Adding narratives to numbers in a mixed methods study of successful ageing: the 6-Day Sample of the Scottish Mental Survey 1947

Abstract

This article details the development and potential uses of a qualitative sub-study within a quantitative, longitudinal study of a Scottish cohort born in 1936 (the 6-Day Sample). Analysing narratives and other biographical interview material, we explore the potential of mixed methods research designs to improve the study of successful ageing, a widely used but contested concept. While acknowledging the critiques of successful ageing, we suggest that the concept can be improved by the adoption of mixed method research strategies that address key criticisms, in particular the lack of attention to older people's own voices. Including those voices in our study alongside researcher-defined outcome measures, we explore the reasons underlying some older people's 'spiky profiles', i.e. positive outcomes in some domains and negative outcomes in others. We also investigate the potential benefits and challenges of taking a qualitative approach to the most well known process-focused model of successful ageing: Selection, Optimisation and Compensation (SOC). We conclude that a narratively informed mixed methods research design offers the potential for more comprehensive and nuanced approach to successful ageing.

Key words

Ageing

Mixed methods

Narrative

Older people

Selection, Optimisation and Compensation

Successful ageing

Introduction

Ageing is studied via a number of paradigms, including healthy ageing, active ageing, productive ageing and harmonious ageing (see e.g. Kuh *et al.* 2014; Foster and Walker 2015; Johnson and Mutchler 2014; Liang and Luo 2012). Perhaps the most controversial approach is successful ageing (Rowe and Kahn 1997, 1998), a concept which has prompted numerous debates over issues such as how to define success and who gets to define it (Katz and Calasanti 2015; Martin *et al.* 2015; Bülow and Söderqvist 2014). In a 2015 editorial on 'Successful Ageing 2.0', Rowe and Kahn identified a number of opportunities for conceptual expansion of successful ageing. These include addressing the 'missing voices' critique (Martinson and Berridge 2015) by taking greater account of older people's own voices and

perspectives on ageing, and offering an increased focus on the processes of successful ageing.

The majority of successful ageing research has focused not on processes but on outcomes (e.g. Rowe and Kahn 1997, 1998). In a review of quantitative studies, Depp and Jeste (2006) found that the most common domains were: physical capability (included in 26 of 29 definitions), cognitive functioning (included in 13), life satisfaction/wellbeing (9), and social/productive engagement (8). These authors also found that most definitions of successful ageing included multiple domains (an average of 2.6 per definition). Zammit *et al.* (2012, 2014) stressed the importance of including outcome criteria from multiple domains, and using research designs that incorporate objective and subjective data. While Zammit and colleagues found clear associations between domains such as psycho-social wellbeing, cognitive ability and physical capability, they also highlighted the significant number of older people who have what might be called uneven or spiky profiles, e.g. low psycho-social wellbeing despite high physical capability, or vice-versa.

Reseachers such as Baltes and Baltes (1990) and Kahana and Kahana (1996) have proposed *process-focused* approaches to successful ageing, in which success is conceptualised as relating to the strategies that adults use in order to maximise development, especially as physical capability and other resources decline in later life (Baltes and Baltes 1990; Baltes and Carstensen 1996). For Baltes and Baltes, and others building on their work (e.g. Freund 2008; Riediger and Freund 2006), the key to successful ageing is adapting to these resource losses in ways that allow the individual to continue to pursue life goals. Three strategies are seen as fundamental to successful adaptation in later life: *Selection*, e.g. choosing to do some activities but not others; *Optimisation*, e.g. performing exercises to maintain one's mobility; and *Compensation*, e.g. using a hearing aid or walking stick. In contrast to models which define success in terms of specific outcome criteria, the 'SOC' model focuses on the need to do the best one can with the capabilities and resources available (Baltes and Carstensen 1996; Strawbridge *et al.* 2002). A focus on SOC therefore has the potential to offer a more individualised and flexible perspective on what constitutes successful ageing. With very rare exceptions (e.g. Rozario *et al.* 2011), however, almost all studies of Selection, Optimisation and Compensation have been quantitative, typically relying on self-report questionnaires or occasional laboratory experiments (see e.g. Freund and Baltes 2002; Lindenberger *et al.* 2000). This 'etic' (outsider) approach (Guba and Lincoln 1994) provides helpful evidence on adaptive propensities, but sheds less light on the ways that adaptive behaviours are used in every day circumstances, and the meanings and significance of those adaptations to individuals.

There is a wide range of rationales for conducting mixed methods studies (Greene *et al.* 1989; Bryman 2006; Carpentieri and Elliott 2014). A case can be made that combining quantitative and qualitative methods allows the weaknesses of each approach to be offset while the strengths of each are drawn upon. Barg *et al.* (2006: S329) illustrate this rationale in a study of depression in older people, arguing that while quantitative studies may struggle to 'capture the contextual factors that affect the experience of depression or the meaning that depression has' for older people, qualitative studies 'cannot describe the

distribution, magnitude, or frequency of that experience at a group or population level' – thus, they argue, it is better to combine approaches. Bryman (2006: 106) suggests that mixed methods studies have the potential to offer greater 'completeness', in that they give researchers the opportunity to provide a more comprehensive account of an area of inquiry, both through the use of diverse methods and through the inclusion of diverse viewpoints. This may be particularly important when investigating a conceptually contested area such as successful ageing.

In this paper we investigate some of the ways that a mixed methods research design might help to expand the concept of successful ageing. The project described in this paper allows us to analyse both the highly systematised and structured data that have been collected on a cohort known as the 6-Day Sample, who were born in Scotland in 1936, and to design a qualitative component of the study in an effort to elicit and explore sample members' own experiences of ageing. Our research design includes a quantitative focus on successful ageing outcomes such as high wellbeing and good physical and cognitive function, coupled with a qualitative focus on processes such as Selection, Optimisation and Compensation. Our design also seeks a diversity of viewpoints, combining an etic/outsider approach focused on researcher-defined measures of successful ageing with the 'emic' (insider) perspective provided by older people themselves. A number of scholars have argued that too few studies of successful ageing take sufficient account of older people's own perspectives (Katz and Calasanti 2015; Martin *et al.* 2015; Bülow and Söderqvist 2014). Other researchers suggest that these more subjective perspective can be accurate predictors of the quality of the ageing process (Gilleard and Higgs 1998), and that biographical interviews are a particularly effective means of gaining these perspectives (Reichstadt *et al.* 2010: 574). However, combining two distinct methodological approaches is not without difficulties, and we also discuss some of the potential challenges (as well as benefits) of complementing longitudinal, quantitative data with biographical interview material in general and narratives in particular. By narratives, we refer to stories with a temporal or durative dimension, which report on and interpret or evaluate a sequence of past events (Labov and Waletzky 1967, 1997; Riessman 1990, 1997; Elliott 2005).

This article has three primary objectives: 1) to describe the development of a qualitative study within the context of the broader 6-Day Sample study; 2) to explore the potential usefulness of the qualitative interview material in investigating the processes of successful ageing, particularly Selection, Optimisation and Compensation; and 3) to discuss the possibilities for and challenges of using a mixed methods approach in order to develop a more comprehensive understanding of successful ageing. This includes an investigation of the factors influencing some cohort member's uneven or spiky profiles across key domains of ageing. The paper is supplemented by a number of appendices, which provide additional detail on our methodological approaches and the empirical data collected in this project.

The 6-Day Sample

On 4 June 1947, 70,805 children born in 1936 and attending school in Scotland took part in the Scottish Mental Survey 1947 (SMS1947) (Scottish Council for Research in Education, 1949; Deary *et al.* 2009), which included a version of a test of general intelligence called the Moray House Test No. 12 (Deary *et al.* 2009). The primary aim of this testing process was to compare the scores of this almost whole year-of-birth population to the population born in 1921, who had themselves been tested in 1932 (Scottish Council for Research in Education 1933; Deary *et al.* 2009). Eugenics-driven fears that the 1936 cohort would prove to have lower scores than the 1921 cohort owing to the differential birth rates of the professional and manual occupational classes were allayed; in fact, the later outscored the earlier generation by the equivalent of 2.2 IQ points (Scottish Council for Research in Education 1949, p. 85).

The SMS1947 study also included a longitudinal element: a representative sample of 1208 members of the 1936 cohort was chosen for follow-up. These children were born on the 1st day of the even-numbered months of 1936[1], and are thus known as the 6-Day Sample. Over the following 16 years, cohort members or their parents completed almost-annual questionnaires, providing data on factors such as educational achievements, personality, interests, employment, family, and career. In the final monograph of this phase of the study, Maxwell (1969) provided some individual case studies; for example, he writes of a cohort member who:

> *left school in 1951 to become a rabbit trapper and shepherd. He considered emigrating and in 1957 left for New Zealand, and took a job as a motor mechanic in a garage, a job for which he had no obvious qualifications. Shortly after he left this job, became a labourer and then in 1958, a welder. He considered going to sea, but instead returned to Scotland in 1961, took a job as a welder in which he has remained. He married in Scotland in 1961.*

This case study is a narrative of sorts, and illustrates the longitudinal aspect of the study, following cohort members as they made the transition to adult life and started on their careers. However, in the etic/outsider approach adopted by Maxwell, the narrator is the researcher rather than the individual cohort member. Indeed, the case is less of a story and more of a chronicle of events, with one event or decision following another with little evaluation or sense of the causal or thematic coherence that would typically provide the 'plot' of a life story (Elliott 2005).

Writing of the 6-Day Sample study as a whole, Maxwell observed in 1969 that 'This is the latest, and probably last, major chapter of [this] story.' At the time, there was no reason to question that conclusion. Data collection had ended in 1963. The study ledgers had been put into boxes, the boxes had been put into storage, and everyone – including the cohort members – had moved on. While a small number of researchers conducted analyses of existing data in the 1980s (Gray *et al.* 1983; Hope, 1984), data collection appeared to be

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[1] With a few exceptions caused by administrative error.

done. In the late 1990s, however, a group of researchers re-discovered the data and sought to re-launch the study (Deary *et al.* 2009). In 2012, the surviving members of the 6-Day Sample, now in their 70s, were re-contacted. After half a century of abeyance, a study which had originally focused on cognitive ability, education and employment from childhood to young adulthood was revived as an investigation of ageing.

It is not uncommon for longitudinal studies to be re-purposed as cohort members age. The 6-Day Sample study was not so much re-purposed as reborn, albeit with fewer participants. Of the 1208 original members of the 6-Day Sample, extensive quantitative data have been collected from 171 individuals, with 33 of those also providing qualitative interviews. Note that the qualitative work package did not seek to produce interviews with all 171 sample members; the aim was to conduct biographical interviews with a subsample of 33. Figure 1 provides a breakdown of the sample over time (Brett and Deary 2014; Deary and Brett 2015).

Figure 1: 6-Day Sample study participants

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┌─────────────────┐                    ┌──────────────────────┐
│  6-Day Sample   │───────────────────▶│  Not traced N = 4    │
│  N = 1208       │                    └──────────────────────┘
└─────────────────┘
        │
        ▼
┌─────────────────┐                    ┌──────────────────────┐
│  Traced         │───────────────────▶│  Deceased N = 417    │
│  N = 1204       │                    └──────────────────────┘
└─────────────────┘                    ┌──────────────────────┐
        │           ─────────────────▶│  Emigrated N = 89    │───┐
        │                              └──────────────────────┘   │
        │           ─────────────────▶┌──────────────────────┐   │
        │                              │  Lost trace N = 53   │   │
        │                              └──────────────────────┘   │
        │           ─────────────────▶┌──────────────────────┐   │
        │                              │ Lost Armed Forces N = 6│  │
        │                              └──────────────────────┘   │
        ▼                              ┌──────────────────────┐   │
┌─────────────────┐  ────────────────▶│  Lost other N = 5    │   │
│ Alive in Great  │                    └──────────────────────┘   │
│ Britain N = 634 │                                               │
└─────────────────┘                                               │
    │        │                                                    │
    ▼        ▼                                                    ▼
┌──────────┐ ┌──────────────┐              ┌──────────────┐
│Invited in│ │Invited in    │              │Invited other │
│Scotland  │ │Eng/Wales     │              │N = 1         │
│N = 531   │ │N = 103       │              └──────────────┘
└──────────┘ └──────────────┘
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Emigrated **N = 1**

Deceased **N = 2**

Incapacity **N = 21**

Refusal **N = 139**

No reply **N = 268**

Awaiting reply **N = 33**

Completed survey **N = 171** ──▶ Refused qualitative study **N = 6**
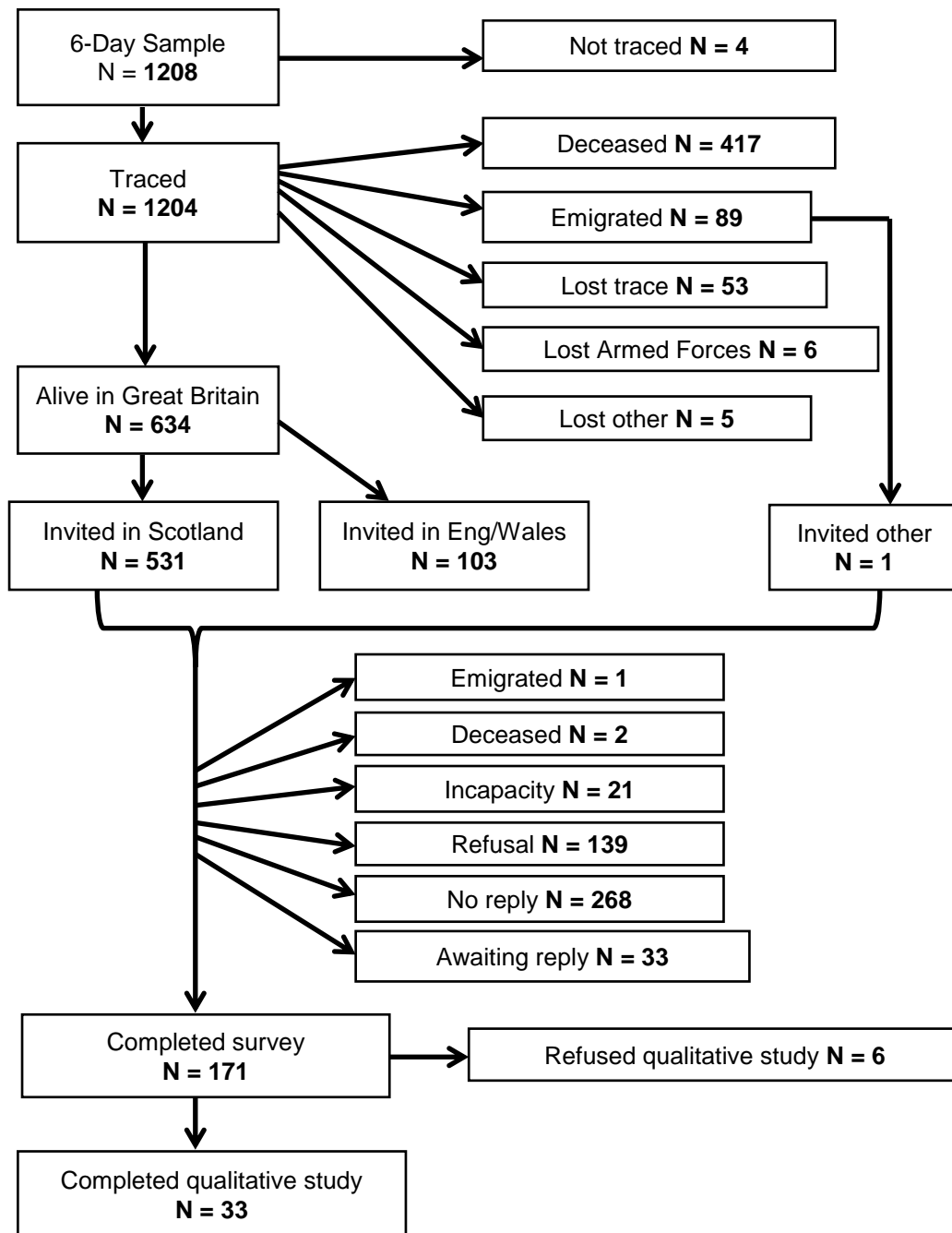
Completed qualitative study **N = 33**

Table 1 provides current demographic information for the surviving sample. While ethnicity data for the 6-Day Sample were not collected, it is likely that, given the demographics of Scotland in 1930s-1940s, all, or almost all, cohort members are White.

Table 1: Demographic information

		Full sample (n=171)	Qualitative subsample (n=33)
		%	%
Gender	Female	53	52
	Male	47	48
Marital status	Married or civil partner	71	77
	Widowed	21	15
	Other	8	8
Housing tenure	Homeowner (with or without mortgage)	88	94
	Other	12	6

As Table 2 shows, the surviving sample is biased towards cohort members whose youth and early adulthood were characterised by greater educational success and a higher likelihood of a professional occupation (Johnson *et al.* 2016).

Table 2: 6-Day Sample qualifications and employment

	Original sample (n=1208)	Follow-up study (n=171)
% male	49	47
% with a professional job aged 27	4	11
% with no post-school qualifications by 1963	57	31
% with degree-level qualifications by 1963	6	18

The revived 6-Day Sample study is directed by one of the authors (Deary) and is organised into a number of work packages, each of which is led by an expert in the field: life-long educational experiences; life-course social movements; social and cognitive epidemiology; narratives of life transitions, social participation, health and wellbeing (led by author Elliott); life-long cognitive change; health and wellbeing in old age; stress and wellbeing in old age; and sample selection, including dropout disappearance and death. All are quantitative in design, except for the "narratives" work package, which is the focus of this paper.

In the study as a whole, there are many quantitative biomedical and psychosocial measures that could be used as criteria for successful ageing, including the Medical Outcomes Study Short Form (36) Health Survey (SF-36) physical capability scale (Ware and Sherbourne 1992) and the Warwick-Edinburgh Mental Well-being Scale (Tennant *et al.* 2007). Also included is the Attitudes to Ageing Questionnaire (AAQ), a self-report instrument through which older people can express their attitudes to the process of ageing (Laidlaw *et al.* 2007; Shenkin *et al.* 2014). The AAQ is a multi-domain model encompassing three aspects of ageing: 1) psychological and social losses that have been shown to be particularly relevant to older people; 2) physical functioning; and 3) psychological growth, including accumulated wisdom

and experience. These domains can provide insights into individuals' subjective evaluations of the ageing process as they have experienced it.

The remainder of this section describes the major steps and challenges in the development of the qualitative work package of the 6-Day Sample study and its integration with the quantitative study.

Developing a qualitative data source within the 6-Day Sample study

Sampling strategy

The sampling strategy utilised a sequential mixed methods study design (Teddlie and Tashakkori, 2009): quantitative data were collected first, and were used to develop a qualitative sampling framework. This framework was derived from four variables, each of which represented a key domain relevant to experiences of ageing: (1) physical functioning, (2) psychological growth and (3) general health in later life, plus (4) cognitive ability in early life. Physical functioning was represented by a physical capability score based on six physical capability questions in the SF-36 (Ware and Sherbourne 1992). To represent psychological aspects of ageing, we used the Attitudes to Ageing Questionnaire's psychological growth sub-scale, which focuses on the accumulation of wisdom and experience as one ages (Laidlaw et al. 2007). General health was represented by Self-Rated Health (SRH). As the 6-Day Sample originally focused on cognitive ability and its impacts over the life course, we also included the age-11 IQ scores that were at the heart of the initial years of the study. Deary and Brett (2015) have found this score to have a high correlation (> 0.7) with cohort members' verbal cognitive ability in their eighth decade.

The first three sampling variables represent outcome measures often associated with different domains of successful ageing, with these measures spanning the biomedical and psychosocial (Zammit et al. 2012, 2014). Age-11 IQ, psychological growth and physical capability were recoded into three bands: low, medium and high, e.g. bottom 25%, middle 50% and top 25%. The five-point self-rated health scale was recoded into three bands: poor to fair SRH; good self-rated health; and very good to excellent. This combination of four variables with three bands yielded 81 (3x3x3x3) possible profiles. Of these 81 potential profiles, the 171 members of the 6-Day Sample fell into 46 different combinations, as shown in Table 3.

The 33 qualitative interviewees were purposively selected from a broad range of sampling-variable groupings. Our aim was to include individuals whose low, quantitatively-measured outcomes suggested more challenging experiences of ageing, as well as those who scored highly in all quantitative measures, and those who had more uneven profiles, e.g. poor physical capability coupled with higher scores in the other three categories. In addition to interviewing at least one member from each of the most populous sampling groups, we also sought representation from members of less populated ones.

Table 3 shows the distribution of cohort members (both from the full 6-Day Sample and from the qualitative sample) in terms of three of the four sampling variables: physical capability and self-rated health (shown horizontally) and psychological growth (shown vertically). Not shown are age-11 IQ scores. At 116, the mean age-11 IQ score of the surviving sample members is approximately one standard deviation above the original sample mean. The age-11 IQ scores of the 33 qualitative interviewees is even higher, with a mean of 126. (The standard deviation for the full surviving sample of 171 cohort members is 19.6, while the standard deviation for the qualitative interviewees is 17.7.)

Table 3: Physical capability, self-rated health & psychological growth scores of 6-Day-Sample respondents. Number of respondents in each category (qualitative interviewees in bold)

Psychological growth	Physical capability Self-rated health	Low Low	Low Med	Low High	Med Low	Med Med	Med High	High Low	High Med	High High
High		0 (1)	0 (3)	0 (2)	0 (0)	**1** (5)	**1** (4)	0 (0)	0 (2)	**1** (4)
Medium		**4** (10)	**2** (11)	**3** (5)	0 (2)	**2** (12)	**6** (29)	0 (0)	0 (5)	**4** (24)
Low		**2** (4)	0 (3)	0 (2)	0 (12)	**1** (5)	0 (7)	0 (0)	0 (2)	**1** (4)

Note: In the full sample of 171 cohort members, there were 13 individuals who did not appear in any sampling category, because of missing data for one of the four sampling variables; thus figures for the full 6-Day Sample add only to 158. Qualitative interviews were conducted with five cohort members with one or missing sampling variables, thus the interview total in this table adds up only to 28.

Even incorporating only three of the four sampling variables, this table illustrates the heterogeneous nature of the 6-Day Sample and the qualitative respondents. The table also provides an illustration of the challenges associated with outcome-based approaches to successful ageing. In this interview sample, only four of 171 cohort members were in the highest or 'most successful' grouping for all three variables; one member of this group was qualitatively interviewed, (upper right-hand cell). Of the four cohort members in the 'least successful' grouping, two were qualitatively interviewed (lower left-hand cell).

In addition to being guided by this sampling framework, we sought broad geographical coverage. Appendix 1 shows the geographic location (current area of residence) for the full sample and the qualitative subsample.

Topic guide development

A set of open-ended questions, grouped into six main themes, was used to guide a conversation with each interviewee. (The full topic guide can be found in Appendix 2.) In the interviews, we sought to elicit narratives and concrete descriptions of individuals' lived experiences (Hollway and Jefferson 2000; Chase 1995) on topics such as health, physical capabilities, interests and activities. The aim was to keep the format and ordering of the questions flexible enough to allow cohort members to present their varied experiences of ageing from their own perspectives and in their own words, rather than prioritising the collection of precisely the same information from each study participant, in the same order.

The topic guide did not include more abstract questions, such as the meaning of successful ageing.

In developing and piloting the topic guide, we addressed a number of challenges related to interviewing older adults. For example, six of the 33 respondents had suffered the death of a spouse in the months before the interview took place. The husband of a seventh was in a hospice, and several other respondents were caring for a partner with a terminal illness. It was therefore essential that the interviews allowed cohort members to discuss mortality and other sensitive issues if they wished, while minimizing unnecessary distress.

This example highlights one of the complications inherent in collecting and analysing data in a sequential mixed methods study at a time in the life course where there may be rapid and/or major change. In some cases, a spouse's death had occurred after the quantitative data had been collected. Other interviewees had experienced significant health problems since completing the quantitative questionnaire. These events may have had important impacts on wellbeing, health and other factors measured via quantitative data. When conducting our analyses, these issues had to be taken into account: the stories someone told at the time of the biographical interview may have been markedly different from the ones they would have told at the time of quantitative data collection.

Piloting the topic guide

The pilot topic guide included a set of questions about the process of retiring. However, it was clear that for many cohort members, the early days of retirement (which may have occurred more than two decades ago) were a remote memory. The general sense was that retirement, particularly if it had happened in one's 50s, belonged to a different phase of life; therefore, this line of questioning was not pursued. The pilot phase also tested the utility of accompanying the topic guide with a life grid (Blane 1996). However, as described in Appendix 3, the life grid did not add sufficiently to the quantitative and qualitative data collected via other methods, and was therefore not used.

Life trajectory diagrams

In addition to the topic guide questions, cohort members were presented with eight life trajectory diagrams (Elliott *et al.* 2010), and asked to choose the trajectory that best represented their life, from birth up to the present time (see Figure 2). If none of these diagrams fitted, cohort members could draw their own, or select a combination of options.

Figure 2: Life trajectory diagrams

1 2 3 4

5 6 7 8
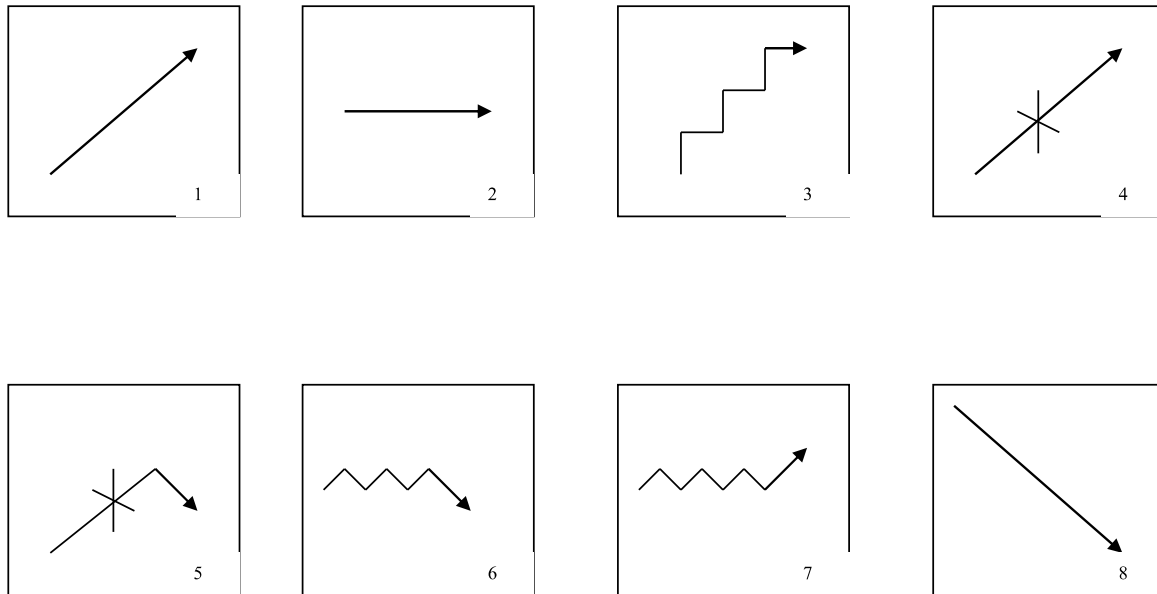
Following their choice of a trajectory, interviewees were given a second A4 sheet containing the same eight diagrams, and asked to choose the one that best represented life more recently, with 'recently' being left to the respondents' own interpretation. These two sets of trajectories enabled cohort members to provide an evaluative, narrative perspective on their lives, both overall and for the last several years.

The interview process

The interview team consisted of two experienced qualitative researchers, of similar age to many cohort members' children. After potential interviewees were identified through the sampling strategy discussed above, they were invited to participate in the qualitative study. Six cohort members refused, primarily on the grounds of poor health. As much as possible, these refusals were replaced by cohort members who had similar sampling-variable characteristics and who lived in similar geographic areas.

All respondents were given written information about what to expect in the interviews, and all signed consent forms. Interviews were conducted in four waves of 7 to 10 interviews, allowing for a more iterative research process, alternating analysis with data collection and adjustments to the topic guide, consistent with the tenets of grounded theory (Glaser and Strauss 1967). Interviews lasted from 40 minutes to 190 minutes (mean 108 minutes); both extremes were male. Frailer cohort members did *not* tend to provide shorter interviews. In one case, a particularly frail cohort member was supported throughout the interview by her younger, healthier partner, who frequently provided additional information or helped the cohort member fill in memory gaps. There was one other example of a joint interview: part way through his interview, one cohort member was joined by his wife, who occasionally contributed her own comments and thoughts.

Coding and analysing the qualitative data

Interviews were recorded, transcribed and anonymised. Coding was in multiple steps, and the aim was to allow for analysis across the whole set of interviews, while also taking time

to analyse each case holistically. First, each transcript was hand annotated by the lead field researcher (Carpentieri) to highlight key themes and issues, which were then discussed with the workpackage leader (Elliott). Based on these initial stages, and key issues in the ageing literature, the research team chose a number of themes on which to concentrate when coding the interviews using Nvivo 10. This phase of analysis combined emphases on salient themes with a particular focus on cohort members' narratives of physical capability, including topics such as: physical decline; key activities and interests; perspectives on ageing; and adaptation strategies such as Selection, Optimisation and Compensation. Thus the early stages of the process were more inductive, in that we approached the interview transcripts with an open mind regarding the key themes that we would discover – and indeed had no expectation that SOC would prove to be a major topic within the interviews. Once key themes had been identified for more intensive analysis, the process became somewhat more deductive (Ritchie *et al.* 1994).

Throughout the analysis phase, attention was also paid to the narratives provided by cohort members. Narrative has been argued to be a mechanism through which individuals can understand themselves as having a sense of self that endures over time without being fixed and unchangeable (Ricoeur 1991, 1995). This interweaving of constancy and change may have particular salience in the study of ageing, as individual biographies continue to develop in the context of social or personal losses, such as the death of loved ones and diminishing physical and/or cognitive resources. In addition to providing valuable information about older people's diverse experiences of and approaches to ageing, narratives can offer insights into the identity that an individual is claiming or fashioning for him/herself during the interview (Gubrium and Holstein 1997; Elliott 2005).

Mixed methods challenges and limitations

There is a danger that qualitative methods and discussion of epistemology and ontology may be relegated to secondary status in mixed methods research designs (Denzin and Lincoln 2005), but this is not inevitable: mixed methods designs may support parity between methods or give prominence to qualitative approaches (Creswell *et al.* 2006). A key purpose of this paper is to explore the ways in which a 'qualitatively driven' (Mason, 2006: 9) mixed methods design can improve the conceptualisation of successful ageing. In taking this approach, we adopt a pragmatist stance (Mason 2007) and focus on the concrete lived experiences conveyed in the qualitative interviews. A drawback of our approach in this paper is that it precludes a more thoroughgoing and interpretive qualitative focus on issues such as identity (Ricoeur 1991, 1995), narrative performance (Phoenix *et al.* 2009) and narrative foreclosure in later life (Freeman 2011; Bohlmeijer 2011). To address such challenges, mixed methods studies sometimes produce separate quantitative and qualitative papers (Bryman 2007), and indeed we plan a paper focussing on narrative identities and 'SOC talk'. By 'SOC talk' we refer to interviewees' narratives/accounts about how, why and when they use Selection, Optimisation and Compensation.

In this paper, however, we focus on ways that a mixed methods design may facilitate a more comprehensive conceptualisation of successful ageing than could be achieved via quantitative or qualitative methods alone. This approach was pursued through the use of

several mixed methods strategies (Bryman 2006), particularly: *Triangulation*, which seeks corroboration of results from different methods in order to increase validity; *Illustration*, which provides concrete example of the lived experiences underlying quantitative findings; an exploration of *Process*; and the analysis of qualitative material to provide potential *Explanations* for unexpected results. Table 4 introduces some of our quantitative and qualitative approaches to data collection. Appendix 4 provides a more extensive version of this table.

Table 4: Investigating various domains of ageing: a mixed methods approach

Conceptual domain	Sample quantitative variables	Sample qualitative interview questioning	Comment on qualitative data
Health (physical health and functioning)	Self-Rated Health (SRH)	How would you rate your health, compared to people about the same age? Why?	Adds personal interpretation & evaluation to quantitative SRH measure
		How would you rate your partner's health? Does their health have any impacts on you?	Carpentieri and Elliott (2014) highlight the impacts on wellbeing of poor partner health
	SF-36 physical capability scale	Who does the cleaning & gardening? Do you want/get any help?	Elicited narratives of adaptation to reduced capability
Cognitive functioning	National Adult Reading Test (NART); Age-11 IQ; Memory tests; Raven Progressive Matrices	Asked about activities such as reading, puzzles (e.g. crosswords) and digital media use	Cohort members frequently emphasised the importance of maintaining good cognitive function, & their fears of serious cognitive decline, e.g. dementia
Life satisfaction, wellbeing	Warwick Edinburgh Mental Well-being Scale; Satisfaction with Life scale	Are there any advantages of being your age?	Narratives frequently highlighted factors (past and present) influencing current wellbeing and life satisfaction
Social/ productive engagement	Partnership status; Number of children; Volunteer activities	Asked about caring roles, current social activities, changes in social activities over time, and reasons for those changes	Many cohort members emphasised the importance of seeing one's children and grandchildren live satisfying lives, and of contributing to that process
Activities and interests	Self-reported frequency of: physical activity, TV, reading, computer use, cinema, other activities	Asked to describe activities in a typical week; Do you do any regular physical activity or exercise?	Many cohort members said that retirement had allowed for a vastly expanded repertoire of leisure activities (cf Chatzitheochari & Arber, 2011). Several cohort members emphasised the importance of having one key activity each day, to give purpose and shape to life – but not trying to do too much in any one day, as that was too

			tiring.

The following section outlines some preliminary findings from our study. While the qualitative examples provided in the results section are necessarily short, it was not uncommon for an early interview question on one topic, e.g. a cohort member's current health status, to elicit a lengthy, narrative-rich response that covered topics including health change over time, loved ones' health, relationships with family members, housing decisions, transport issues and favourite leisure activities. It was common to experience what we refer to as 'topic guide saturation', whereby cohort members' responses to early interview questions would anticipate, and indeed answer, later questions. This was gratifying, as a primary objective of the study was to encourage cohort members to explore topics in their own way, rather than being too closely guided or constrained by the interview structure.

Results: eliciting narratives of ageing in a mixed methods study

Our primary aim in this section is to investigate the potential of a mixed methods research design to facilitate a more comprehensive, nuanced understanding of successful ageing, particularly through the inclusion of a diversity of viewpoints (i.e. researchers' and older people themselves). Our discussion of these issues is organised around four mixed methods purposes which were central to our study design: triangulation, illustration, exploration of processes, and explanation (Bryman 2006). Under these headings, we present some preliminary *qualitative* findings relevant to the four domains which Depp and Jeste (2006) found to be the most frequently cited in *quantitative* studies of successful ageing: physical capability, cognitive function, wellbeing and social/productive engagement.

In the interest of brevity, we include material from just over one-fourth (9) of the qualitative interviewees, chosen to represent a broad range of intra-individual outcome combinations. Each respondent is given a pseudonym and we have provided information on the four main sampling variables: physical capability, psychological growth, age-11 IQ, and self-rated heath. (See Table 5 for data on the nine individuals discussed in this paper and Appendix 5 for data on all 33 qualitative interviewees.) As Table 5 shows, these cohort members exhibit a range of quantitative outcomes, in a number of different combinations. In addition to the four sampling variables, we have included the respondents' decile ranking (as compared to the full 6-Day Sample cohort of 171 individuals) on the Warwick Edinburgh Mental Well-being Scale (WEMWBS) (Tennant *et al.* 2007). The WEMWBS aims to capture a broad conception of wellbeing, including affective-emotional aspects, cognitive-evaluative dimensions and psychological functioning. As such, it seeks to provide a holistic understanding of wellbeing, bringing together various domains and subdomains of the concept, including those captured in the AAQ's psychological growth measure. We also provide respondents' life trajectory diagram choices.

Table 5: Exemplar respondents' sampling variable scores and Warwick Edinburgh Mental Well-being Scale decile (1 = lowest decile)

	Physical	Psychologi	Self-Rated	Age-11 IQ	Full life	Recent life	Wellbeing

	capability	cal growth	Health	band	trajectory	trajectory	decile
Agnes	Low	Med	Low	Low	No diagrams*		2
Catherine	Low	Med	Med	Med	1	1	10
Colin	High	Med	High	Med	3	4	8
David	Low	Med	Low	Med	Drew his own diagrams**		2
Eleanor	Low	Med	Low	Med	5	3	3
James	High	Low	High	High	1	1	10
Joyce	Med	High	Med	Low	5,6 & 7	1	1
Owen	Low	Med	Low	High	3	2	9
Rosemary	Low	Low	Low	Med	6	8	3

Respondent was tiring, so was not asked to complete diagrams
* Both diagrams were upward-sloping. See Appendix 6 for images.*

Triangulation and illustration

Looking at physical capability, the 6-Day Sample biographical interview material was highly consistent with the quantitative data. For example, Colin, who was in the top physical-capability quartile, spoke of his robust health and said, *'90% of the time, I feel 20 years younger than I am.'* In contrast, interviewees with low physical capability scores spoke of problems such as poor mobility and chronic pain. As Eleanor said, *'The arthritis is in my hands and in my feet, it's like walking on glass.'* Biographical interview material such as this did not just corroborate our quantitative findings, it also illustrated them, putting 'meat on the bones' of our statistical results (Bryman 2006: 106). The qualitative material also helped to provide a more complete picture of the impacts of poor physical capability on other domains, such as social engagement and wellbeing. Rosemary, for example, was particularly frustrated by the social impacts of her poor physical health. '*I'm a bit bitter about it*,' she said:

> I don't like being a bother to anybody. I hate--, we went to Paris last year… and although I enjoyed it, I couldn't walk round Versailles and these places…. And I was a nuisance on the plane and so on. All the girls were so good with me, but I felt I was a nuisance.

The life trajectory diagrams also have an explicit emphasis on triangulation and illustration: cohort members chose from amongst a closed set of trajectories and explained their choices, thus producing quantitative and qualitative evaluations of their life course. Some qualitative responses provided only minimal information – for example, when choosing his full life course trajectory, James, who had high scores in all the sampling variables, opted for an upward-sloping trajectory (1), saying only: '*I've always thought that I've had a good life…. So, I would go for number one.'* Catherine also chose Trajectory 1, but provided a much lengthier explanation of her choice, which included the following details:

> I would say my life went from not so good up to excellent because I didn't have a happy childhood…. there was nobody to guide you…. I often wonder how I managed, but…. I met my husband when I was 17…. and we'll be 59 years married this year, so it went from bad to good.

Table 6 provides an overview of cohort members' choices. While the majority chose upward trajectories to represent their full life and more recent years, only nine interviewees chose the same trajectory for both time periods. It was clear from the qualitative comments that

trajectories could be interpreted differently. For example, in the comparison of James and Catherine above, both chose Trajectory 1, which slopes up at a 45 degree angle. However, their comments on their choices show that whereas James interpreted this trajectory as representing a life that has always been good, Catherine interpreted it as moving from bad to good. Appendix 6 provides greater detail on cohort members' choices.

Table 6: Life trajectory diagram choices

	Trajectory	Number of interviewees choosing each trajectory	
		Full life course	Recent life
Upward trajectories	**1**	2	5
	3	11	4
	4	5	3
	7	4	5
Downward trajectories	**5**	1	0
	6	1	1
	8	0	1
Flat trajectory	**2**	1	3
Other*		7	9
Missing		1	2
Total		*33*	*33*

Respondent drew own trajectory or chose a combination of trajectories for a time period

Exploration of processes and their relationship to outcomes

The mixed methods approach enabled us to explore the processes and strategies used by cohort members to improve outcomes across domains such as wellbeing. For example, a number of interviewees emphasised their fear of cognitive decline, and described their strategies for slowing or avoiding this outcome. While crosswords and other puzzles were popular activities for keeping minds alert, David (low physical capability) had his own strategy for combatting memory loss:

> *What I've been trying to do is try and get my memory back in the front, back to normal if I can and I've been trying to remember things like the names of the people that were in the classroom when I was in primary and secondary and ones that were in the forces, to remember their names.*

Though interviewees were not explicitly asked what adaptation strategies they used, or how they used them, discussion of the processes of Selection, Optimisation and Compensation was a common feature of all interviews. Speaking of her very poor physical capability, Agnes said: '*I'm starting to lose the power in my muscles…. and I'm getting lots of cramp, oh, my whole body, every night I'm awake with cramp for half an hour and it's so painful.*' To cope with her poor physical capability, Agnes relies on a range of Compensation devices, e.g. walking sticks and special chairs, but frowns on others, e.g. refusing to use her stair lift. Instead, she pulls herself up the steps: '*I go up one, one, one, one, I can't do it any other way.*' Agnes sees some Compensation devices as important tools for remaining active, but views others as accelerating decline by inculcating laziness.

Eleanor also has low physical capability, and spoke of using various Compensation devices to maintain her independence and self-sufficiency. However, she also emphasised some of the barriers to uptake. For example, Eleanor was happy to use a mobility scooter when on holiday but was reluctant to use one in her daily life, because she did not want to grow dependent on it. She enjoyed swimming but no longer went, because the only way she could get into and out of the pool was to use a harness device that lowered her into the water and then helped her back out. Eleanor refused to use this device, considering it an affront to her dignity.

Catherine (low physical capability) provided an example of Loss-Based Selection, observing that she and her husband used to be *'great hill walkers, but now that's all by the board now because he can't do it and I can't do it. So we'll walk to the hills rather than up the hills.'* Colin and James (high physical capability) spoke of using Elective Selection and Optimisation strategies such as daily exercise to maximise their physical and mental health. Other cohort members were less adaptive. For example, Joyce (medium physical capability) said that since her dog had died, she had been unable to bring herself to 'replace' him, even though she knew that the resultant lack of companionship was contributing to a spiral of loneliness, isolation and diminished activity that often threatened to overwhelm her. Speaking about these issues, Joyce shared a lengthy narrative, concluding with the observation that *'Since the dog died I've got a lot older feeling'.*

Explanation of unexpected results

Qualitative material is often seen as valuable for explicating the mechanisms underlying unexpected findings in quantitative data (Pearce 2002). One such unexpected finding related to the relationship between physical capability and wellbeing. While most members of the 6-Day Sample were 'on-diagonal', in that their physical capability and wellbeing scores were well correlated, some cohort members were 'off-diagonal', with wellbeing scores that were markedly higher or lower than would be expected given their physical function. Close analysis of narratives and other biographical material within the qualitative interviews suggested two mechanisms that appeared to influence this relationship: SOC and generativity (Erikson and Erikson 1998; McAdams 1993).

With regard to SOC, individuals whose qualitative interviews suggested high use of Selection, Optimisation and Compensation appeared to be able to maintain high wellbeing despite low physical capability, while cohort members who seemed to engage in little SOC suffered low wellbeing despite relatively high physical capability. The high SOC group includes Catherine, who remains active by walking to the hills rather than up them, amongst other adaptations. Her high level of SOC may help to explain her unexpectedly high wellbeing: despite low physical capability (bottom quartile), she has a wellbeing score that places her in the top 10% of the 6-Day Sample. Joyce, in contrast, has very low wellbeing (in the bottom 10% of the sample) despite her good to very good scores on all four of the sampling variables. In bringing to light her inability to adapt to loss, Joyce's narratives may exemplify a potential mechanism for an individual's transition from a Third Age of active ageing to a Fourth Age of dependence, disengagement and despair (Laslett 1989).

The biographical interviews also suggested that generativity played a role in maintaining wellbeing. Villar (2012) has argued that generativity should be included in studies of successful ageing, as it takes account of older people's own values and facilitates an understanding of success not just as achieving certain outcomes or seeking to minimise or adapt to resource loss, but in terms of older people's roles and identities as resource providers, whether through childcare, financial support, emotional support, or other means. 6-Day Sample cohort members spoke extensively about the importance of supporting their children, grandchildren and other loved ones, in the past and in the present. For example, James (high physical capability) reported that he and his wife spend approximately 25 hours a week caring for their 10-year-old granddaughter. This caring role is central to James's identity, and to his hopes for the rest of his life: *'My one goal for the future is to be able to dance at [her] wedding.'*

Eleanor illustrated another way that generativity can shape one's experience of ageing. In addition to raising two children on her own after being widowed as a young woman, she later provided extensive child-rearing support to her best friend, who was also a single mother. Now, Eleanor says, that devotion to others is being paid back to her, in terms of regular visits and support. Despite suffering from incapacitating arthritis – *'I can't walk very far, I can't get about,'* she says – she is visited regularly by her children and the others she helped raise. This makes her feel:

> *Very fortunate. I have my big family and my friends, and the youngsters that I've been there for, they're now there for me. It's really quite wonderful.*

Like other cohort members suffering from chronic pain, Eleanor has a low wellbeing score (third decile). However, her wellbeing is relatively high given her very poor physical capability, and in this and other narratives, she provides examples of the construction and presentation of an identity which is resilient to the losses of old age, even when those losses are attended by intense physical suffering.

Discussion

Two of the main critiques of much successful ageing research are its: 1) inattention to older people's own perspectives on successful ageing (the 'missing voices' critique); and 2) over-emphasis on outcomes such as physical decline, coupled with an under-emphasis on the processes through which older people adapt to such outcomes (Martinson and Berridge 2015; Rowe and Kahn 2015). This paper explores the potential of a mixed methods study design to address these two concerns while also looking at factors associated with some older people's uneven or off-diagonal outcome profiles, i.e. heterogeneity across domains. In investigating older people's perspectives on these domains, we found a good deal of overlap between areas cited as important by researchers and those cited as important by older people. In the 6-Day Sample, qualitative interviewees frequently spoke of their efforts to maintain physical function, cognitive function, social engagement, wellbeing and other commonly cited researcher-defined measures of successful ageing. However, older people were typically more flexible than many researchers regarding the level of functioning required to be considered successful.

Cohort members also frequently pointed to medical treatments which enabled them to feel healthy and remain active, despite health problems that, a generation ago, would have been disabling or even terminal. Such treatments were cited so often that the research team coined a phrase for them: the 'Mundane Miracles of Modern Medicine'. A narrative provided by Owen illustrates this phenomenon:

> We bumped into an old friend one day who [previously] had two sticks, all crouched up, terrible mess, and he came leaping up to us one day in the Morrison's supermarket.
>
> 'Dermot, what happened to you?'
>
> 'Oh, two new hip joints!'

This narrative highlights some of the luck involved in successful ageing: if one is afflicted with a problem that can be addressed by the mundane miracles of modern medicine, one is more likely to age successfully, at least in terms of physical function.

The biographical interviews also provided insights into interdependencies across domains. For example, Rosemary says that because she sees herself as a burden to her friends, she engages in fewer social activities. Declines in one domain – physical capability – can contribute to declines in others, e.g. social engagement and wellbeing. In such cases, we might expect to see outcome measures that are consistently low across a range of domains, as was the case for Rosemary. On the other hand, low scores in one domain may co-exist with or even contribute to better outcomes in others. In her biographical interview, Eleanor observed that if poor health had not forced her to retire early, she would not have been able to help raise her best friend's children, and thus would not receive so much support from them now, suggesting that generativity and social engagement help her to maintain a higher level of wellbeing than her very poor physical capability might otherwise suggest. Here the more detailed material in a qualitative interview helps explicate an unexpected finding at the level of the individual.

Bryman (2006) has suggested that mixed methods studies may produce such a wealth of data that researchers discover unexpected ways to use that data. Such was the case in the 6-Day Sample: while we expected the biographical interview material to add to the quantitative data, we did not expect to find as much SOC talk as we did. An important potential strength of a qualitative approach to SOC is that analysis of SOC talk may allow investigators to address a number of research questions that are less amenable to quantitative investigation, e.g. how people use particular SOC strategies, which domains they use them in, and why they give those domains precedence. This in turn may shed light on some of the ways that the processes of successful ageing interact with and influence outcomes. Our preliminary results suggest that SOC may play an important role in the maintenance of high wellbeing amongst this cohort, even in the presence of poor physical capability. This relationship will be investigated further in future work.

Just as qualitative interview material may provide insights into quantitatively measured outcomes, quantitative data may help to provide support for and validity to qualitatively-

generated hypotheses. For example, we hypothesise that Catherine's extensive use of SOC contributes to her unexpectedly high wellbeing, while Joyce's limited use of SOC contributes to low wellbeing. However, an alternate hypothesis is that these individuals' wellbeing is unrelated to their SOC use, but is instead attributable to their differing marital statuses. (Catherine is married, Joyce is not.) However, quantitative analysis (multiple linear regression) of the 6-Day Sample revealed that while cohort members' physical capability scores were correlated with their wellbeing, their partnership status was not.

While a mixed methods research design offers benefits in the study of successful ageing, it also requires awareness of potential tensions and pitfalls. For example, we did not aim to interview a fully representative sub-sample of the full 6-Day Sample, but rather to ensure that we had included individuals with a wide range of sampling profiles. Analysis of the qualitative interviews therefore needs to be done with reference back to the broader sample to understand the location of individuals on dimensions such as physical capability and subjective wellbeing. This prompts awareness that cohort members who agreed to participate in qualitative interviews tended to have somewhat higher cognitive function scores than the full sample. It is also important to note that the demographic characteristics of the 6-Day Sample – e.g. their ethnic homogeneity – has implications for the generalisability of our findings. Furthermore, biographical interviews cannot be seen as providing facts about individuals' experiences of ageing, but rather those individuals' interpretations and representations of their experiences (Yeo et al 2014; Fontana and Frey 2005; Gubrium and Holstein 1998). Finally, as our qualitative approach to analysing SOC is relatively novel, it introduces potential challenges regarding definitions and analysis. For example, it is clear that a walking stick is a Compensation device, in that it is used to counteract or cope with a decline in physical resources (Freund and Baltes 2002). However, definitions may be more challenging with internal devices such as pacemakers and new hips. A pacemaker would likely be seen as Compensation, in that it is a device which helps an individual adapt to a weakened physical resource, the heart. However, a new hip could be seen not as a means of coping with a weakened resource, but as a replacement of that resource, and thus as Optimisation. We hope to pursue these issues further in a future paper.

Conclusion

In this article, we sought not to advance a particular model of successful ageing, but to explore ways of using a mixed methods research design to expand the concept of successful ageing. While Rowe and Kahn (2015) have argued in favour of such an expansion, other researchers have suggested that the concept of successful ageing should be abandoned in favour of different approaches (see e.g. Katz and Calasanti 2015; Martin *et al.* 2015; Martinson and Berridge 2014). While there is merit in these scholars' critiques, other approaches such as healthy ageing and active ageing face similar challenges (Bülow and Söderqvist 2014), and the concept of successful ageing does seem to have a 'visceral, hard-to-put-your-finger-on appeal' (Glass 2003: 382). We suspect that some of the appeal of this 'simple, intuitive little phrase' (*ibid*.) is its narrative quality. There is an inherent narrative aspect to the challenge of ageing well: one must strive to maintain one's sense of self and

live 'a good life' (however defined) in the face of physical decline and other challenges. This is the overall 'plot structure' of most adults' later life, but each individual will pursue a different route along the way, depending on factors such as resources, capabilities and interests.

A number of scholars (Callahan and McHorney 2003: 389-90; Bowling and Dieppe 2005: 1550) have called for more 'humility of perspective' from researchers, with regard to whose voices are listened to when defining successful ageing, and what outcome criteria are included in our models. We echo these sentiments, and suggest that combining older people's own narratives about ageing with quantitative evidence can yield benefits. Amongst the individuals interviewed for our study was a gentleman who had worked as a 'destination lecturer' on cruise ships. He explained that to do this job well, one needs extensive first-hand knowledge of the destination – otherwise, the lectures do not ring true. This is potentially analogous to understanding the process of successful ageing. Researchers can and should draw on a range of approaches, criteria and domains in their investigations of ageing. But older people themselves are the only ones who 'know the destination' and, perhaps more importantly, the last stages of the journey. By including their voices in our research, we can improve our understanding, and improve the conceptualisation of successful ageing.

While it is not feasible for all or even most studies of successful ageing to combine qualitative and quantitative approaches, mixed methods studies can provide a more comprehensive understanding of the processes and outcomes of ageing, potentially providing greater validity for successful ageing as a concept. We have sought in this paper to explore some of the ways this can be achieved, and we suggest that a more comprehensive approach to successful ageing would: 1) draw on both outcome- and process-focused approaches, e.g. looking at objective measures of physical capabilities and subjective strategies for adapting to their decline; 2) include older people's perspectives and voices; and 3) facilitate understanding of how the various domains of ageing interact, and the differing patterns of interactions across individuals.

Acknowledgements

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Appendix 1: Geographic location (current area of residence) for the full sample and the qualitative subsample

Figure A: Current place of residence of qualitative interviewees, 2014-15

Number of 6-Day Sample members (n = 33) per postcode district

- 1
- 2
- 3

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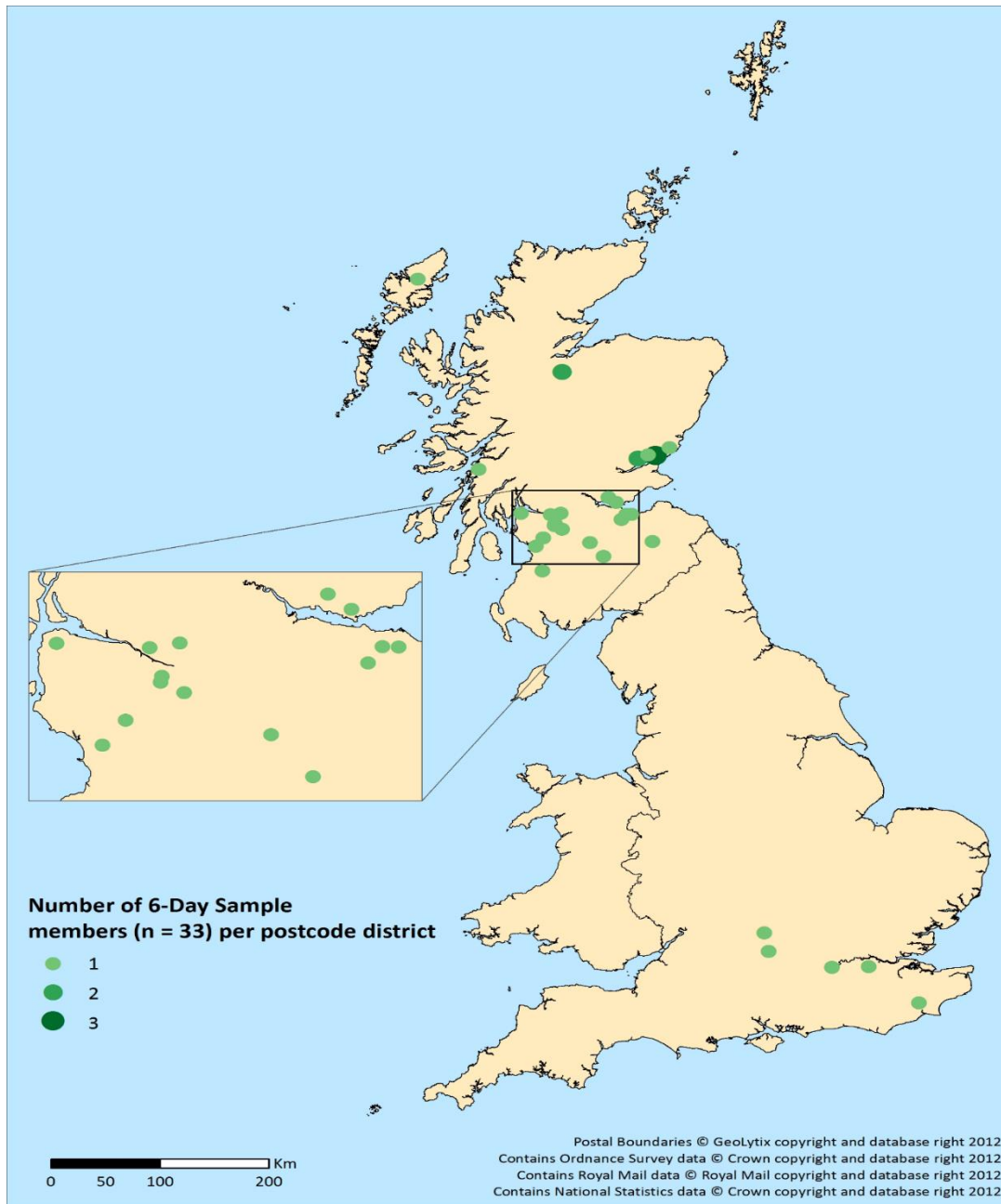
Figure B: Current place of residence of 6-Day Sample study members, 2014-15

Number of 6-Day Sample members (n = 168*) per postcode district

- 0
- 1
- 2
- 3
- 4
- 5

* Excluding 3 participants

N

Km
0   50   100   200

Cartography: Centre for Research on Environment, Society and Health (CRESH)
University of Edinburgh, 2013

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Appendix 3: Piloting the life grid method

In the pilot phase of the study, the research team tested the utility of accompanying the topic guide with a life grid (Blane 1996). In the life grid approach, interviewees are presented with a timeline and, working with the interviewer, are asked to note down key events from their lives. The topic guide and life grid were piloted on four individuals (three female, one male), two of whom came from outside the study population and two of whom were members of the 6-Day Sample. In the pilot, the life grid approach did appear to stimulate recall with regard to event chronology and duration. However, it also appeared to cause interviewees to focus too much on specific dates, as suggested by Bell (2005). Whereas such a focus is of central importance in some studies, e.g. Blane's (1996) investigation of exposure to lifespan exposure to risk factors for chronic respiratory disease, our own study focused on cohort members' perspectives on their life experiences, rather than the precise particulars or durations of those experiences. Furthermore, in contrast to many qualitative studies, we already had access to a great deal of information about cohort members' lives, via the quantitative work packages of 6-Day Sample, all of which had already gathered their data. Following piloting we therefore decided to forego the life grid.

Appendix 4: Investigating the domains of successful ageing: a mixed methods approach

This table provides a sample of quantitative variables and qualitative questions across a range of conceptual domains and subdomains.

Conceptual domain	Conceptual subdomain	Sample quantitative variables	Sample qualitative question or line of enquiry	Comment
Health (physical health and functioning)	Cohort member's health	Self-Rated Health; Health problems	How would you [rate] your health, compared to people about the same age? Why? Has your health changed in last year or so?	Qualitative adds meaning and personal interpretations / evaluation to quantitative SRH measure
	Partner's health	No questions	Rating of partner's health; Impacts of partner's health on cohort member	Carpentieri and Elliott (2014) discuss the impacts on SA/well-being of poor partner health.
	Health in older age (as a general concept)	No questions	Health of parents in their later years; Sibling health; Barriers to seeing siblings	Cohort members frequently noted that much better medical treatment was available for their own generation that of their parents – much easier to live with disease and disability nowadays. These questions frequently elicited narratives of health decline.
	Mortality / End of life experiences	Age of parents' deaths	Could you tell me how [your parent] passed?	This question often elicited narratives of caring for one's parents. Also elicited narratives of the value of physical capability and independence in late life. Notions of "a good death", death with dignity, and fears of going into a care home.
	Physical capability	SF-36; Townsend scale	Who does the cleaning, gardening, maintenance? Do you get any help? Do you want any help?	Elicited narratives of adaptation in general; and selection, optimisation and compensation in particular.
Life satisfaction, well-being, psychological	Well-being	Warwick Edinburgh Mental Well-Being Scale	Are there any advantages of being your age? No specific questions	Narratives frequently highlighted factors (past and present) influencing well-being and life satisfaction

health	Life satisfaction	Satisfaction with life scale	No specific questions	
	Optimism	Life Optimism Test – Revised (LOTR)		Cohort members frequently emphasised the importance of optimism and other positive attitudes
Cognitive functioning	Fluid intelligence; Crystallised intelligence	National Adult Reading Test (NART); Memory and other tests, e.g. *Raven Progressive Matrices*	Asked about activities such as reading, puzzles (e.g. crosswords) and digital media use	Cohort members often mentioned that memory wasn't what it used to be. Highlighted important of maintaining good cognitive function – for example, emphasising that physical decline could be adapted to and cope with, but serious cognitive decline, e.g. dementia, could not. Cohort members fear dementia's impacts
Psychological characteristics and resources	Resilience; Persistence; Other scales?	Scales and measures, e.g. Basic Resilience Scale (BRS)	No specific questions	Narratives frequently highlighted resilience, adaptability, coping strategies, optimism, et cetera
Adaptation	Proactive adaptation / planning	No questions	Plans for the future regarding health or finances	Most cohort members said they and their partners resisted thinking about what might go wrong, and avoided forward planning and discussions of the future. All CMs had wills, but few had engaged in planning that went beyond this step.
			What do you think your partner/children will do in the future, if your health declines? (Probe for forward planning)	
			What will you do in future if your partner's health declines? (Probe for forward planning)	
			Have you made any changes or adaptation to your home?	Some cohort members had already downsized or adapted their homes. Others were open to the idea, if it became necessary. Some CM's expressed displeasure at the notion of moving out of "the family home", even if it was now difficult to manage.
			Do you expect to make adaptations to your home?	
	Future orientation	No questions	Will you keep living here in the future?	Most people hope to stay in their current house; plan on leaving "feet first". General fear of needing to go to a care home.
			Anything you are looking forward to?	Some cohort members looking forward to travel. One was hoping to dance at his granddaughter's wedding.
Perspectives on	Identity	No questions	How old does the cohort member feel?	Brought up issues related to identity – e.g. feeling the

|			Why? Attitude to birthdays	same inside as two decades ago, but looking ones age on the outside. "I'm not really that old, am I?"
and experiences of ageing	Positive aspects of being older		Advantages of being their age	Financial security (often greater then when working), time, autonomy
			Does cohort member feel wiser now?	Cohort members generally said they felt more experienced, but not wiser
			Do you see old age as a time of gain?	Gains include: experience, autonomy, ability to travel, satisfaction with life, grandchildren
	Negative aspects		Disadvantages of age	Physical decline, limited mobility, loss of loved ones
			What is the most difficult thing in your life right now?	Some cohort members said nothing was particularly difficult. Those coping with the loss of loved one emphasised that challenge.
			Do you see old age as a time of loss?	Losing friends and loved ones
	Experiences of retirement		Former occupation Reason for retiring Perspectives on and experiences of retirement	These questions also asked about cohort members and partner. Several said that retirement was so long ago, their memories of the transition were weak. Several indicated that their lives expanded after retirement, e.g. via travel
	Worries and fears		Particular worries about the future?	Dementia, care homes
	Evaluation of life course/span(?)		Life trajectory diagrams	Stimulated a great deal of "life evaluation" talk.
Activities and interests	General	Self-reported frequency of physical activity Self-reported frequency of: reading, TV, computer use, cinema, other activities	Activities in a typical week	Several cohort members emphasised importance of having one key activity each day, to give purpose and shape to life – but not trying to do too much in any one day, as that was too tiring.
	Physical activity		Do you do any regular physical activity or exercise?	Few cohort members do "exercise", but most try to keep physically active, e.g. through gardening or walking.
	Travel		Past and future trips; Difficulties or barriers	For cohort members who still have the physical capability, travel is an important source of pleasure. Many said that the physical and cognitive hassles associated with travel met that it was no longer worth the effort. Others said that while they used to go on more adventurous holidays, they now opted for easier

|				ones.
	Other routine leisure activities		Reading habits and interests; Digital media attitudes and use;	Many cohort members discussed using digital media, e.g. to keep in touch with family – a rich source of "SOC talk". Most interviewees were technologically active. Almost everyone read every day, but reading was generally presented as one of a number of leisure activities, rather than as a particularly cherished, meaningful practice.
	Lifelong learning	Participation in learning over the life course	No specific questions	Some cohort members discussed lifelong learning
Social / productive engagement	Family; generativity	Partnership status; Number of children and grandchildren; Children's education and employment; Parents' occupations	When did you last see [your sibling(s)?] Barriers to seeing each other	Discussions of using digital media and other tools to compensate for distance and optimise relationships.
			How often do you see children/grandchildren? Are there barriers to seeing each other?	Cohort members with younger grandchildren frequently provided childcare narratives.
				Many cohort members emphasised the importance of seeing one's children and grandchildren live satisfying lives, and of contributing to that process
	Productivity	No questions	Membership in clubs or organisations?	Many cohort members had withdrawn from some or all membership – this is lost-based selection (directing ones reduced energies to fewer, but more important social activities).
Environment	Transport/amenities	No questions	Can you tell me about the local area?	Importance of car. As one cohort member said, "around here, if you lose your license you die within a year."
Spirituality		Frequency of church attendance	Activities and interests	Plays an important role in a number of cohort members' lives, giving structural, social engagement and support in times of loss.

Appendix 5: Cohort member scores on sampling variables

Pseudonym	Physical capability	Psychological growth	Self-rated health	Age-11 IQ band	Well-being decile (1=lowest)
Alan	High	Medium	High	Medium	5
Agnes	Low	Medium	Low	Low	2
Brian	Medium	Medium	High	High	10
Brenda	High	Medium	High	High	10
Colin	High	Medium	High	Medium	8
David	Low	Medium	Low	Medium	2
Catherine	Low	Medium	Medium	Medium	10
Doreen	Medium	Medium	High	Medium	7
Neil	High	Medium	High	High	8
Eleanor	Low	Medium	Low	Medium	3
Linda	Low	Medium	High	High	5
Owen	Low	Medium	Low	High	9
Fiona	Medium	Low	Medium	Medium	6
Grace	Medium	Low	High	MISSING	9
Helen	Medium	High	High	Medium	9
Irene	Low	Medium	Medium	Medium	2
Peter	Medium	Medium	Medium	MISSING	7
Edward	Medium	Medium	High	High	7
Margaret	Low	Medium	High	Medium	4
Francis	Medium	Medium	High	Medium	3
Norma	Medium	Medium	High	Medium	7
George	Medium	High	High	MISSING	9
Hugh	Medium	Medium	High	Medium	10
Patricia	High	High	High	Medium	10
Ian	Medium	Medium	Medium	Medium	3
James	High	Low	High	High	10
Joyce	Medium	High	Medium	Low	1
Rosemary	Low	Low	Low	Medium	3
Sylvia	Medium	Medium	Medium	MISSING	1
Kenneth	Low	Low	Low	High	2
Len	Medium	Medium	Medium	High	6
Kathleen	Low	Medium	High	High	9
Martin	High	Low	Medium	MISSING	4

Appendix 6: Life trajectory diagrams

Trajectories
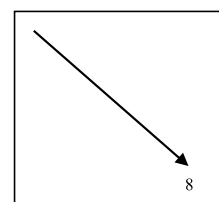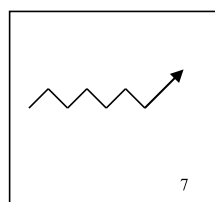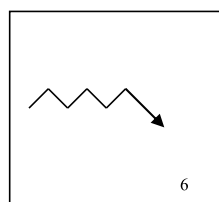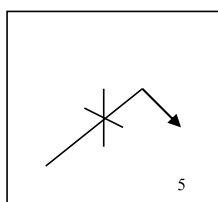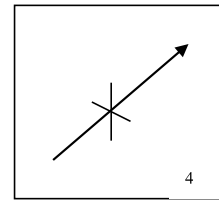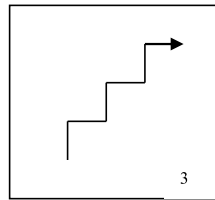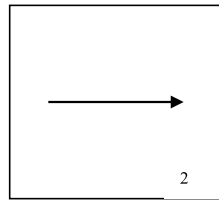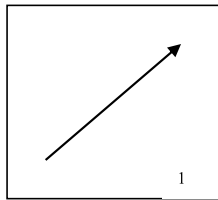
Cohort members' choices

Full life trajectory	Recent life trajectory
7	7
Missing	Missing
4	4
2	2 and 7
3	4
Other: Figure 1a	Other: Figure 1b
1	1
Other: Figure 2a	Other: Figure 2b
Other: Figure 3a	Other: Figure 3b
5	3
3 & 7 combined	1
3	2

3	7
4	1
3	3
3	2 and 3
Other: Figure 4a	Other: Figure 4b
3	3
4	1 and 3
3	2
4	3
3	6
7	7
4	4
3	7
1	1
5, 6 and 7	1
6	8
7	Missing
7	7
3	4 and 7
3	2
Other: Figure 5a	Other: Figure 5b

Number of cohort members choosing each trajectory

Trajectory number		Full life course trajectory	Recent life trajectory
Upward trajectories	1	2	5
	3	11	4
	4	5	3
	7	4	5
Flat trajectory	2	1	3
Downward	5	1	0

trajectories	6		1	1
	8		0	1
Other*			7	9
Missing			1	2
Total			33	33

Respondent drew own trajectory or chose a combination of trajectories for a time period

Cohort members choosing the same trajectory for both time periods: 9

Cohort members choosing different trajectories for each time period: 24

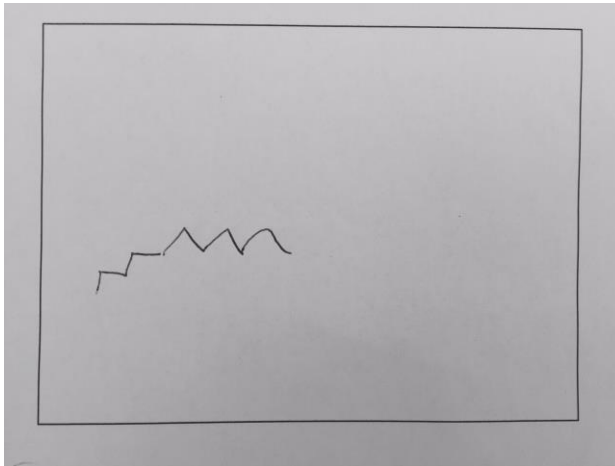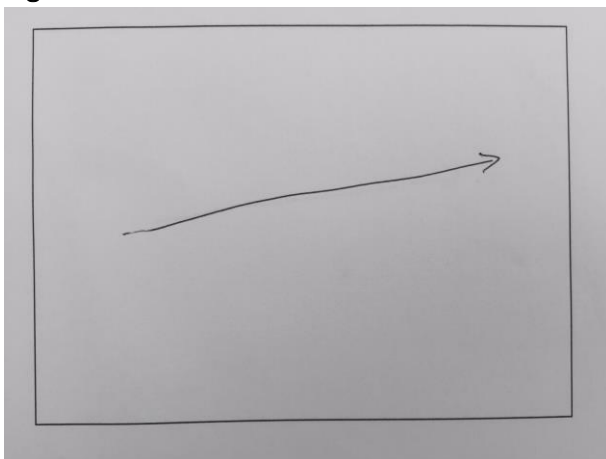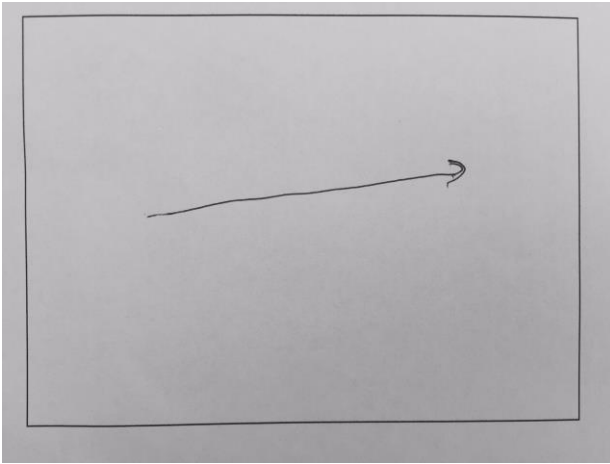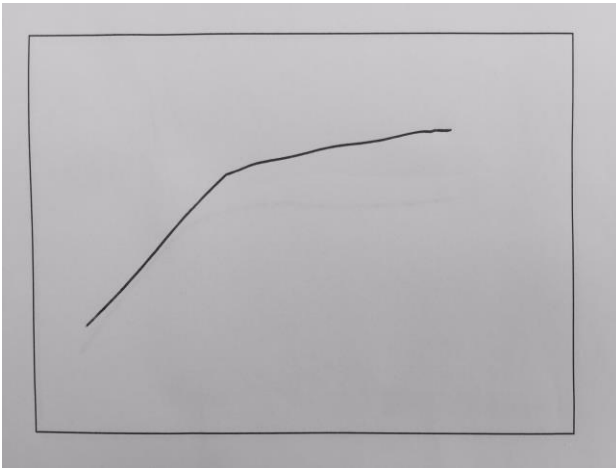# Cohort members' trajectory drawings

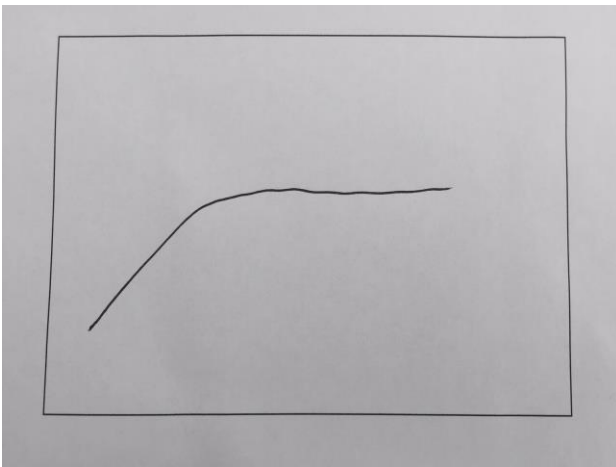Figure 1a
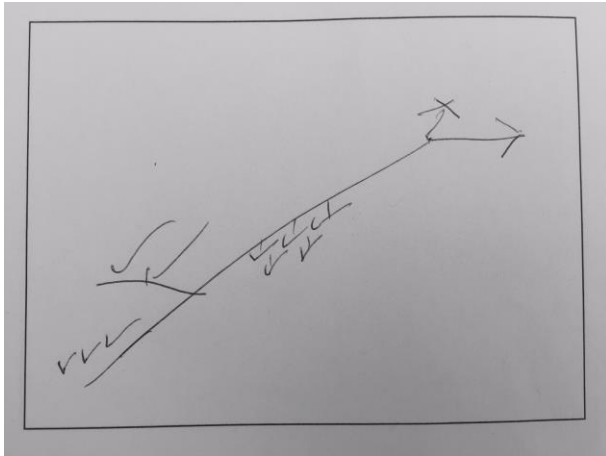
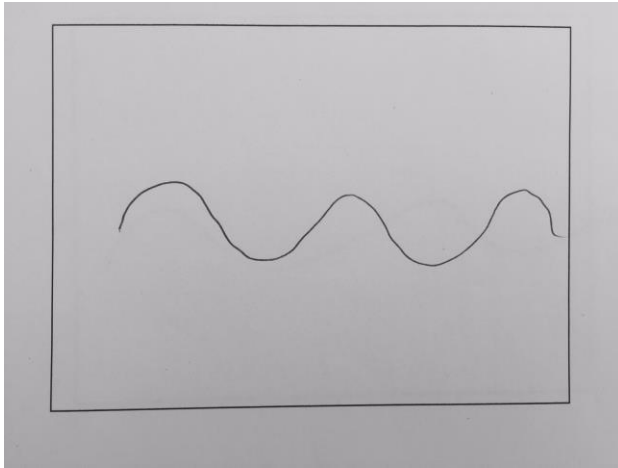

Figure 1b
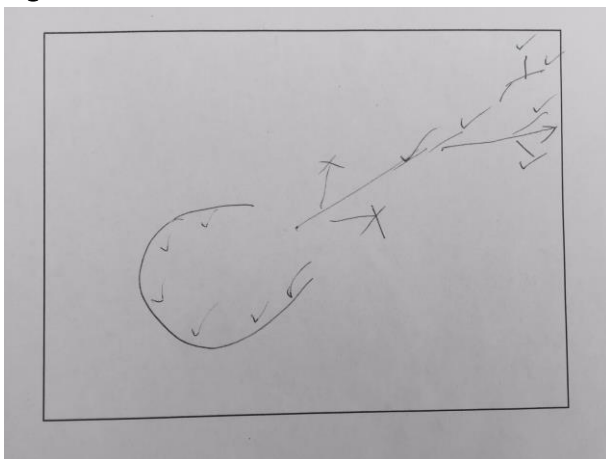
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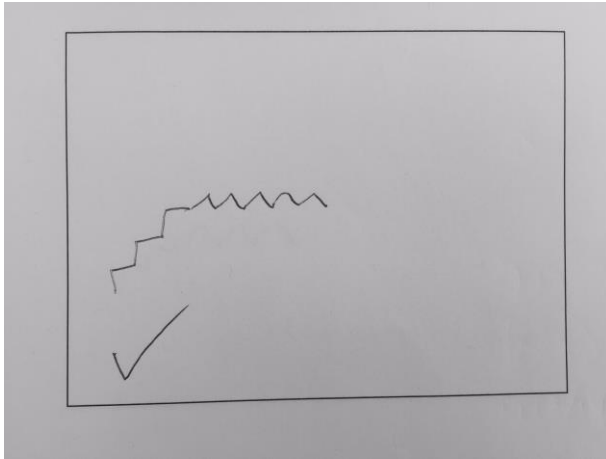
Figure 2b

Figure 3a

Figure 3b

Figure 4a

Figure 4b

Figure 5a

Figure 5b