



The Scottish
Government

Child's play:

The links between childhood
encouragement and adult
engagement in arts and culture.

Evidence from the Scottish
Household Survey Culture

Module 2007/8.



social
research

***CHILD'S PLAY:* THE LINKS BETWEEN CHILDHOOD
ENCOURAGEMENT TO PARTICIPATE IN AND
ATTEND CULTURAL ACTIVITIES AND
SUBSEQUENT ADULT PARTICIPATION AND
ATTENDANCE IN ARTS AND CULTURE.
EVIDENCE FROM THE SCOTTISH HOUSEHOLD SURVEY
CULTURE MODULE 2007/8.**

**Wojciech Hupert
The Scottish Government**

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1 EXECUTIVE SUMMARY

This analysis was undertaken in-house by using large scale data from the 2007/8 Scottish Household Survey Culture (and Sport) Module and builds on previous research carried out both in Scotland and England. It explores the role of childhood encouragement to participate in and attend cultural activities in promoting cultural participation and attendance in adult life.

1.1 *Methodology:*

The approach we have taken to analysing the SHS Culture (and Sport) Module 2007/8, is known as logistic regression modelling. Using this technique allowed us to look not just for the relationship between childhood encouragement¹ and adult participation taken in isolation, but also to account for variation in other variables that might be useful in explaining the reasons behind different levels of cultural participation and attendance among adults.

1.2 *Summary of our main findings:*

- There is consistent evidence that people who were encouraged to attend and take part in cultural activities as a child are more likely to participate in and attend cultural activities in adulthood, compared with those who were not encouraged to do so.
- This evidence remains true even when other factors such as education, gender, age, income, deprivation and rurality of an area are accounted for.
- The effect of childhood encouragement is stronger where the cultural activity involves active participation, rather than just attendance.
- This research highlights the importance of policies promoting cultural activities for children, and Curriculum for Excellence, which will help to mainstream culture into the educational system and expose young people to arts and culture at an early age.
- Future research is needed to explore the role of socio-demographic variables in respondents' childhood. Longitudinal research might be required to explore the impact of these variables over time.
- Further research is also needed to determine the role of encouragement to attend and take part in cultural activities, both in and out of school settings.

1.3 *Policy implications:*

These findings are significant from the point of view of cultural policy development in Scotland. While the importance of cultural participation and attendance for a range of areas such as personal and community development, social justice, health or education has long been understood, we finally have evidence that will support the rationale for encouraging cultural attendance and participation in childhood.

¹ By childhood encouragement we specifically mean encouragement in a family setting. The SHS Culture (and Sport) Module did not ask about encouragement in other settings such as school.

2 INTRODUCTION

- 2.1 Attendance and participation in cultural activities has long been understood to have beneficial effects on a broad range of outcomes encompassing areas as diverse as personal and community development, social justice, health and education². We also know there are both direct and indirect economic impacts of cultural industries on local areas and beyond. Adult attendance and participation in culture plays a key role in supporting those industries and this research, which builds upon previous studies, demonstrates how childhood encouragement to attend and participate in cultural activities plays an important part in promoting adult engagement.
- 2.2 The Scottish Government is committed to increasing the overall levels of cultural participation in Scotland. In recent years, analysts working in the area of Cultural Policy have built up a body of evidence on the impacts of cultural participation to support this aim. There is consistent evidence that high levels of cultural participation and attendance are beneficial to individuals, their communities and society as a whole³ but there is also evidence that participation and attendance levels are unevenly distributed across the various strata of Scottish society. This analysis explores the effect of *childhood* experience of and exposure to culture and the arts, on *adult* participation and attendance in culture.

² A Literature Review of the Evidence Base for Culture, The Arts and Sport Policy. Scottish Government, 2004. <http://www.scotland.gov.uk/Publications/2004/08/19784/41533>

³ A Literature Review of the Evidence Base for Culture, The Arts and Sport Policy. Scottish Government, 2004. <http://www.scotland.gov.uk/Publications/2004/08/19784/41533>

The Evidence Base for Arts and Culture Policy. Scottish Arts Council, 2008. <http://www.scottisharts.org.uk/1/information/publications/1005625.aspx>

3 WHAT IS THE BACKGROUND TO THIS WORK?

- 3.1 The Scottish Government has a long standing interest in promoting cultural participation. It aims to achieve this by making sure policies enable as many people as possible to enjoy the benefits of culture. Indeed, one of the Scottish Government's (SNP's) manifesto commitments was to increase participation in culture across Scotland and to make it accessible to all.
- 3.2 Our work on understanding cultural participation began in 2004 when the Scottish Executive published a Literature Review of the Evidence Base for Culture, the Arts and Sports Policy⁴ which summarised the evidence on the links between cultural participation and positive impact on a wide range of outcomes such as: personal development, social cohesion, community regeneration, health and wellbeing, and education. While these findings were encouraging, there still was a need for robust Scottish data on the extent of cultural participation (as such data did not exist at the time), as well as the characteristics and circumstances of both those who participated and those who did not.
- 3.3 High quality evidence on the levels of cultural participation in Scotland first became available with the introduction of a modular structure for the Scottish Household Survey in 2007. The Scottish Executive commissioned a specific module on Culture (and Sport) which provided National Statistics on cultural participation and attendance in Scottish society for the first time on such a large scale.
- 3.4 The findings from the 2007/2008 module were reported in November 2009⁵ and showed disparities between levels of cultural participation amongst people with varying socio-demographic characteristics such as level of education, income, deprivation of area, rurality, access to a car, age and long-term illness or disability.

About the Scottish Household Survey (SHS)

The Scottish Household Survey is a continuous cross-sectional survey of households in Scotland that has been running since 1999, each complete sample being covered in the course of two years. It is commissioned by the Scottish Government and in 2007 it became modular, making it possible to develop new modules focusing on a range of policy issues. The Culture (and Sport) Module was one of the first SHS modules and ran in 2007/08. The SHS Culture (and Sport) Module has a sample of approximately 6,800 households over a two year period.

More information on the Scottish Household Survey can be found here:

<http://www.scotland.gov.uk/Topics/Statistics/16002/SurveyOverview/>

⁴ A Literature Review of the Evidence Base for Culture, The Arts and Sport Policy. Scottish Government, 2004. <http://www.scotland.gov.uk/Publications/2004/08/19784/41533>

⁵ People and Culture in Scotland 2008: Results form the Scottish Household Survey Culture and Sport Module 2007/2008

<http://www.scotland.gov.uk/Publications/2009/11/24085939/0>

- 3.5 Analysis of the SHS Culture (and Sport) Module indicates that there are links between a wide range of factors and adult participation in culture, but most importantly for this work, it highlighted the potential links between childhood experience of culture and the arts and the varying levels of cultural participation by adults in Scotland.
- 3.6 Statistical analysis of English data carried out on behalf of the Arts Council in England in 2009, suggests that encouragement to attend and participate in the arts when growing up significantly increases the chance of being active in the arts as an adult, both in participating in arts activities and attending arts events as an adult. This study was carried out using data from the Taking Part survey in England on which the SHS Culture Module was based.⁶ These findings have encouraged us to look for further evidence of the links between childhood and adult participation.
- 3.7 In October 2009, the Scottish Government commissioned a literature review on the links between childhood and adult participation in cultural and scientific activities⁷. Perhaps unsurprisingly, the frequency of participation and exposure as a child to arts and cultural activities was shown to establish habits of attendance which were continued in adulthood. Research also showed that encouragement from parents, positive experiences of cultural participation/attendance, and being from advantaged backgrounds result in greater exposure to arts activities when growing up. On the whole, positive early experiences were found to be a significant driver in adult engagement in arts and culture.
- 3.8 The Literature Review findings described above encouraged us to specifically explore the issue of childhood exposure to culture, by looking at its role as a predictor of cultural participation in adulthood. Through the use of statistical techniques to analyse the SHS data available to us, we were able to assess the relative influence of different variables that affect access and participation in childhood and adulthood. This research report looks at the effect of encouragement to take part in and attend cultural activities in childhood on adult cultural participation. It also sets out to determine as far as possible whether childhood exposure is the main driver of adult participation when compared with a number of likely variables. This analysis will help us to understand whether there is a case for investing in more active encouragement of childhood exposure to culture and what types of exposure and encouragement are most effective in promoting adult participation.

⁶ While there are many similarities between the English Taking Part survey and the Scottish SHS Culture (and Sport) module, direct replication of the English work was not possible due to differences in some variables. Our work focuses on exploring the Scottish data on the links between childhood encouragement to attend and participate in cultural activities and adult attendance and participation rather than making direct comparisons with the English Taking Part Survey. We are not using the Scottish Art Council's Taking pArt survey for the purpose of this analysis, as it does not contain questions on childhood participation.

⁷ Starting Young: Links between childhood and adult participation in culture and science – A Literature Review, S Elsley & C McMellon, CRFR, 2010 -

<http://www.scotland.gov.uk/Publications/2010/06/10140914/12>

4 OUR METHODOLOGY

- 4.1 We have used combined data from the 2007 and 2008 fieldwork of the SHS Culture (and Sport) Module, which gives us a two year sample of 6,800 adults living in Scotland⁸. For the first time in Scotland, we were able to look at the predictors of adult cultural participation and attendance using large scale and robust data offered by the Module.
- 4.2 The approach we have taken to analysing our data is known as logistic regression modelling. This type of regression is particularly useful when dealing with categorical variables⁹, such as the variable on participation in cultural activities in the last 12 months used in the SHS.
- 4.3 Using this technique also enabled us to look not just for the relationship between childhood encouragement and adult participation in isolation¹⁰, but also to account for variation in other variables that might be useful in explaining the reasons behind different levels of cultural participation and attendance amongst adults. In other words, if we do find a link between childhood encouragement and cultural participation we are able to say that this relationship is not due to other factors we have accounted for, such as educational qualifications, age, gender, income, multiple deprivation or rurality of the area of residence¹¹.
- 4.4 The 2007/8 culture (and Sport) Module did not contain a single all-encompassing variable that would account for measuring attendance or participation levels for all the cultural activities. This is true for both childhood and adult experiences. Furthermore, it was difficult to match the same types of cultural activities on childhood and adulthood sides, as they were categorised in a different way in the SHS. To solve those problems, a number of derived variables on types of cultural activities were created using the existing variables. More information on how this was achieved can be found in the technical annex at the end of this report.
- 4.5 We then specified 5 regression models¹² to look at particular instances of cultural activity in adulthood and looked at how these corresponded with relevant cultural activities in childhood. We argue that looking at a combination of relatively common activities requiring more 'passive'

⁸ Weighting had to be used to make sure individuals' responses rather than those of their households were counted.

⁹ **Categorical variables** are variables that cannot be logically ordered according to numerical values, gender is a good example of such a variable.

¹⁰ We were unable to compare childhood attendance/participation levels with their adult counterparts due to the lack of a relevant childhood variable in the module. Questions about childhood encouragement by family members were used instead.

¹¹ Those variables were: Age, Income, Education, Sex, SIMD (Scottish Index of Multiple Deprivation) and Type of area (also referred to in this report as rurality).

¹² **Regression models** are statistical models which describe the variation in one (or more) variable(s) when one or more other variable(s) vary. Inference based on such models is known as regression analysis. In this report we are looking at models that describe the variation in adult cultural attendance and participation when a number of socio-demographic variables and levels of childhood encouragement to participate and attend in cultural activities vary.

engagement, and those requiring more 'active' participation would allow us to explore the role of childhood encouragement in a comprehensive way. This was the rationale behind our choice of the 5 models used in this work, which were as follows:

- 1) *The relationship between being taken to the theatre when growing up and adult theatre attendance in the last 12 months.*
- 2) *The relationship between being encouraged to read in childhood and reading for pleasure as an adult in the last 12 months.*
- 3) *The relationship between being taken to museums and galleries in childhood, and adult attendance at museums and galleries in the last 12 months.*
- 4) *The relationship between being encouraged to perform¹³ in childhood, and performing as an adult in the last 12 months.*
- 5) *The relationship between being encouraged to perform in childhood and undertaking creative activities¹⁴ as an adult in the last 12 months.*

¹³ **Performing** includes: playing a musical instrument; acting; dancing or singing.

¹⁴ **Creative activities** include: painting; drawing; printmaking or sculpture; writing stories, plays or books; writing poetry; writing music

5 LIMITATIONS OF THE ANALYSIS

- 5.1 Using Scottish Household Survey Culture (and Sport) Module data has important limitations. We could not explore the links between respondents' participation in cultural activities in adulthood and their parents' educational and socio-economic background due to the lack of questions on parental background in the survey. There is also a dearth of longitudinal data on respondents, which would have provided us with demographic information about the conditions in which they were raised.

- 5.2 Another limitation of this study is that while the Module asks respondents about their childhood experiences, these are subject to recall error as correct recollection of the past can be influenced by the time elapsed since the events and current experiences. These limitations could be overcome by use of longitudinal data and it is recommended that a longitudinal study is used in the future to help resolve those issues.

6 FINDINGS

- 6.1 Overall, our findings are consistent with the findings of our recent literature review¹⁵, as well as the data from the English Taking Part survey¹⁶. We have found a **statistically significant and strong relationship between childhood encouragement to take part in cultural activities and cultural participation levels in adulthood**. This relationship remains true when we consider other factors such as age, sex, education, income, level of deprivation of the area and rurality of the area, that we hypothesised to be closely related to adult participation.
- 6.2 Looking at all the five models considered in our analysis, we have found the following with regards to the relationship between childhood encouragement and adult participation¹⁷:
- *Those who were taken to the theatre as a child were **45% more likely** (odds ratio 1.45)¹⁸ to have attended a theatre performance as an adult in the last 12 months, compared with those who were not encouraged.*
 - *Those who were taken to museums and galleries in childhood were **69% more likely** (odds ratio 1.69) as an adult to have visited museums and galleries in the last 12 months, compared with those who were not encouraged.*
 - *Those who were encouraged to read for pleasure in childhood were **over twice more likely** (odds ratio 2.28) to have read for pleasure as an adult in the last 12 months, compared with those who were not encouraged.*
 - *Those who were encouraged to perform in childhood were just **under three times more likely** (odds ratio 2.91) to have engaged as an adult in a creative activity in the last 12 months, compared with those who were not encouraged.*
 - *Those who were encouraged to perform in childhood were just under **three and a half times more likely** (odds ratio 3.47) to have performed as an adult in the last 12 months, compared with those who were not encouraged.*

¹⁵ Starting Young: Links between childhood and adult participation in culture and science – A Literature Review, S Elsley & C McMellon, CRFR, 2010
<http://www.scotland.gov.uk/Publications/2010/06/10140914/12>

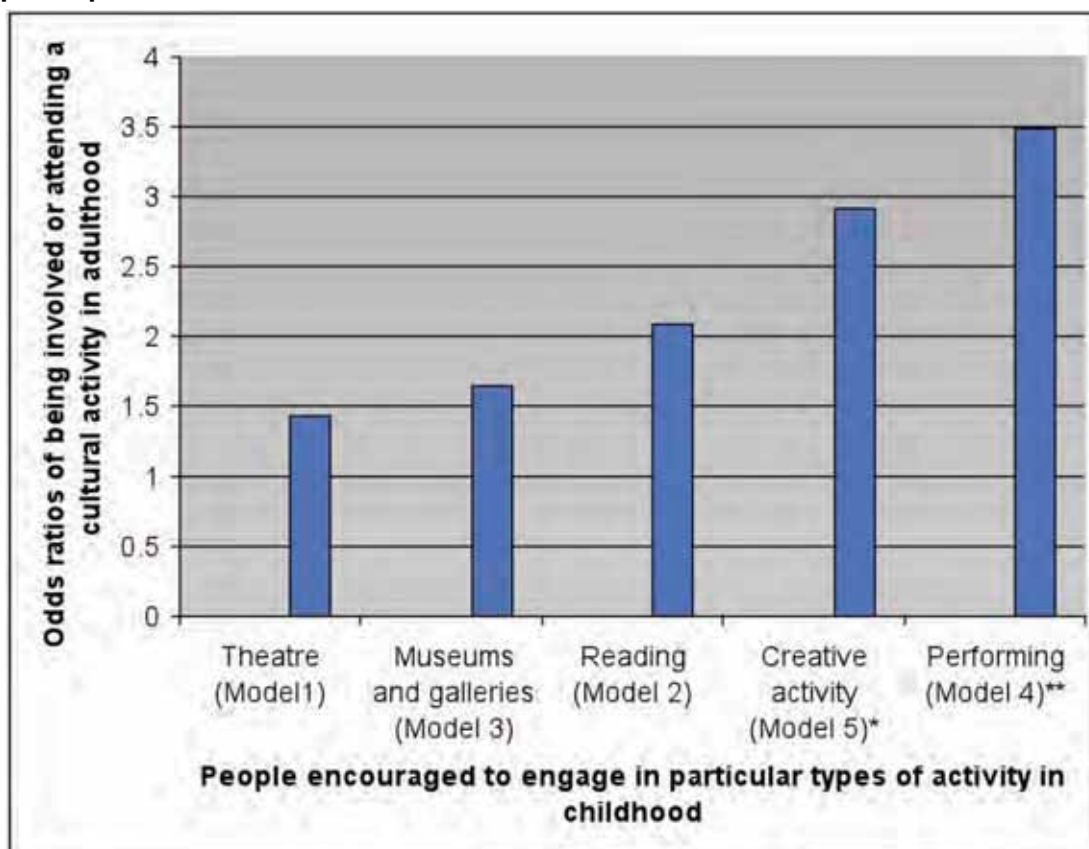
¹⁶ Encourage children today to build audiences for tomorrow, A Oskala et al, Arts Council England, 2009. http://www.artscouncil.org.uk/publication_archive/encourage-children-today-to-build-audiences-for-tomorrow/

¹⁷ When all other variables are held constant.

¹⁸ The **odds ratio** is the ratio of the odds of an event occurring in one group to the odds of it occurring in another group.

- 6.3 In each of the models, clear association has been found between encouragement in childhood to take part in or attend cultural activities, and subsequent adult participation and attendance in culture activities. As indicated above, the strongest levels of association between being encouraged to attend or take part in a cultural activity as a child and pursuing it in adulthood were found in the case of being encouraged to perform (i.e. play a musical instrument, act, dance or sing) in childhood and performing in adulthood. Those who were encouraged to do so were just under **three and a half times more likely to engage in performance in adulthood**, compared with those who were not encouraged. The weakest association between childhood participation and adult attendance was found in the case of theatre attendance, where the odds of those who were taken to the theatre in childhood were 45% greater compared to those who had not been taken to the theatre as children.
- 6.4 To explain this in even simpler terms, let's imagine two people with similar socio-demographic characteristics and have a look at theatre attendance (where the effect of childhood encouragement was weakest). Comparing two women in their late twenties to early thirties, educated to a secondary level, earning less than £15000 a year, living in a large urban area and one of the most deprived 20% of areas in Scotland, the one who *was* encouraged to go to the theatre in childhood will be 33% more likely to go to the theatre (in terms of odds) than the one who was *not* encouraged in childhood.
- 6.5 Information on the strength of the predictors can also be presented in a graphical format for ease of interpretation. The likelihood of cultural participation in adulthood when childhood encouragement was present is compared across the five models in Table 1.

Table 1 – The odds ratios of being involved in or attending a cultural activity in adulthood when compared with those who were not encouraged to participate in similar activities in childhood.



* Creative activity denotes the fifth model where we were looking at the relationship between being encouraged to perform in childhood and engaging in a creative activity in adulthood.

** Performing denotes the fourth model where we were looking at the relationship between being encouraged to perform in childhood and performing in adulthood.

6.6 Research carried out in the United States in the 1980s by Morrison and West¹⁹ suggests that child participation is more important than child attendance at arts events when adult demand for cultural activities is considered. This has been confirmed by our research. As we can see from Table 1, the cultural activities **requiring participation** such as reading for pleasure, creative activity and performing arts and culture were even more strongly associated with childhood encouragement than those activities which were based around **attendance**, such as going to the theatre and visiting museums and galleries.

¹⁹ Reference in: Starting Young?: Links between Childhood and Adult Participation in Culture and Science – A Literature Review, S Elsley & C McMellon, CRFR, University of Edinburgh, June 2010 <http://www.scotland.gov.uk/Publications/2010/06/10140914/12>

- 6.7 This distinction between participation and attendance is based on the terminology used in the report from the SHS Culture (and Sport) Module²⁰. It has to be stressed that such a description of cultural activity does not clearly demarcate the instances where a cultural activity can incorporate both elements of participation and attendance such as in the case of Museums and Galleries attendance, which in many cases does entail an element of participation.
- 6.8 Looking at the cultural participation and attendance data from the SHS Culture (and Sport) Module findings for 2007/8, we can see that 78% of respondents in Scotland declared having participated in cultural activities in the last 12 months, while 75% claim they attended a cultural performance²¹. Those similar figures might conceal the fact that there are big disparities in participation and attendance levels within those broad categories. For example, in 2007/8 the most popular cultural activity amongst adults in Scotland was reading for pleasure (69%) classified as an activity requiring participation, but the most popular activity requiring attendance (seeing a film in a cinema or other venue) stood at 55%. In this research we have chosen to focus on a range of activities on *both* the participation and attendance sides to make sure the observed relationships are not unique to the cultural activity, and to allow us to observe wider patterns between those activities requiring attendance and those relying on participation.

²⁰ People and Culture in Scotland 2008: Results form the Scottish Household Survey Culture and Sport Module 2007/2008
<http://www.scotland.gov.uk/Publications/2009/11/24085939/0>

²¹ People and Culture in Scotland 2008: Results form the Scottish Household Survey Culture and Sport Module 2007/2008
<http://www.scotland.gov.uk/Publications/2009/11/24085939/0>

7 SIGNIFICANCE FOR CULTURAL POLICY IN SCOTLAND

- 7.1 These findings are significant from the point of view of cultural policy development in Scotland. While the importance of cultural participation and attendance for a range of areas such as personal and community development; social justice; health or education has long been understood²², we finally have **evidence** that will support the rationale for encouraging cultural attendance and participation in childhood.
- 7.2 We have now demonstrated that it is important to encourage children to participate in cultural activities and to attend cultural events. The evidence from this analysis does show that there is a clear link between exposure to culture as a child and subsequent adult participation.
- 7.3 We also have a clear indication that the effect of being encouraged to participate in cultural activities will have a stronger effect on adult participation, than that of attendance in childhood on adult *attendance*. Taking into account other evidence on links between childhood and adult *participation* in culture ²³ more work needs to be done to investigate the varying effects of childhood encouragement to engage in cultural activities in both school and non-school settings on adult cultural participation.
- 7.4 There are a number of initiatives in Scotland already working to promote childhood participation in cultural activities and work is also underway to develop the role of culture in Curriculum for Excellence; our findings provide evidence to strengthen the case for this undertaking.

²² A Literature Review of the Evidence Base for Culture, The Arts and Sport Policy. Scottish Government, 2004. <http://www.scotland.gov.uk/Publications/2004/08/19784/41533>

²³ Starting Young?: Links between Childhood and Adult Participation in Culture and Science – A Literature Review, S Elsley & C McMellon, CRFR, University of Edinburgh, June 2010 <http://www.scotland.gov.uk/Publications/2010/06/10140914/12>

8 GLOSSARY

Categorical variables are variables that cannot be logically ordered according to numerical values, gender is a good example of such a variable.

Creative activities include: painting; drawing; printmaking or sculpture; writing stories, plays or books; writing poetry; writing music

Performing includes: playing a musical instrument; acting; dancing or singing.

Regression models are statistical models which describe the variation in one (or more) variable(s) when one or more other variable(s) vary. Inference based on such models is known as regression analysis. In this report we are looking at models that describe the variation in adult cultural attendance and participation when a number of socio-demographic variables and levels of childhood encouragement to participate and attend in cultural activities vary.

9 TECHNICAL ANNEX

A) Description of variables used in the models

A1) Existing SHS Variables used in the models

Variable	Variable name	Response categories
Shs_6cla	6-fold Rural / Urban classification	(1) Large urban (2) Small urban (3) Small accessible towns (4) Small remote towns (5) Accessible rural (6) Remote rural*
randsex	Sex of adult	(1) Male (2) Female*
Hedqual8	Highest educational qualification – 2008 coding	(1) Level 1 (O Grade, standard grade or equiv) (2) Level 2 (Higher, A-level or equivalent) (3) HNC/HND or equivalent (4) Degree, professional qualification (5) Other qualification (6) No qualifications (7) Qualifications not known (8) Don't know (9) Refused
<i>Agerband</i>	Banded age of random adult	(1) 16-24 (2) 25-34 (3) 35-44 (4) 45-59 (5) 60-74 (6) 75 plus (999998) Don't know (999999) Refused
<i>Ragrband</i>	Banded annual gross income of random adult (if not HIH/spouse)	(1) Up to £5199 (2) £5,200 to £10,399 (3) £10,400 to £15,599 (4) £15,600 to £ 20,799 (5) £20,800 to £ 25,999 (6) £26,000 to £ 31,199 (7) £31,200 to £ 36,399 (8) £36,400 to £ 51,999 (9) £52,000 and above (999996) No usual pay (999997) Refused (999998) Don't know (999999) Refused
<i>Yngth</i>	How often were you taken to the theatre, dance or music performances as a child?	(1) Very often (2) Fairly often (3) Not very often (4) Not at all (5) Don't know

<i>Encrd</i>	Encouragement to read for pleasure as a child	(1) Encouraged a lot (2) Encouraged a little (3) Not encouraged at all (4) Don't know
<i>Encmus</i>	Encouragement to play a musical instrument, act, dance or sing as a child	(1) Encouraged a lot (2) Encouraged a little (3) Not encouraged at all (4) Don't know
<i>Yngmus</i>	How often were you taken to museums and galleries as a child	(1) Very often (2) Fairly often (3) Not very often (4) Not at all (5) Don't know
<i>Yrculti</i>	Whether respondent has been to a play/drama last year	(0) No (1) Yes
<i>Yrcultj</i>	Whether respondent has been to other theatre performances last year	(0) No (1) Yes
<i>Md06quin</i>	2006 SIMD quintiles	(1) <i>Most deprived quintile (20%)</i> ... (5) <i>Least deprived quintile (20%)*</i>
<i>Yrcr1</i>	In the last 12 months have you done any of these kinds of activities? Please do not include paid work or academic study.	
<i>Yrcr1a</i>	<i>Sang to an audience or rehearse for a performance (not karaoke)</i>	(1/0) [Yes / no]
<i>Yrcr1b</i>	<i>Played a musical instrument to an audience or rehearse for a performance</i>	(1/0) [Yes / no]
<i>Yrcr1c</i>	<i>Played a musical instrument for your own pleasure</i>	(1/0) [Yes / no]
<i>Yrcr1d</i>	<i>Ballet</i>	(1/0) [Yes / no]
<i>Yrcr1f</i>	<i>Other dance (not for fitness)</i>	(1/0) [Yes / no]
<i>Yrcr1g</i>	<i>Rehearsed or performed in play/drama</i>	(1/0) [Yes / no]
<i>Yrcr1h</i>	<i>Rehearsed or performed in opera/opera</i>	(1/0) [Yes / no]
<i>Yrcr1i</i>	<i>Painting, drawing, printmaking or sculpture</i>	(1/0) [Yes / no]

Yrcr2	And what about the creative activities on this card, have you done any of these in the last 12 months? Again, please do not include paid work or academic study.	
Yrcr2j	Written any stories, plays or books	(1/0) [Yes / no]
Yrcr2k	Written any poetry	(1/0) [Yes / no]
Yrcr2l	Written any music	(1/0) [Yes / no]
Yrcr2f	Read for pleasure	(1/0) [Yes / no]*

*Response categories in bold and with a star denote a reference category

A2) Derived SHS Variables used in the models

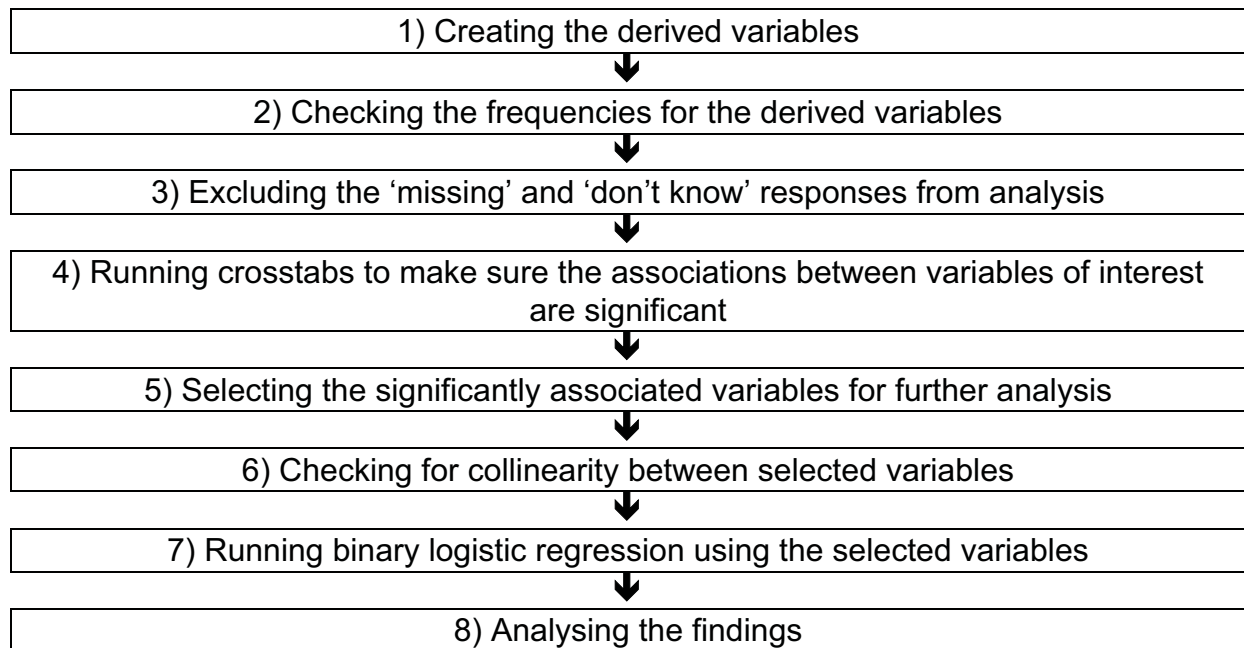
Derived variable	Derived variable name	Original variable(s) used to compute	New response categories	Additional comments
theatreN		yrculti yrcultj	(1/0) [Yes/no*]	
hedqual8r	Highest educational qualifications recoded	hedqual8	(1) Level 1 (O Grade, standard grade or equiv) (2) Level 2 (Higher, A-level or equivalent) (3) HNC/HND or equivalent (4) Degree, professional qualification*	
agerbandr	Banded age of random adult recoded	agerband	(1) 16-24 (2) 25-34 (3) 35-44 (4) 45-59 (5) 60-74 (6) 75 plus*	
ragrbandr	Banded annual gross income of random adult (if not HIH/spouse) recoded	rargrband	(1) Up to £5199 (2) £5,200 to £10,399 (3) £10,400 to £15,599 (4) £15,600 to £20,799 (5) £20,800 to £25,999 (6) £26,000 to £31,199 (7) £31,200 to £36,399 (8) £36,400 to £51,999	

			(9) £52,000 and above*	
YngThR	Were you taken to the theatre as a child?	YngTh	(1) Yes (2) No*	
EncRdr	Encouragement to read for pleasure as a child (recoded)	EncRd	(1) Yes (2) No*	
EncmusR	Encouragement to play a musical instrument, act, dance or sing as a child (recoded)	EncMus	(1) Yes (2) No*	
Yngmusa	Were you taken to museums and galleries as a child	Yngmus	(1) Yes (2) No*	
Perform12	Have you performed in the last 12 months?	Yrcr1a Yrcr1b Yrcr1c Yrcr1d Yrcr1f Yrcr1g Yrcr1h Yrcr1i	(1) Yes (0) No*	
Creative12	Have you been engaged in a creative activity in the last 12 months?	Yrcr1a Yrcr1b Yrcr1c Yrcr1d Yrcr1f Yrcr1g Yrcr1h Yrcr1i Yrcr2j Yrcr2k Yrcr2l	(1) Yes (0) No*	
TheatreN	Theatre attendance in the last 12 months	Yrculti Yrcultj	(1) Yes (0) No*	
Yeamura	Whether visited museum or gallery in last 12 months (recoded)		(1) Yes (2) No*	

*Responses in bold and with a star denote a reference category

B) Description of the analysis

We have used the SPSS to analyse the SHS Culture (and Sport) module data. For all the five models our analysis involved a number of stages:



C) Reference categories

For all the models, the reference categories were set as the **last response category** within a variable (excluding missing values and responses coded as 'don't know').

D) Output from the models

D1) Model 1 – The relationship between being taken to the theatre when growing up and adult theatre attendance in the last 12 months.

Outcome variable: TheatreN [theatre attendance in the last 12 months]

Table 1. Relationships in the model.

Variable	Odds ratio	Lower end of the 95% Confidence Interval	Higher end of the 95% Confidence Interval
Shs_6cla (1) [Large urban areas]*	1.797	1.333	2.423
Shs_6cla (2) [Small urban areas]*	1.368	1.014	1.845
<i>Shs_6cla (3) [Small accessible towns]</i>	1.325	.932	1.884
<i>Shs_6cla (4) [Small remote towns]</i>	1.251	.808	1.936
<i>Shs_6cla (5) [Accessible rural]</i>	1.134	.812	1.582
Randsex (1) [Sex (Male)]*	.417	.362	.481
Hedqual8r2 (1) [Recoded Highest educational qualification (Level 1)]*	.410	.335	.501
Hedqual8r2 (2) [Recoded Highest educational qualification (Level 2)]*	.711	.578	.875
Hedqual8r2 (3) [Recoded Highest educational qualification (HNC/HND)]*	.655	.524	.820
Hedqual8r2 (4) [Recoded Highest educational qualification (No qualifications)]*	.246	.196	.308
Md06quin (1) [Multiple deprivation (Q1)]*	.506	.402	.637
Md06quin (2) [Multiple deprivation (Q2)]*	.731	.593	.902
<i>Md06quin (3) [Multiple deprivation (Q3)]</i>	.825	.670	1.017
<i>Md06quin (4) [Multiple deprivation (Q4)]</i>	.888	.725	1.087
<i>Agerbandr (1) [Recoded Age (16-24)]</i>	.923	.654	1.302
<i>Agerbandr (2) [Recoded Age (25-34)]</i>	1.124	.812	1.557
<i>Agerbandr (3) [Recoded Age (35-44)]</i>	1.348	.987	1.840
<i>Agerbandr (4) [Recoded Age (45-59)]*</i>	1.375	1.017	1.859
<i>Agerbandr (5) [Recoded Age (60-74)]*</i>	1.655	1.217	2.250
Ragrbandr (1) [Recoded Income (up to £5199)]*	.561	.381	.825

Ragbandr (2) [Recoded Income (£5200 to £10399)]*	.619	.430	.892
Ragbandr (3) [Recoded Income (£10,400 to £15,599)]*	.672	.470	.961
<i>Ragbandr (4) [Recoded Income (£15,600 to £20,799)]</i>	.964	.670	1.387
Ragbandr (5) [Recoded Income (£20,800 to £25,999)]*	.681	.468	.990
<i>Ragbandr (6) [Recoded Income (£26,000 to £31,199)]</i>	.678	.455	1.010
<i>Ragbandr (7) [Recoded Income (£31,200 to £36,399)]</i>	1.233	.815	1.865
<i>Ragbandr (8) [Recoded Income (£36,400 to £51,999)]</i>	.950	.635	1.421
YngThR (1) [Recoded being taken to the theatre as a child]*	1.452	1.241	1.698

*denotes a statistically significant relationship with the outcome variable variable (at the 5% level, $p < 0.05$). Non significant associations are in italics.

Reference Category: Remote rural location, Female, Least deprived multiple deprivation quintile (20%), Degree, professional qualification, aged 75 plus, income of £52,000 and above, not taken to theatre as a child

D2) Model 2 - The relationship between being encouraged to read in childhood and reading for pleasure as an adult in the last 12 months.

Outcome variable: Ycre2f [reading for pleasure in the last 12 months].

Table 2. Relationships in the model.

Variable	Odds ratio	Lower end of the 95% Confidence Interval	Higher end of the 95% Confidence Interval
Randsex (1) [Sex (Male)]*	.540	.470	.621
Hedqual8r (1) [Recoded Highest educational qualification (Level 1)]*	.521	.416	.652
<i>Hedqual8r (2) [Recoded Highest educational qualification (Level 2)]</i>	1.152	.871	1.523

<i>Hedqual8r (3) [Recoded Highest educational qualification (HNC/HND)]</i>	1.215	.958	1.543
Hedqual8r2 (4) [Recoded Highest educational qualification (No qualifications)]*	.276	.217	.351
Md06quin (1) [Multiple deprivation (Q1)]*	.632	.505	.791
Md06quin (2) [Multiple deprivation (Q2)]*	.754	.606	.936
<i>Md06quin (3) [Multiple deprivation (Q3)]</i>	.966	.776	1.204
<i>Md06quin (4) [Multiple deprivation (Q4)]</i>	.947	.759	1.180
Agerbandr (1) [Recoded Age (16-24)]*	.627	.455	.862
<i>Agerbandr (2) [Recoded Age (25-34)]</i>	.751	.553	1.021
<i>Agerbandr (3) [Recoded Age (35-44)]</i>	.958	.715	1.283
<i>Agerbandr (4) [Recoded Age (45-59)]</i>	1.211	.918	1.598
Agerbandr (5) [Recoded Age (60-74)]*	1.397	1.057	1.847
<i>Ragrbandr (1) [Recoded Income (up to £5199)]</i>	1.205	.787	1.847
<i>Ragrbandr (2) [Recoded Income (£5200 to £10399)]</i>	1.115	.740	1.680
<i>Ragrbandr (3) [Recoded Income (£10,400 to £15,599)]</i>	.991	.662	1.483
<i>Ragrbandr (4) [Recoded Income (£15,600 to £20,799)]</i>	1.041	.689	1.572
<i>Ragrbandr (5) [Recoded Income (£20,800 to £25,999)]</i>	1.025	.672	1.566
<i>Ragrbandr (6) [Recoded Income (£26,000 to £31199)]</i>	1.536	.964	2.447
<i>Ragrbandr (7) [Recoded Income (£31,200 to £36,399)]</i>	1.107	.691	1.772
Ragrbandr (8) [Recoded Income (£36,400 to £51,999)]*	1.660	1.022	2.697
EncRdR (1) [Recoded being encouraged to read as a child]*	2.278	1.932	2.686

*denotes a statistically significant relationship with the outcome variable(at the 5% level, p<0.05). Non significant associations are in italics.

Reference Category: Remote rural location, Female, Least deprived multiple deprivation quintile (20%), Degree, professional qualification, aged 75 plus, income of £52,000 and above, not encouraged to read as a child.

D3) Model 3 – The relationship between being taken to museums and galleries in childhood and adult attendance at museums and galleries in the last 12 months.

Outcome variable: Yeamura [museum and gallery attendance in the last 12 months].

Table 3. Relationships in the model.

Variable	Odds ratios	Lower end of the 95% Confidence Interval	Higher end of the 95% Confidence Interval
Shs_6cla (1) [Large urban areas]*	1.987	1.485	2.660
Shs_6cla (2) [Small urban areas]	1.136	.848	1.521
Shs_6cla (3) [Small accessible towns]	.973	.687	1.377
Shs_6cla (4) [Small remote towns]	.944	.611	1.459
Shs_6cla (5) [Accessible rural]	.992	.716	1.374
Randsex (1) [Sex (Male)]	.894	.781	1.023
Hedqual8r2 (1) [Recoded Highest educational qualification (Level 1)]*	.322	.264	.392
Hedqual8r2 (2) [Recoded Highest educational qualification (Level 2)]*	.556	.453	.682
Hedqual8r2 (3) [Recoded Highest educational qualification (HNC/HND)]*	.552	.442	.688
Hedqual8r2 (4) [Recoded Highest educational qualification (No qualifications)]*	.179	.143	.224
Md06quin (1) [Multiple deprivation (Q1)]*	.611	.489	.764
Md06quin (2) [Multiple deprivation (Q2)]	.729	.591	.898
Md06quin (3) [Multiple deprivation (Q3)]	.841	.682	1.036
Md06quin (4) [Multiple deprivation (Q4)]	.832	.679	1.019
Agerbandr (1) [Recoded Age (16-24)]	1.003	.714	1.409
Agerbandr (2) [Recoded Age (25-34)]	1.456	1.053	2.013
Agerbandr (3) [Recoded Age (35-44)]*	1.724	1.263	2.351
Agerbandr(4) [Recoded Age (45-59)]	1.638	1.212	2.213

<i>Agerbandr(5) [Recoded Age (60-74)]</i>	1.502	1.102	2.048
<i>Ragrbandr (1) [Recoded Income (up to £5199)]</i>	.892	.602	1.320
<i>Ragrbandr (2) [Recoded Income (£5200 to £10399)]</i>	.810	.556	1.178
<i>Ragrbandr (3) [Recoded Income (£10,400 to £15,599)]</i>	.878	.607	1.268
Ragrbandr (4) [Recoded Income (£15,600 to £20,799)]*	.687	.472	1.001
<i>Ragrbandr (5) [Recoded Income (£20,800 to £25,999)]</i>	.788	.536	1.157
<i>Ragrbandr (6) [Recoded Income (£26,000 to £31199)]</i>	.819	.545	1.229
<i>Ragrbandr (7) [Recoded Income (£31,200 to £36,399)]</i>	.761	.499	1.160
<i>Ragrbandr (8) [Recoded Income (£36,400 to £51,999)]</i>	.847	.558	1.284
Yngmusa (1) [Recoded being taken to museums or galleries in childhood]*	1.693	1.453	1.974

*denotes a statistically significant relationship with the outcome variable(at the 5% level, p<0.05). Non significant associations are in italics.

Reference Category: Remote rural location, Female, Least deprived multiple deprivation quintile (20%), Degree, professional qualification, aged 75 plus, income of £52,000 and above, not taken to museums or galleries as a child.

D4) Model 4 – The relationship between being encouraged to perform in childhood and performing as an adult in the last 12 months

Outcome variable: perform12 [performing in the last 12 months]

Table 4. Relationships in the model.

Variable	Odds ratio	Lower end of the 95% Confidence Interval	Higher end of the 95% Confidence Interval
Shs_6cla(1) [Large urban areas]*	.814	.598	1.109
Shs_6cla(2) [Small urban areas]*	.541	.349	.743
Shs_6cla(3) [Small accessible towns]*	.714	.490	1.041
<i>Shs_6cla (4) [Small remote towns]</i>	.797	.500	1.268
<i>Shs_6cla (5) [Accessible rural]</i>	.782	.552	1.106
Randsx (1) [Sex (Male)]*	1.596	1.361	1.872
Hedqual8r (1) [Recoded Highest educational qualification (Level 1)]*	.509	.404	.640
Hedqual8r (2) [Recoded Highest educational qualification (Level 2)]*	.698	.553	.882
Hedqual8r (3) [Recoded Highest educational qualification (HNC/HND)]*	.715	.557	.918
Hedqual8r2 (4) [Recoded Highest educational qualification (No qualifications)]*	.366	.278	.481
<i>Md06quin (1) [Multiple deprivation (Q1)]</i>	1.030	.786	1.350
<i>Md06quin (2) [Multiple deprivation (Q2)]</i>	1.187	.926	1.521
Md06quin (3) [Multiple deprivation (Q3)]*	1.321	1.038	1.681
Md06quin (4) [Multiple deprivation (Q4)]*	1.340	1.064	1.689
Agerbandr(1) [Recoded Age (16-24)]*	2.371	1.604	3.506
Agerbandr(2) [Recoded Age (25-34)]*	1.602	1.093	2.347
Agerbandr(3) [Recoded Age (35-44)]*	1.167	.802	1.698
Agerbandr(4) [Recoded Age (45-59)]*	1.288	.894	1.855
<i>Agerbandr(5) [Recoded Age (60-74)]</i>	1.160	.795	1.694
<i>Ragrbandr (1) [Recoded Income (up to £5199)]</i>	1.476	.959	2.271

<i>Ragbandr (2) [Recoded Income (£5200 to £10399)]</i>	1.177	.776	1.784
<i>Ragbandr (3) [Recoded Income (£10,400 to £15,599)]</i>	1.328	.887	1.989
<i>Ragbandr (4) [Recoded Income (£15,600 to £20,799)]</i>	1.367	.905	2.064
<i>Ragbandr (5) [Recoded Income (£20,800 to £25,999)]</i>	1.220	.799	1.864
<i>Ragbandr (6) [Recoded Income (£26,000 to £31199)]</i>	1.502	.965	2.338
<i>Ragbandr (7) [Recoded Income (£31,200 to £36,399)]</i>	1.182	.741	1.886
<i>Ragbandr (8) [Recoded Income (£36,400 to £51,999)]</i>	.842	.526	1.347
EncMusR(1) [Being encouraged to perform in childhood]*	3.472	2.908	4.146

*denotes a statistically significant relationship with the outcome variable(at the 5% level, p<0.05). Non significant associations are in italics.

Reference Category: Remote rural location, Female, Least deprived multiple deprivation quintile (20%), Degree, professional qualification, aged 75 plus, income of £52,000 and above, not encouraged to perform as a child

D5) Model 5 – The relationship between being encouraged to perform in childhood and undertaking creative activities as an adult in the last 12 months.

Outcome variable: creative12 [undertaking creative activities in the last 12 months]

Table 5. Relationships in the model.

Variable	Odds ratio	Lower end of the 95% Confidence Interval	Higher end of the 95% Confidence Interval
<i>Shs_6cla (1) [Large urban areas]</i>	.772	.577	1.032
<i>Shs_6cla (2) [Small urban areas]*</i>	.528	.393	.710
<i>Shs_6cla (3) [Small accessible towns]*</i>	.638	.449	.906
<i>Shs_6cla (4) [Small remote towns]</i>	.744	.483	1.147
<i>Shs_6cla (5) [Accessible rural areas]</i>	.792	.573	1.096
Randsex (1) [Sex (Male)]*	1.257	1.087	1.454

Hedqual8r(1) [Recoded Highest educational qualification (Level 1)]*	.484	.392	.597
Hedqual8r(2) [Recoded Highest educational qualification (Level 2)]*	.692	.557	.858
Hedqual8r(3) [Recoded Highest educational qualification (HNC/HND)]*	.681	.540	.860
Hedqual8r(4) [Recoded Highest educational qualification (No qualifications)]*	.316	.247	.404
<i>Md06quin (1) [Multiple deprivation (Q1)]</i>	1.077	.845	1.372
<i>Md06quin (2) [Multiple deprivation (Q2)]</i>	1.163	.928	1.457
<i>Md06quin (3) [Multiple deprivation (Q3)]</i>	1.179	.944	1.473
<i>Md06quin(4) [Multiple deprivation (Q4)]*</i>	1.353	1.094	1.675
Agerbandr(1) [Recoded Age (16-24)]*	2.694	1.878	3.865
Agerbandr(2) [Recoded Age (25-34)]*	2.175	1.533	3.086
Agerbandr(3) [Recoded Age (35-44)]*	1.576	1.121	2.215
<i>Agerbandr(4) [Recoded Age (45-59)]</i>	1.338	.959	1.868
<i>Agerbandr(5) [Recoded Age (60-74)]</i>	1.363	.968	1.920
Ragrbandr (1) [Recoded Income (up to £5199)]*	1.690	1.136	2.513
<i>Ragrbandr (2) [Recoded Income (£5200 to £10399)]</i>	1.290	.880	1.889
<i>Ragrbandr (3) [Recoded Income (£10,400 to £15,599)]</i>	1.186	.816	1.724
<i>Ragrbandr (4) [Recoded Income (£15,600 to £20,799)]</i>	1.277	.872	1.871
<i>Ragrbandr (5) [Recoded Income (£20,800 to £25,999)]</i>	1.099	.742	1.626
<i>Ragrbandr (6) [Recoded Income (£26,000 to £31199)]</i>	1.432	.948	2.162

<i>Ragrbandr (7) [Recoded Income (£31,200 to £36,399)]</i>	.836	.537	1.299
<i>Ragrbandr (8) [Recoded Income (£36,400 to £51,999)]</i>	.880	.574	1.351
EncMusR(1) [Being encouraged to perform in childhood]*	2.905	2.493	3.385

*denotes a statistically significant relationship with the outcome variable(at the 5% level, p<0.05). Non significant associations are in italics.

Reference Category: Remote rural location, Female, Least deprived multiple deprivation quintile (20%), Degree, professional qualification, aged 75 plus, income of £52,000 and above, not encouraged to perform as a child.

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