Mean = 4.47
Std. Dev. = .739
N = 2,424
Frequency
1,500
1,000
500
0
0
1
2
3
4
5
6
29.3. I participate in DGS because I feel a connection to the countryside and rural life

30.3. People in towns and cities don't understand DGS is a part of rural life.



30.4. I am concerned that 'big bag' days can present shooting in a poor light.



Appendix O: Estimated DGS Participants in the UK

There is no verified, standard figure for the number of people involved in driven game shooting. Studies have included figures for guns participating, but not the varied other participants (Public and Corporate Economic Consultants (PACEC), 2012, 2014a, 2014b; British Association for Shooting & Conservation (BASC), 2016)). In addition, surveys such as the Savilles shooting survey (Savills, 2017) have focussed on commercial shoots and studies such as the PACEC studies referenced above, have analysed predominantly economic impacts of shooting, and therefore would not take into account the varied, not for profit syndicates and family shoots, for which there are limited or no formal records. **It can reasonably be assumed that a minimum of 1.5 million up to perhaps close to 2 million participants** including all ancillary participants (e.g. guns, beaters, pickers-up, gamekeepers, caterers, loaders, drivers) regularly take part in driven game shooting on an annual basis. Considering the calculations below, the figure is rounded down, to ensure there is no risk of overstating the overall DGS social impacts in the UK.

OPTION A:			
120,000 driven shooting days (PACEC). If we say that at the 120,000 shoot days, sometimes the same people will be shooting but not all shoot sites will be included, as some are family or v small syndicate shoots			
Average shoot day people taking part:			
For grouse it is 1:4 gun to associated participant ratio			
For high-bird, large bag days at least 1:3 gun to associated participant ratio			
For average lowland shoot 1:2 gun to associated participant ratio			
Small syndicate beaters and pickers up are likely to only work on one shoot			
Volunteer beaters and pickers up will likely only work on one shoot.			
For commercial shoots, the beating teams are regular for the larger shoots and would likely only work on one or maximum two different shoots			
To account for the beaters and pickers up at commercials working on several shoots we will use the 1:2 figure for guns to others ratio			
Let us say the average shoot has 8 guns, less at small syndicates, more at commercial perhaps			
Driven shoot days	Number of guns per shoot day	Others participating per gun (adjusted ratio to account for multiple shoot attendance and different types of shoot)	
120,000	8	2	
Est no. of UK participants. Driven shoot days x 24 (8 guns and 16 others):			**1,920,000**

OPTION B:				
No. of guns (PACEC, BASC)	% DGS shoots (PACEC)	Gives driven game shooting guns:		
600,000	55%	330,000	individuals taking part in DGS	
330,000 guns attend an average of 5 shoot days per year. Average of 8 guns in a team or on a day.				
No. of 'team days' (330,000/8):				41,250
Average 5 days each(41,250 x 5 days each):				206250
Multiply 206,250 days by 24 individuals involved. (8 guns at a 1:2 ratio)				4,950,000
There will be some overlap in days but not always let us reduce by two thirds to allow for this:				
Therefore estimated no. of UK participants (4,950,000 x 2/3):				**1,650,000**

Appendix P: Proxy value examples

Mental Health & Well-being

It has been suggested, could be valued at £10,560 per person (Cox, Bowen and Kempton, 2012; Maccagnan et al., 2019).

Mental Health: Individual costs of treatment

In 2007, the average unit cost to the NHS of treating someone with depression was estimated at £2,085 and the average cost of lost employment related to depression was £9,311. "The prevalence of depression ranges between 29–42 per 1,000 people. 2007 figures estimated that 1.24 million people had depression" (Mccrone *et al.*, 2008).

In 2007, the average service costs for people with anxiety disorders in treatment or where their condition is recognised £1,104. Lost employment costs add an additional £1,298 per person. "The prevalence of anxiety disorders is estimated to be 17–95 per 1,000 people depending on age… Rates are relatively similar across age groups, with the exception of those aged 45–54 which is substantially higher than other groups. The total number of people with anxiety disorders was estimated to be 2.28 million in 2007" (Mccrone *et al.*, 2008).

Further example costs for treating mental health disorders can be found here:

Greater Manchester Combined Authority Cost Benefit Analysis

https://www.greatermanchester-ca.gov.uk/what-we-do/research/research-cost-benefit-analysis/

NHS Reference Costs:

https://improvement.nhs.uk/resources/reference-costs/

Volunteering

It has been suggested regular volunteering has a value of £13,500 per person (Fujiwara, Oroyemi and Mckinnon, 2013)

Physical Health

"The cost of obesity to the NHS is estimated at £304.87 per person, so this can be interpreted as the value to the NHS of preventing a person from becoming obese" (Big Lottery Fund and E Corys, 2014, p. 11).

Observation - no obese beaters but some pickers up overweight. Suggest a percentage contribution per person participating would be advisable. Regular exercise can stop people becoming obese.

"It can be estimated that, on average, 30 minutes of physical activity increases a person's quality adjusted life years (QALYs)3 by 0.00022243. A single QALY[76] gain has been valued at about £20,000

[76] "A quality-adjusted life-year (QALY) takes into account both the quantity and quality of life. It is the arithmetic product of life expectancy and a measure of the quality of the remaining life-years" ECorys & Big Lottery Fund (2014) - Well-being Programme: An introduction to Social Return on Investment pg 11.

suggesting that 30 minutes of physical activity can be valued at about £4.45." (Big Lottery Fund and E Corys, 2014, p. 11)

Avoiding premature death due to physical activity has been valued at £34,818 per person (The Scottish Government, 2003).

https://www2.gov.scot/Resource/Doc/47032/0017726.pdf

WHO walking calculator: A free to use tool that can calculate the value of regular exercise by individuals to society (World Health Organisation (WHO), 2019).
https://www.heatwalkingcycling.org/#homepage

Better management of long-term conditions – example, diabetes

There has been research suggesting networks resulted in individuals being better able to manage diabetes (Hinder and Greenhalgh, 2012). Approximate additional cost per person per year of diabetes care necessary when diabetes is not well-managed is £1500 (Diabetes UK, 2018).

HACT social value calculator May 2018 values (Housing Associations Action Trust, 2018)

A social value calculator developed for the social housing sector. A licence is often required for commercial see link here https://www.hact.org.uk/social-value-bank-licencing-information:

Activity/Item	Value	Details	Evidence required
Regular volunteering	£3,249	Volunteers at least once per month for at least two months	Record of individuals who regularly volunteer/Employment survey
Member of social group	£1,850		Record of regular attendance at a group meet up
Frequent mild exercise	£3,537	Participation in exercise that does not noticeably change your breathing or make you sweat at least once a week for at least two months	Record of participant numbers
High confidence (adult)	£13,080	Have you recently been losing confidence in yourself? 1. Not at all* 2. No more than usual 3. Rather more than usual 4. Much more than usual	Relevant survey question
Relief from depression/anxiety (adult)	£36,766	Do you suffer from depression or anxiety? 1. Yes 2. No* 3. Prefer not to answer	Relevant survey question

Appendix Q: Skewness and Kurtosis

	Skewness	Kurtosis
AGE: Understanding Society Wave 7 2015-16 Dataset	.103	-.859
AGE: Driven Game Shooting Participants Dataset 2019	-.506	-.463
SWEMWBS: Understanding Society Wave 7 2015-16 Dataset	-.471	.633
SWEMWBS: Driven Game Shooting Participants Dataset 2019	-.612	1.443
SN1 If I needed help, I can rely on my friends from within the shooting community	-.682	.571
SN2 Friendship and camaraderie are key reasons for me to participate in DGS	-.932	.844
SN3 I have made some close, long-term friends from my involvement in DGS	-1.491	2.723
I participate in DGS because my family did so in the past and maintaining a link to heritage is important to me	.127	-1.135
I participate in DGS because shooting is a past time regularly practised in the area in which I now live	-.270	-.593
I participate in DGS because I feel a connection to the countryside and rural life	-1.613	3.417
How often do you feel lonely (national dataset)	-.971	-.190
How often do you feel lonely (DGS dataset)	-1.612	1.790
People in towns and cities don't understand DGS is a part of rural life.	-1.109	1.443
I am concerned that 'big bag' days can present shooting in a poor light.	-1.052	1.237

Appendix R: HEAT calculation for physical exercise (walking) BPU financial benefits

To calculate the number of participants in each age group for the HEAT calculation population parameters, the estimated figure for DGS participants detailed in Appendix O of 1.5 million is used. In the study, 1,530 of 2,424 (63.1%) survey respondents reported regularly taking part in DGS as a beater or picker-up (BPU). If we assume 63.1% of the 1.5 million DGS participants regularly take part as a BPU, this translates to an estimated national BPU population of 946,500. This assumption is reasonable, as the study found people often take part as both regular paying guns and beaters/pickers-up.

An analysis of the breakdown of the 1,530 respondents who reported regularly taking part in DGS as a BPU was completed using SPSS to include age bands aligned to the HEAT tool parameters and reported frequency of participation in DGS as a BPU during the shoot season. This allowed the researcher to ascertain what percentage of the estimated DGS regular BPU population should be included in the HEAT calculation. This breakdown is shown in Table R1. Table R2 shows a further breakdown of those respondents who would fall outside of the HEAT tool parameters and therefore were not included in the HEAT analysis.

Table R1: Analysis of percentage applied to estimated UK BPU population for HEAT calculation

Included in HEAT Calculation		Number of respondents	Percentage of total regular BPU population in survey[77]
20-44	Once a week	119	7.78
20-44	Two times a week	54	3.53
20-44	Over twice a week	68	4.44
45-74	Once a week	271	17.71
45-74	Two times a week	192	12.55
45-74	Over twice a week	242	15.82
Not included in HEAT Calculation		584	38.17
	Totals:	**1530**	**100.00**

Table R2: Breakdown of those not included in HEAT calculation

Details	Number of respondents	Percentage of BPU dataset
20-44 Less than once a week	133	8.69
45-74 Less than once a week	318	20.78
20-44 Frequency of participation response not given	19	1.24
45-74 Frequency of Participation response not given	26	1.7
75 and over	56	3.66
Age not given	19	1.25
Under 20	13	0.85
Totals:	**584**	**38.17**

[77] Throughout the study numbers have been given to one decimal point. For the purposes of these calculations, as the numbers were very large and rounding up or down could have a significant impact on population size used in the calculations with the HEAT tool (i.e. 0.1% of 946,500 is 946.5, percentages to be applied to the overall estimated DGS population estimated in the UK are rounded to two decimal places.

Distances walked

Median average distance walked by beaters and pickers up was 9km per shoot (Chapter 7, section 7.5.4). Once a week therefore equates to 1.29 km/day (9km / 7 days). As the shoot season only takes place for 4 months of the year this figure is further divided by 3 (4/12) giving 0.43km per day spread across 12 months of the year. For twice a week, the weekly distance walked figure is 2 x 9 = 18. Twice a week therefore equates to 2.57km/day. Again, as the shoot season only takes place for 4 months of the year this figure is divided by 3 (4/12) giving 0.86 km/day spread across 12 months of the year. This process is repeated for three times a week, with the results shown in Table R4.

Those who marked 'over twice a week' as frequency of participation are assumed to take part three times a week for the purposes of calculating distance walked. Although some individuals may participate more than three times a week, this cautious approach avoids any risk of overstatement of benefits.

Population calculations

Using the percentages shown in table R1, applied to the estimated UK BPU population of 946,500, the estimated populations for each HEAT tool calculation shown in Table R4 were calculated as shown in Table R3 below:

Age Band	Frequency of participation in season as BPU	Percentage of study population (see table R1)	Applied to total BPU estimated UK Population			Estimated population for HEAT Calculation
20-44	Once per week	7.78%	x	946,500	=	73,638
20-44	Twice per week	3.53%	x	946,500	=	33,411
20-44	Over twice a week	4.44%	x	946,500	=	42,025
45-74	Once per week	17.71%	x	946,500	=	167,625
45-74	Twice per week	12.55%	x	946,500	=	118,786
45-74	Over twice a week	15.82%	x	946,500	=	149,736

Table R4: Indicative maximum financial impact of beaters and picker-up exercise via participation in DGS											
Age band for HEAT calculation	Freq. of part per wk.	% of estimated UK regular BPU partici-pants[78]	Number of people (est.)	Weekly distance walked in shoot season (km)	Equiv. daily distance walked in shoot season (km)	Annually adjusted daily distance walked (km)	Annual Value (GBP) [1]	Total economic impact over the full assessment period of 10 years (GBP)	Total economic impact over ten years, discounted to 2020 value at an annual discount rate of 5% (GBP)	Premature deaths prevented per year	Premature deaths prevented over 10 years
20-44	1	7.78%	73,638	9	1.29	0.43	4,902,740	49,027,400	37,869,440	1	14
20-44	2	3.53%	33,411	18	2.57	0.86	4,446,278	44,462,780	34,319,180	1	13
20-44	3	4.44%	42,025	27	3.86	1.29	8,385,376	83,853,760	64,749,980	2	25
45-74	1	17.71%	167,625	9	1.29	0.43	103,971,900	1,039,719,000	800,499,100	30	304
45-74	2	12.55%	118,786	18	2.57	0.86	147,082,200	1,470,822,000	1,132,702,000	43	431
45-74	3	15.82%	149,736	27	3.86	1.29	278,103,700	2,781,037,000	2,147,062,000	81	814
						Totals:	**546,892,194**	**5,468,921,940**	**4,217,201,700**	**158**	**1,601**

Financial values converted from EUR to GDP at a rate of 0.8453 on 11.02.2020. (Bank of England, 2019)

HEAT tool: https://www.heatwalkingcycling.org/#homepage" https://www.heatwalkingcycling.org/#homepage Disclaimer: HEAT does not calculate risk reductions for individual persons, but an average across the population under study. The results should not be misunderstood to represent individual risk reductions. Also note that the "value of statistical life" does not assign a value to the life of one particular person but refers to an average value of a "statistical life". It is important to remember that many of the variables used within HEAT are estimates and therefore liable to some degree of uncertainty.

[1] Mortality is monetized using value of statistical life (VSL) of 4,040,000 EUR/death. Corresponding economic value per year in EUR converted to GBP.

[78] See table R1 for details of how these percentages were calculated

Table R5: SPSS Output for Analysis of Frequency of participation in season as a beater/picker-up						
Age Band HEAT			Frequency	Percent	Valid Percent	Cumulative
age not given	Valid	Once every 2-3 months	2	10.5	12.5	12.5
		Once or twice a month	2	10.5	12.5	25.0
		Once a week	5	26.3	31.3	56.3
		Two times a week	1	5.3	6.3	62.5
		Over twice a week	6	31.6	37.5	100.0
		Total	16	84.2	100.0	
	Missing	System	3	15.8		
	Total		19	100.0		
20-44	Valid	Once or twice a year	15	3.8	4.0	4.0
		Once every 2-3 months	19	4.8	5.1	9.1
		Once or twice a month	99	25.2	26.5	35.6
		Once a week	119	30.3	31.8	67.4
		Two times a week	54	13.7	14.4	81.8
		Over twice a week	68	17.3	18.2	100.0
		Total	374	95.2	100.0	
	Missing	System	19	4.8		
	Total		393	100.0		
45-74	Valid	Once or twice a year	19	1.8	1.9	1.9
		Once every 2-3 months	29	2.8	2.8	4.7
		Once or twice a month	270	25.7	26.4	31.1
		Once a week	271	25.8	26.5	57.6
		Two times a week	192	18.3	18.8	76.3
		Over twice a week	242	23.1	23.7	100.0
		Total	1023	97.5	100.0	
	Missing	System	26	2.5		
	Total		1049	100.0		
Under 20	Valid	Once or twice a year	1	7.7	7.7	7.7
		Once every 2-3 months	1	7.7	7.7	15.4
		Once or twice a month	1	7.7	7.7	23.1
		Once a week	6	46.2	46.2	69.2
		Over twice a week	4	30.8	30.8	100.0
		Total	13	100.0	100.0	
75 and over	Valid	Once every 2-3 months	1	1.8	1.8	1.8
		Once or twice a month	10	17.9	18.2	20.0
		Once a week	12	21.4	21.8	41.8
		Two times a week	14	25.0	25.5	67.3
		Over twice a week	18	32.1	32.7	100.0
		Total	55	98.2	100.0	
	Missing	System	1	1.8		
	Total		56	100.0		

Excerpt from HEAT tool website:

Scope for the use of HEAT

Please read these explanations carefully to make sure HEAT is applicable to your case.

- **HEAT is to be applied for assessments on a population level, i.e. in groups of people, not in individuals.**
- **HEAT is designed for habitual behaviour, such as cycling or walking for commuting, or regular leisure time activities.**
  Do not use it for the evaluation of one-day events or competitions (such as walking or cycling days etc.), since they are unlikely to reflect long-term average behaviour.
- **HEAT is designed for adult populations.**
  HEAT calculations are based on mortality rates for the age ranges of 20–74 years for walking and 20–64 years for cycling. HEAT should not be applied to populations of children or adolescents, since the scientific evidence used by HEAT does not include these age groups. The upper age boundaries have been set by consensus to avoid inflating health benefits from misrepresenting active travel behaviour among older age groups that have higher mortality risks. If the assessed population is considerably younger or older than average, the user can specify a lower or higher age range.
- **The tool is not suited for populations with very high average levels of walking or cycling.**
  HEAT applies evidence from studies in the general population and not in subpopulations with very high average levels of physical activity, such as bicycle couriers or mail personnel. Although the exact shape of the dose–response curve is uncertain, benefits from physical activity seem to start to slow above levels equivalent to perhaps 1.5 hours of cycling and 2 hours of brisk walking per day. The tool is therefore not suited for populations with average levels of cycling of about 1.5 hours per day or more or of walking of about 2 hours per day or more, which exceed the activity levels common in an average adult population.
- **The HEAT air pollution module should not be used for environments with very high levels of air pollution.**
  Most of the studies on health effects of cycling and walking and of air pollution used for HEAT have been carried out in environments with low or medium levels of air pollution (i.e. concentrations of fine particulate matter up to about 50ug/m3, see more information here. They are therefore unsuited for application to environments representing an exposure for cyclists or pedestrians of particulate matter of considerably more than 50ug/m3. It seems that negative effects from air pollution start to level off at higher levels and effects on cyclists and pedestrians have not yet been well studied at such levels of exposure.
- **HEAT results involve uncertainty.**
  Knowledge of the health effects of walking and cycling is constantly evolving. The HEAT project is an ongoing consensus-based effort of translating basic research into a harmonized methodology. Despite relying on the best available scientific evidence, on several occasions the tool methodology required the advisory groups (see acknowledgements) to make expert judgements. The most important assumptions underlying the HEAT impact assessment approach are described here. Therefore, the accuracy of results of the HEAT calculations should be understood as estimates of the order of magnitude, much like many other economic assessments of health effects. HEAT is regularly being updated as new knowledge becomes available.

https://www.heatwalkingcycling.org/#start_tool