External agents of change: A ten year trend study of garden visitor behaviour in England.

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Abstract

Changes in people's behaviour over time can be understood through three distinct elements: their age; a period of time and their birth cohort. Age is a key demographic in many leisure studies but less frequently a period of years is used in longitudinal studies. Changes to a birth cohort (a term often used synonymously with a generation) are rarely examined. This study adopts all three measures to demonstrate the complexity of change over time and also offers a greater understanding of change in people's leisure behaviour, specifically those who visit gardens in England.

A trend study consisting of two cross-sectional studies, 10 years apart, was undertaken through resident surveys (n = 341 and 392). These examined factors external to the individual which might influence their behaviour. The results demonstrate that changes in environmental, social and technological factors such as the weather, family and friends and the Internet have impacts that are complex and which are sometimes concealed within different age groups and cohorts over the decade. Notably, no single factor was identified where there was change across the period, all the age groups and all five cohorts, confirming that any change in people's behaviour is not universal.

Keywords

Trend study; birth cohort; visitor behaviour; gardens; National Trust.

Introduction

The world is constantly changing and understanding the varying impacts of change on people's behaviour is central to many leisure and tourism studies. Age is frequently a key demographic use to identify differences in behaviour between younger and older respondents. Fewer studies consider that the change may not relate simply to the ageing process, but rather the periods of time through which a generation or birth cohort has lived. A third option is a longitudinal study, undertaken to show change due to the events that occur over a period of time and the impact these have on respondents' behaviour. Studies (such as Segall, 2013) have demonstrated the value in examining behaviour in relation to all three simultaneously, namely, age, birth cohort and over time. However, these studies have been based on economics rather than leisure or tourism. They therefore consider spending patterns rather than the specific influences on leisure behaviour, directly. This study therefore takes the latter approach using garden visitor attractions in England as its context.

Visiting a garden, that is open to the public, appeals to a wide range of ages and has been demonstrated to offer many rewards. These include not only the beneficial effects of being in a natural place (biophilia) but also physical, social, cultural and horticultural benefits (Connell, 2004; Fox & Edwards, 2008; Gallagher, 1983). Whether a visit takes place is influenced by a range of factors, both internal and external to the garden and to the visitor. With regard to the latter, Snelgove and Havitz (2010, p. 338) suggest that 'calls to develop an understanding of the long-term ebbs and flows of leisure involvement and behaviours' have tended to be unheeded and therefore an understanding of how these factors may change over time is vital if the attraction is to remain viable and the benefits that may accrue to visitors are to continue.

Whether non-commercial or commercial, the visitor attraction sector is both competitive (from existing and new entrants) and dynamic and fluctuations in visitor numbers can not only affect income and future investment but can also lead to failure and closure of the

attraction. Owners and managers can make changes to enhance the visitor experience and to increase visitor numbers but numerous other factors can influence visitation. Berryman (1983) identified and clustered them into six groups; the final section identified *external* factors which are not instigated by the attraction but which nonetheless have to be managed or mitigated, both in the short and the long term. External agents were also identified by VisitEngland (2013) in reporting domestic leisure and tourism trends for the coming decade.

In a study from the supply perspective of Scottish visitor attractions (Leask, Fyall & Garrod, 2013), it is suggested that the key external challenges which attractions need to meet include:

> …increasing competition from other leisure services and visitor expectations, the decreasing availability of public funding and an increasing need to evidence value and diversify their product offering (p. 240).

Other nearby attractions may create an impact either negatively from competition or positively from spacial clustering of attractions (Weidenfeld, Williams & Butler, 2010). In contrast to this long term perspective Goulding (2008) considers variations in visitor attendance over the short term – this seasonality or temporal variation is influenced externally he suggests by factors 'such as institutional holidays, climate, social conventions and evolving patterns of work-life balance' (p. 199). Therefore this study seeks to understand these external agents of behavioural change in the visiting of garden-based attractions.

Gardens are important cultural assets and as Fox and Edwards (2008) note, they are:

> conserved for their historical aspects because, for example, their layout is attributed to a leading garden designer…or the garden may have a direct association with a nationally important person (p. 218).

Whilst in many countries garden visiting is a tourism activity of either domestic or international tourists, in England the majority of visitors are day visitors (Connell, 2004; Gallagher, 1983). This research reports the findings of a trend study in England that considers factors that have afforded or constrained behaviour in relation to visiting gardens which are open to the public, during the decade from 2002 to 2012. The study of leisure behaviour by Brandenburg et al. (1982, p. 263) identified 'Four necessary and sufficient conditions: opportunity, knowledge, favourable social milieu and receptiveness'. Guided by this, changes in visitor demographics; family life; the natural environment and information technology (the expansion of the Internet), form the basis of this study. The research identifies changes in visitor behaviour with respect to a range of external factors as reported through a resident survey rather than by a survey of visitors to an attraction(s) as is often the case and so considers all gardens open to the public irrespective of ownership.

Literature Review

In order to understand the factors that influence visitors to gardens this study reviews theories of change in people. Segall (2013, p. 60) identifies 'three distinct time-related effects on changes in behaviour' - age; cohort and period of time. Considering age first, life cycle theory suggests that as people age, not only is there a change physically but also their attitudes, values, and belief systems which influence their behaviour may also change (Chen & Shoemaker, 2014). A lifecycle of participation in outdoor recreation by SportEngland (2015) for example, showed that the average age for starting outdoor activity is 11-15 years; approximately a quarter stop at an average age of 25 years, of which 20% then restart between 35 and 44 years old. With family life cycle theory, at a basic level, an individual moves up the aging ladder from being a child themselves to perhaps having their own children and subsequently grandchildren. However, Hohn (1987) argues in support of a more complex conceptualisation, incorporating a minimum of 12 life courses. 'Otherwise unstable

marriages, incomplete families, and remarriages would be neglected, along with never married persons with or without children' (p. 65).

A domestic garden is dynamic and linked to the family life cycle (Page & Connell, 2010) and Gross and Lane (2007) show how the garden changes over the lifespan in various ways, such as being a retreat. So gardens may change in use from a safe place for children to play to a space for occasional escape for adolescence and adulthood, to a place offering the 'benefits of absorption in natural settings, the relocation of the person from one environment into another, with personal and private meanings and memories' (Gross & Lane, 2007, p. 239). In late adulthood, they suggest the domestic garden and gardening can offer the opportunities for creativity and self-expression. These same benefits may also therefore accrue from visiting a garden open to the public.

Continuity theory contends that many adults show consistency in psychological characteristics and behaviour 'despite their changing physical, mental, and social status' (Chen & Shoemaker 2014, p. 61). Others argue that ageing is not a linear process through life and does not take into account how societies shape biological constraints like gender differences and aging processes (D'Epinay, Maystre & Bickel, 2001).

Age is a standard variable often assessed in quantitative studies and particularly visitor surveys. A study by Connell (2004) showed that in the UK, middle-aged or older people are more likely to visit gardens than young people. This has consequences for garden attractions as a study by VisitEngland (2013) advises that whilst the population of England will continue to grow, society will change because the growth will not be evenly distributed within age groups. There will be an ageing society with a growth in the number of older people but they suggest that the population aged 35-49, will decline.

A second effect relates to a birth cohort, which is sometimes used synonymously with a generation. Segall (2013) argues that people do not react identically to circumstances but instead are each shaped by their experiences, given their particular age at a particular time. Research has shown that children and young adults can be more affected, by important cultural events during their childhood and young adulthood in determining their future consumption decisions, than older people. This builds on the work of Mannheim (1952/1928) who developed the theory of generations (or sociology of generations). He contended that the socio-historical environment when a person is young subsequently influences their value systems and personality. Timonen and Conlon (2015) established through qualitative research that 'generation emerges as a still-relevant concept that reflects perceptions of how material resources, period effects … shape lives in contemporary societies' (p.1). Additionally, Strauss & Howe (1991) suggest that people within a geographic area can develop a 'peer personality' if they experience a common significant life event. Segall (2013, p. 67) concluded that:

> …cohort effects in spending patterns are both real and significant: different birth cohorts form generational preferences that affect their purchasing patterns over the life course, though these effects can easily be obscured when confounded with age and period effects".

Fall (2004) is a rare example of using generational cohorts; she examined how leisure travellers evaluate media and other marketing materials.

The third and final effect, referred to by Segall (2013), like age is also commonly used and is the period of time passing. However, this can be limited as it is often a 'broad stroke' approach, without specific details. External variables as factors influencing organisations have received little attention (Prentice, 2016). Influences include both local ('exo')

environmental factors, such as the area in which a person lives and wider ('macro') environmental factors such as the economy or technology (COI, 2009). In the decade of this study, England faced, like much of the world, a prolonged economic downturn from 2009 which had a major effect on all aspects of consumption. Data from the Office for National Statistics cited by VisitEngland (2013) indicates that while households reduced their overall spending, spending on recreation and culture actually increased. In terms of garden visiting this was beneficial particularly as international tourism was replaced by domestic tourism (VisitEngland, 2013). Nonetheless, Russell (2010) author of the guide book 'Gardens to visit 2010' states that 'I know of three gardens that have closed their doors to the public in 2009 and I hear that there may be more closures to follow' (p. 3).

During this period there was also considerable technological change. Lepp (2014, p. 219) summarises preceding research arguing that 'cell phone use may have multiple effects on leisure, some positive and some negative'. Similarly Gere (2009) contends that information relating to leisure is now mostly available in digital form. An analysis by VisitEngland (2013) identified the percentage of garden attractions offering various forms of digital communications. The highest were Facebook (65%); Twitter account (55%); an E-newsletter (31%) and an online blog (also 31%).

Finally there are changes in the natural environment, many of which may be anthropogenic in their formation. In relation to climate change, the UK Meteorological Office (Met Office, 2011) concluded that since 1960, temperatures have increased in the UK with greater warming in summers than in the winters. In their overview of the climate, they note that the weather is generally very changeable, with rain and clouds occurring throughout the year. However, there is also variation between years, for example in 2012, 'June was the wettest since 1766 and July had over 182% of normal rainfall' (VisitEngland, 2013, p. 6).

In addition to these macro impacts, a range of factors can be identified that may impact on individuals in relation to their leisure time in general, or which might inspire a garden visit. It is these factors that form the variables under investigation in this study.

Changes in garden visiting

Many gardens in England which are open to visitors on a regular basis are owned by public and voluntary operators (Fox & Edwards, 2008). Two of these are the registered charities; the National Trust and the Royal Horticultural Society (RHS). The National Trust had over 4 million members in the summer of 2012 (National Trust, 2013) and 19.2 million visits up from 3.1 million members and 12.6 million visitors, in 2002. Their properties include a range of historic houses, castles, churches, industrial heritage and archaeological sites as well as large areas of countryside, coastal areas etc. The RHS had more than 320,000 members in 2002, which generated £9.5 million in membership fees. By 2012, the number of members had increased to over 400,000 (Royal Horticultural Society, 2013). The gardens generated £1.2 m or 3% of total income, whereas the expenditure amounted to £6.4m or 16% of total expenditure (Royal Horticultural Society, 2003). In contrast, the horticultural shows (for example, the Chelsea Flower Show) generated a profit of £2m. A third charitable organisation, the National Gardens Scheme (NGS), does not own any gardens but facilitates the opening of over 3,000 mainly small and private gardens to the public in order to raise funds for a variety of charities (Lipovska, 2013).

In 2002, the gardens sector in the UK, as with the visitor attraction market as a whole, benefitted from the Queen's Golden Jubilee celebrations which generated an additional public holiday day (Mintel International Group Limited, 2004). In 2012, there was again an additional public holiday for the Diamond Jubilee. However, unlike the decade before there was also the impact of the London 2012 Olympic Games. During that period, there was also

an increase in the numbers of gardens opening to the public; for example the National Trust lists just over 150 in their handbook in 2002 (National Trust, 2002) which had increased to over 190 in 2012 (National Trust, 2012). This increase was due partly to some properties promoting the garden whereas this had not been the case in 2002; the inclusion of gardens that were accessible by prior arrangement only, as well as the inclusion of new acquisitions, such as Nuffield Place in Oxfordshire, the home and garden of the philanthropist, William Morris, which was acquired by the Trust in 2011.

In 2002, the number of garden visits by residents in the UK, was estimated at over 14 million (Visit Britain, 2003) whereas in 2012 this had increased to 34 million, of which 30 million were in England (VisitEngland, VisitScotland, VisitWales, 2013). Fifteen million garden visits were in rural areas with eleven million in cities or large towns. Increases can be identified in individual gardens, for example, the RHS garden at Wisley, recorded 655, 720 visits in 2002, (Royal Horticultural Society, 2003) which had increased over the decade to 960,000 (Royal Horticultural Society, 2013). Average entry charges also increased, however, over the same period from £3.57 in UK gardens (Visit Britain, 2003) to £6.23 for gardens in England (VisitEngland, 2013). Total expenditure in gardens in England amounted to £999 million in 2012 (VisitEngland, VisitScotland, VisitWales, 2013).

Methodology

Many studies are designed as cross-sectional studies, in which data is collected during a single period of time. However, these studies cannot show transitions and explain trends and changes in behaviour over time. To overcome this, longitudinal studies have developed and Taris (2000) describes seven basic design strategies: simultaneous cross-sectional study; the trend study; time series analysis; the intervention study; the panel study; the retrospective study and the cohort study. This research adopts a *trend study*, sometimes referred to as a

'repeated cross-sectional study' (Taris, 2000). In this two or more cross-sectional studies are undertaken during two or more periods, using a different sample drawn from the same population of interest for each study. Whilst a trend study is 'not suited to resolve issues of causal order or to study development patterns…it allows for the detection of change at the *aggregate* level' (Taris, 2000, p. 6 [his emphasis]). One of the disadvantages of the technique is that standard error can be increased if there is greater variation between individuals and the power to detect statistically significant differences is reduced (Yee & Niemeier, 1996).

To summarise, this study, whilst longitudinal, adopts an approach that is cross-sectional at the level of the sample. To achieve this, two surveys of residents in one post code area of southern England were undertaken in November and December 2002 and in the same period of 2012, being the end of the garden visiting season. Before each survey, ethical approval was obtained from the researcher's institution. The spacing of the two waves of the study was determined by the availability of resources. Each sample was a cluster sample of households in a random selection of postcodes, which was different in each phase of data collection. On each occasion the adult who would next celebrate their birthday was given a self-completion questionnaire. The questionnaires were hand delivered and then either collected from the household or returned by post after a reminder letter. The survey instruments had the same format, incorporating both open and closed questions, many of which were the same to enable the tracking of change over time. However, some questions were deleted and others required alteration or new ones were added, to reflect developments in garden visiting or to provide information on other aspects of the context than those of interest in the initial study. (Some results from the 2002 survey can be found in Fox & Edwards (2008)). This study, concentrates on the factors that influenced how respondents spent their leisure time and secondly from a range of sources, those which had inspired them to visit a garden. A broad range of variables were incorporated, in order to reveal the complexities of change due to the

three aspects; the passing of time, changes within age groups and changes within birth cohorts.

A total of 733 questionnaires were used in the first two analyses (of period and age); 341 from the 2002 survey (response rate, 37%) and 392 from 2012 (response rate, 39%). The number of respondents aged 16-24 in each study period was extremely small (in 2002, n = 4 and in 2012, n = 6), and therefore they were excluded from the calculations of the cohorts. Together with the excluded respondents in the age groups 25-34 in 2012 and 75+ in 2002, the cohort analysis therefore consisted of 655 respondents. The data was analysed using the Chi^2 statistical test rather than McNemar's test as there were different respondents in each study period (Field, 2013). When calculating the differences in the cohorts, a conservative approach was adopted and an adjustment was made using Yates's continuity correction (Furr, 2010) as some of the cells had a count of less than five. Statistical significance was assumed at the 95% confidence level in all three analyses.

Results & Discussion

This section begins by presenting the descriptive statistics relating to the respondents (Table 1) for each period of time.

[Table 1 Here]

The respondent characteristics of the two periods of data collection show that there were differences in ages within the two data sets. The respondents, aged over 55 years, increased proportionally in the 2012 study compared to that of 2002, whilst those under that age decreased. To some degree this reflects changes recorded in the 2001 and 2011 censuses for the Dorset area (which equates most closely with the postcode area used in this study). Dorset

County Council (2013) shows an increase in people over the age of 40 and a reduction in those in their thirties. Nonetheless, this statistically significant difference in the ages of the respondents (p = .012) will need to be considered when interpreting the results.

It is also noteworthy that there was an imbalance between the genders responding to the surveys, (approximately one third male and two-thirds female). However, the same proportions of respondents are in each dataset and as differences in gender, whilst important, are not under consideration in this study, this disparity should not have undue impact.

Additionally, there was a slight but significant increase, in the percentage of respondents who had a domestic garden from 92.4% in 2002 to 97.1% in 2012 (p = .046). However, the most striking differences between the datasets were in the membership of the two non-profit organisations, the National Trust (up from 21.1% to 31.2%) and the decrease in RHS membership (down from 4.9% to 1.4%). These major changes in membership are discussed later in the section. Finally, Table 1 confirms the popularity of visiting gardens in England, with 66.9% of respondents in 2002, stating that they like to visit gardens and 90.2% responding that they like to revisit a garden.

Comparisons of changes over the period, by age and by birth cohort.

Next, the changes and their origins of the two groups of variables were identified. The results are presented first by period, age and cohort and then to demonstrate the complexity of the changes are discussed by each group of variables. The first of the three, changes over the decade are presented as figures. For the factors that influence the respondents' leisure (see Figure 1) and those that inspire a visit to a garden (see Figure 2).

[Figure 1 Here]

[Figure 2 Here]

Next, the same analyses were performed but this phase, compared an age group in 2002 with the same age group in 2012 (see Table 2). Finally, a cohort analysis was undertaken and in this, one birth cohort in 2002 was compared with the 10 year older cohort from 2012 (see Table 3). As the results are complex a summary of the results for each variable, demonstrating which are significantly different, is presented in Table 4.

[Table 2 Here]

[Table 3 Here]

[Table 4 Here]

Factors that influence leisure

The factor that influenced the greatest number of respondents in both studies was the weather. As Tourist Information UK (2016) note, 'British people love to make conversation about the weather because it can be so variable and unpredictable'. In 2002, 58.9% of respondents stated that it influenced how they spent their leisure time, a figure that increased to 76% in 2012 (p = .000). The age analysis demonstrates that the weather particularly influenced the 45-54 and the 55-64 age groups the most (p = .000 and .016 respectively). The cohort analysis confirms this, showing it was respondents in the 35-44→45-54 and the 45-54→55-64 cohorts that were most influenced (p = .000 and .001) As noted earlier, the summer of 2012 had a much higher rainfall than average, which would have impacted on visiting an outdoor attraction, such as a garden. The National Trust recorded a reduction in visitors in that year to all of their properties of 200,000 compared to the previous year, which they attributed in part to the bad weather (National Trust, 2013). Loss of income from the weather affects all garden owners, not only because of decreases in ticket sales to non-

members but also reductions in purchases in restaurants and gift shops for example, by visitors in general.

It seems probable that the adverse summer weather also had an impact on people's domestic gardens, as 21.2% of respondents in 2012 identified this as an influence on their leisure compared to 29.6% in 2002 (p = .009). The decrease in the age group 45-54 was significant (p = .002). This may have impacted on garden visiting as most garden visitors in England are garden owners (94.8% in Connell (2004) and 99% in Lipovská (2013)). There was the same difference between the cohorts (a decrease of 8.4%) in respect of the effect of their mood on their leisure time (p= .018). In this case, however the age group analysis highlights a difference in the 55-64 year olds (p= .040) whilst the cohort analysis shows a wider variation including younger respondents: 25-34→35-44 (p = .006); 45-54→55-64 (p =. 042) and 55-64→65-74 (p = .022).

Whilst there were no differences overall between the two periods regarding the influences of children, the cohort study did show a slight decrease in the 35-44→45-54 cohort (p = .001). In contrast there were no differences in the cohorts in relation to the influence of other relatives but there was an overall increase over the 10 years from 25.2% to 36.5% (p = .001). The increase of 11.3% in the influence of relatives other than children on the respondent's leisure gains greater precision when incorporating a breakdown in differences by age groups. This shows that there were statistically significant differences between the age groups 25-34 (p = .039); 55-64 (p =.046) and 65-74 (p =.001). The finding that the cohort 35-44→45-54 decreased in the influence of children may be linked to this. The decrease in the 65-74 age group being influenced by disability or ill-health (p = .000) may be linked to the difference in the 55-64→65-74 cohort (p =.025).

Absence of change is also noteworthy and the respondents' pets; transport and television schedules are recorded as having no change in influence over the decade. Neither were there any changes by age group or birth cohort, suggesting that these factors have remained very constant across the population over the 10 year period.

Sources of inspiration for a visit to a garden

Next, the more specific factors affecting garden visiting are considered and in particular the changes in the seven items relating to the media that had inspired a visit, the four intra-personal items and the three external influences (shown in Figure 2). Perhaps predictably given the high level of repeat visiting of gardens referred to above, a happy memory of a previous visit is important. This showed a 15.6 % increase from 36.1% to 51.7% (p = .000). Happy memories became increasingly important to the 65-74 age group (p =.002) and the 65-74→75+ cohort (p = .049). This suggests that the memories of garden visiting might be linked, like those of a domestic garden, to personal meanings (Gross & Lane, 2007), and become more important with age.

However, somewhat surprisingly perhaps, the most important factor which inspired a visit to a garden in 2002 was a friend (59.3%), although this decreased to 40.6% in 2012 (p = .000). This is particularly the case for 45-54 year olds (p = .000); 55-64s (p = .042) and the respondents aged over 75 (p = .022). The cohort analysis supports the first two results (75+ was the highest age group and was thus excluded from the cohort analysis). Family members are also important in inspiring a visit, and this remained consistent over the decade of the study. However, within the age groups, there was a decrease in the 65-74 age group (p = .043) and the 45-54→55-64 cohort (p = .045). Fox and Edwards (2008, p. 229) demonstrate how a family member or friend can be inspirational although they 'may simply be reliving their own experiences or they may be advocating visiting'. They also highlight that whilst

some visitors are prime movers in a visit, that is, instrumental in making it happen, other visitors are secondary participants, who may not have visited without the prime mover.

The results confirm a decline in print media over the decade and the predictable increase in Internet use. In 2002, a magazine article was the most frequently cited source as inspiration for a visit (46.2% of respondents). However, by 2012, this had fallen to 27.4%, a decline of 18.8% (p = .000). The analysis by age shows the biggest reductions in the 25-34 and 45-54 age groups (p = .021 and .011). However the cohort analysis demonstrated that a significant difference was recorded in the 55-64→65-74 group (p = .002).

The results also show that the decline in newspapers as a source of inspiration was prevalent in all the age groups from 45 and above (p = .014, .008, .000 and .012), supporting the differences in the two highest cohorts, the 55-64→65-74 and the 65-74→75+ (p = .000 and .024). The same effect is recorded in respect of garden guide books. The decline was smaller (11.9%) down from 22.3% (p = .000) but again it was the age groups 45-54 and 55-64 and the cohorts 45-54→55-64 and 65-74→75+ (p = .016, .008, .012 and .013). This reflects sales in travel guides in general which fell consistently each year from a peak in 2005 and by the end of 2012 were predicted to have fallen by 40% in the UK and USA (Mesquita, 2012).

It was not just the print media, that declined in use over the decade; Tourist office information also decreased by 8.7% down to 24.8% in 2012 (p = .018). The decline was greatest in the 35-44 year old age bracket (p = .006) and the 55-64→65-74 cohort (p = .010). The only increase in inspiration (other than a happy memory) was the Internet, although the increase was relatively small, just 7.7% up from 3.8% (p = 0.000). There were no differences within the cohorts but the age groups, 35-44, 45-54 and 65-74 did show increases (p = .047, .044 and .023). This too replicates statistics on Internet use. In Great Britain in 2012, 33

million adults accessed the Internet every day, which is more than double the 2006 figure of 16 million, when directly comparable records began (Office for National Statistics, 2013).

The National Trust and Royal Horticultural Society

The increase in membership of the National Trust by respondents of 10.1% (p = .004) was noted above. This reflects the increase in membership of the organisation overall from 3.1 to 3.93 million members in the same period (National Trust, 2013). The age group data from this study shows that the only significant increase was in the 45-54 group (p = .019) and there were no differences in the cohorts. This suggests that the Trust is consistently appealing to members in every age group. All members receive a free handbook every year; however, unlike the other forms of print media, notably there were also no differences in use of the Handbook for inspiration across any of the age groups or cohorts. The decrease in the RHS of 3.5% (p = .011) was also refered to above. This was significant in the 65-74 age group (p = .002) but not observed in any of the cohorts. Although overall membership of the RHS increased over the decade, in 2002, they introduced a Family Membership scheme (Royal Horticultural Society, 2003) and it may be that younger members are replacing the older members in the organisation but the small proportion of younger respondents in the surveys, do not enable this to be evident. However, the RHS handbook (unlike that of the National Trust) also suffered an overall decline in use of 9.3% (p = .000) notably in the age groups 55-64 and 65-74 (p = .023 and .001) and in the cohort, 65-74→75+ (p =. 001). Together these figures suggest that whilst the RHS is expanding its membership across a wider range of the population of England, it may be losing its oldest members.

Conclusion and study limitations

This paper makes two important contributions: one methodological and one substantive. In terms of methodology, this study has demonstrated the value of combining the three forms of

measurement of change in people's behaviour, namely period, age and birth cohort. Some factors such as the weather have been shown to influence leisure widely and the severe weather of 2012, led to considerable changes in the respondents' perception of it. This was felt particularly by the middle aged who Connell (2004) identified as the most frequent visitors of gardens in the UK. Garden operators, including the National Trust and the RHS, have no control over the weather but they could perhaps manage or mitigate its effect (Berryman, 1983) in the design of their visitor experience, for example, through the provision of indoor exhibitions.

In contrast the increase in use of the Internet in inspiring a visit to a garden has been noted. Whilst the increase over the decade has been relatively small, its use is likely to grow in the future. This has greatly affected the use of generic print media, for example, newspaper articles and magazines as sources of inspiration. Specialised print forms, such as garden guide books and the RHS handbook, have faced smaller decreases in use, whilst the National Trust handbook has (at least until 2012) remained a source of inspiration to its members.

The use of three forms of analysis has enabled the exposure of some changes in behaviour that were not apparent by the simplest test of change over a period of time. For example, the role of the family in inspiring a visit appears from the period study, not to have changed over the decade. However, this result conceals the fact that in the 65-74 year old age group, family has become more prevalent as a source of inspiration and both results 'mask' the decrease in inspiration perceived by the 45-54→55-64 birth cohort.

It is notable that there was no single factor identified where there was change across the period, all the age groups and all five birth cohorts, suggesting that the changes examined here do not affect people universally, further emphasising the value of research at the three levels of enquiry. Nonetheless it confirms that individuals are shaped by their experiences

over time and that certain events in particular developmental periods can have effects throughout their life course.

The study has also contributed to the literature by providing empirical evidence relating to leisure in general and garden visiting specifically, which may benefit organisations in the heritage and culture sector as well as the garden sector, including the National Trust and the RHS in England.

As with any study there were limitations in this research. The surveys of residents were undertaken in a part of England that has an ageing population and it was noted above that there are statistically significant differences in the ages between the two samples. Also the comparisons are only possible at the general level, because although the same population was sampled, the randomised list of households was different on each occasion. Furthermore, although the sample sizes were adequate, cohort analysis requires very large sample sizes to avoid cells with a count of less than five, which was not always achieved in this analysis. As with some other long-term longitudinal studies, this was not planned to be one at the start, rather it originated as the author's doctoral research and therefore questions were not designed with future analysis in mind and questions regarding the Internet, for example, were not developed in 2002, to an extent that would be useful in 2012.

Future scholarship could therefore survey the same residents and assess these time-related variables in combination with other socioeconomic variables which may have explained the variations in residents' behaviour over time. For example, the division between family and friends as sources of influence had the unintended consequence that the importance of 'word-of-mouth' could not be measured as a single variable. This would be invaluable given the demonstrated decline in influence of print media and the current rise of social media. Also, this study considered family members as a generic group; however, different relationships

may be influential in diverse ways. Older females may be influenced by their partners or husbands differently than by a sibling and possibly differently to younger females. Similar differences may also occur between male respondents. Furthermore, Murdock et al. (1990) emphasise the interactive effects of race and ethnicity with age.

Finally, a larger number of responses would also enable more detailed analysis of behavioural changes, for example between members and non-members and also first time visitors and repeat visitors of the National Trust and the RHS, thus providing even more detailed information for garden operators. Alternatively, these charitable organisations, in addition to operators of other large gardens, could undertake visitor surveys to assess the value of the behavioural factors to their existing attendees. This could assist in enhancing the marketing to attract new customers or in the management of their gardens.

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Tables and Figures

Table 1: Respondent characteristics

Characteristics		**2002 (%)**	**2012 (%)**	***p***
Gender	Male	37.4	37.1	ns
	Female	62.6	62.9	
Age	16-24	1.2	1.5	.012
	25-34	10.4	5.1	
	35-44	15.5	10.5	
	45-54	21.2	18.5	
	55-64	19.7	23.1	
	65-74	20.0	25.9	
	75+	11.9	15.4	
Children in household		24.9	23.5	ns
Personally likes to visit gardens		66.9	68.6	ns
Likes to revisit gardens		90.2	85.1	ns
Member of the National Trust		21.1	31.2	.004
Member of the RHS		4.9	1.4	.011
Own garden		92.4	97.1	.046
Type of gardener	Enthusiastic	23.1	16.7	ns
	Quite likes	43.3	51.4	

Table 2: Comparisons within age groups

Age group	**16-24**		**25-34**		**35-44**		**45-54**		**55-64**		**65-74**		**75+**	
Influences on their leisure	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)
Children	0	33.3	54.3	65.0	76.9	70.7	33.8	45.8	19.7	30.0	13.4	22.8	10.0	13.3
Other relatives	50.0	16.7	22.9	50.0	25.0	36.6	32.4	37.5	25.8	41.1	17.9	41.6	27.5	18.3
Disability or ill-health	25.0	0	2.9	15.0	3.8	0	7.0	12.5	19.7	12.2	28.4	6.9	35.0	26.7
Pets	0	50.0	11.4	30.0	13.5	22.0	21.1	20.8	25.8	18.9	19.4	17.8	12.5	8.3
TV schedules	50.0	0	11.4	0	1.9	2.4	7.0	1.4	7.6	5.6	11.9	7.9	15.0	11.7
Transport	100	0	8.6	5.0	9.6	14.6	11.3	13.9	7.6	10.0	10.4	12.9	20.0	15.0
Weather	75.0	83.3	65.7	75.0	59.6	73.2	57.7	88.9	66.7	83.3	58.2	72.3	50.0	58.3
Their garden	0	0	14.3	10.0	21.2	12.2	32.4	11.1	34.8	21.1	40.3	32.7	30.0	25.0
Their mood at the time	100	50	65.7	60.0	48.1	31.7	49.3	45.8	48.5	32.2	22.4	29.7	20.0	15.0

Source of inspiration for a visit to a garden	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)	2002 (%)	2012 (%)
Happy memory of previous	100	33.3	50.0	64.7	45.2	53.8	43.1	55.1	34.6	49.3	25.0	52.4	30.3	45.8
Garden guide book	0	0	15.0	0	17.5	6.1	23.6	7.8	22.8	7.1	32.7	18.9	12.9	11.1
Magazine article	33.3	0	45.0	11.1	43.9	24.2	50.9	28.1	50.9	35.7	38.2	24.4	41.9	27.8
Newspaper article	0	0	25.0	16.7	37.5	18.2	44.6	23.4	49.1	27.4	40.0	12.2	43.8	18.5
NT Handbook	33.3	0	30.0	44.4	30.0	36.4	29.1	37.5	40.4	34.5	34.5	41.1	32.3	33.3
RHS Handbook	0	0	0	0	7.5	3.0	9.1	3.1	14.0	3.6	25.5	5.6	6.5	1.9
Internet page	0	33.3	15.0	22.2	7.5	24.2	5.4	17.2	1.8	7.1	0	8.9	0	3.7
Tourist office info	33.3	0	15.0	22.2	45.0	15.2	35.7	26.6	36.8	36.9	25.5	16.7	32.3	24.1
Family	100	66.7	80.0	83.3	65.9	66.7	57.9	46.9	35.1	39.3	23.6	40.0	41.9	33.3
Friend	66.7	0	70.0	55.6	70.7	57.6	66.7	34.4	57.9	40.5	41.8	43.3	54.8	29.6
Memberships														
National Trust	33.3	0	22.7	22.2	16.7	30.3	13.6	31.2	26.7	28.6	24.1	33.0	22.9	38.2
RHS	0	0	0	0	0	3.0	3.6	0	7.4	1.2	13.2	1.1	0	3.6

Table 3: Comparisons within birth cohorts

Cohort	**25-34 – 35-44**		**35-44 – 45-54**		**45-54 – 55-64**		**55-64 – 65-74**		**65-74 – >+75**	
Influences on their leisure	**2002 (n)**	**2012 (n)**	**2002 (n)**	**2012 (n)**	**2002 (n)**	**2012 (n)**	**2002 (n)**	**2012 (n)**	**2002 (n)**	**2012 (n)**
Children	19	29	40	33	24	27	13	23	9	8
Other relatives	8	15	13	27	23	37	17	42	12	11
Disability or ill-health	1	0	2	9	5	11	13	7	19	16
Pets	4	9	7	15	15	17	17	18	13	5
Television schedules	4	1	1	1	5	5	5	8	8	7
Transport	3	6	5	10	8	9	5	13	7	9
Weather	23	30	31	64	41	75	44	73	39	35
Their garden	12	3	5	5	11	8	23	19	23	33
Their mood at the time	23	13	25	33	35	29	32	30	15	9
Source of inspiration for a visit to a garden										
Happy memory of previous	6	14	14	27	22	35	18	43	13	22
Garden guide book	3	2	7	5	13	6	13	17	18	6
Magazine article	9	8	18	18	28	30	29	22	21	15
Newspaper article	5	6	15	15	25	23	28	11	22	10
National Trust Handbook	6	12	12	24	16	29	23	37	19	18

RHS Handbook	4	0	0	1	3	2	5	3	8	5
Internet page	3	8	3	11	3	6	1	8	0	2
Tourist office information	3	5	18	17	20	31	21	15	14	13
Family	16	22	27	30	33	33	20	36	13	18
Friend	14	19	29	22	38	34	33	38	23	16
Membership										
NT Member	5	10	7	20	8	24	16	31	14	21
RHS Member	0	1	0	0	2	1	4	1	7	2

Table 4: Summary of statistical significance

Variable		**Period (2002-2012)**			**Age groups**			**Birth cohort**		
		Increase (%)	**Decrease (%)**	**p**	**Increase**	**Decrease**	**p**	**Increase**	**Decrease**	**p**
Influences on their leisure	Children								35-44→ 45-54	.001
	Other relatives	+11.3		.001	25-34 55-64 65-74		.039 .046 .001			
	Disability or ill-health					65-74	.000		55-64→ 65-74	.025
	Pets									
	TV schedules									

	Transport									
	Weather	+17.1		.000	45-54 55-64		.000 .016	35-44→ 45-54 45-54→ 55-64		.000 .001
	Their garden		-8.4	.009		45-54	.002			
	Their mood		-8.4	.018		55-64	.040		25-34→ 35-44 45-54→ 55-64 55-64→ 65-74	.006 .042 .022
Source of inspiration for a visit to a garden										
	Happy	+15.6		.000		65-74	.002	65-74→		.049

	memory							75+		
	Garden guide book		-11.9	.000		45-54 55-64	.016 .008		45-54→ 55-64 65-74→ 75+	.012 .013
	Magazine article		-18.8	.000		25-34 45-54	.021 .011		55-64→ 65-74	.002
	Newspaper article		-22.0	.000		45-54 55-64 65-74 75+	.014 .008 .000 .012		55-64→ 65-74 65-74→ 75+	.000 .024
	NT Handbook									
	RHS Handbook		-9.3	.000		55-64 65-74	.023 .001		65-74→ 75+	.001
	Internet	+7.7		.000	35-44		.047			

	page				45-54 65-74		.044 .023			
	Tourist office info		-8.7	.018		35-44	.006		55-64→ 65-74	.010
	Family				65-74		.043		45-54→ 55-64	.045
	Friend		-18.7	.000		45-54 55-64 75+	.000 .042 .022		35-44→ 45-54 45-54→ 55-64	.001 .004
Membership										
	NT Member	+10.1		.004	45-54		.019			
	RHS member		-3.5	.011		65-74	.002			

Figure 1: Changes in influences over the 10 year period

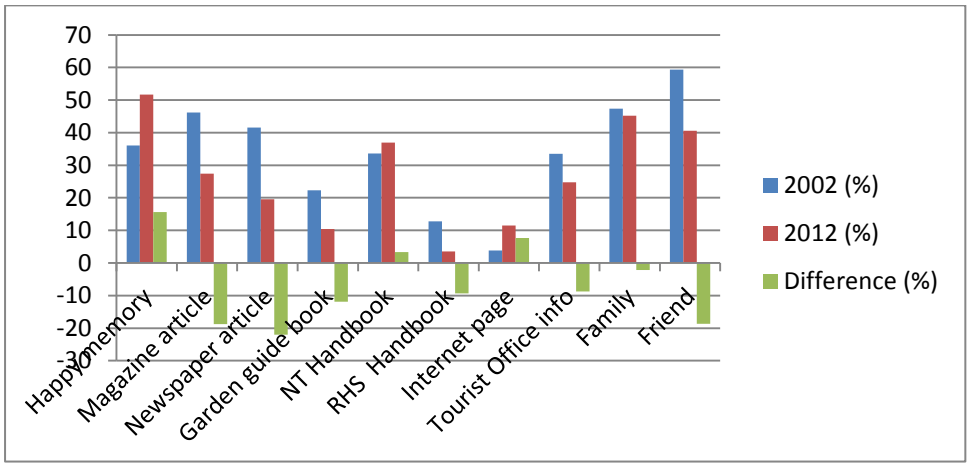

Figure 2: Changes in inspiration for visiting a garden