

# Having a Say at School:

Research on Pupil Councils in Scotland

## Children in Scotland

every child - every childhood



THE UNIVERSITY *of* EDINBURGH



LOTTERY FUNDED

### **'Having a Say at School'**

#### **Final Technical Report**

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#### **Project Overall**

'Having a Say at School' provides systematic evidence on pupil councils throughout Scotland, across primary, secondary, special and independent schools.

This project (2005-2010) has five research objectives:

1. To provide a detailed mapping of current pupil councils in Scotland, and the local government/school infrastructure surrounding these councils
2. To provide well-grounded information on the effectiveness of councils, from the perspectives of adults involved and, critically, of children and young people
3. To identify the factors that facilitate and support effective pupil councils, i.e. 'what works?'
4. To explore how pupil councils fit within the broader context of children's and young people's 'participation' within and outwith schools
5. To investigate who is excluded and included by the different forms of participation, and why

The project aims work with children, young people and adults to disseminate the information gained through the research and to improve pupil councils.

### **How did we learn more about pupil councils?**

1. Survey of 32 Scottish local authorities (i.e. headquarters advisor for pupil councils or equivalent) and analysis of local authority policies on pupil councils
2. Postal School survey
3. Case studies of 6 schools, involving: focus groups with pupil council members at the start and end of the academic year; a survey of pupil council members; staff interviews; documentary analysis.
4. Further research in 2 of these 6 schools, involving: observation of pupil council meetings throughout the year; a survey of non-pupil council members.

A National Advisory Group greatly assisted the *Having a Say at School* project. The group included pupil council members (from primary and secondary schools), teachers, national and local policy makers, researchers, and other experts.

The project team also assisted the Scottish Consumer Council (Tisdall et al. 2007) survey of pupil councils, which was representative of all secondary school pupils, on pupil councils, and was able to compare this to the earlier findings of a similar survey, undertaken by the Scottish Commissioner for Children and Young People (2005).

### **School Survey**

A total of 3352 questionnaires were sent on 17<sup>th</sup>-22<sup>nd</sup> May 2007 to 1,676 state schools (in 29 local authorities) and independent schools across Scotland, each school receiving one for their staff member and one for their pupil council. The school distribution was:

Primary	1,102
Secondary (which included combined schools)	348
Special (which included grant aided)	135
Independent (which were a mixture of primary, secondary and special)	91
TOTAL	1,676

### Coverage

The aim was to cover all education sectors in Scotland. As the numbers for secondary, special and independent schools were not large the decision was made to include them all. However given that Scotland has over 2,500 primary schools a sample was selected. The population frame used for the census and the primary school sample was the School Census 2005 (SEED 2005) but, as some schools overlapped the different sectors, decisions needed to be made as to which sector to include them in, both for administrative and analytical purposes. For example, schools with combined primary and secondary departments, such as the Junior High Schools found in the Highlands and on some islands, were included in the secondary list. Schools with SEN units were included in the special school list if they did not appear in the primary school sample.

Furthermore, in constructing the sampling frame for the primary schools, differences were found between the School Census (SEED 2005) and the School Meal Survey (SEED 2006). Given that the data for these lists were collected at different times it is likely that school closures, amalgamations and new builds resulted in some differences.

Three local authorities did not give permission for us to approach schools in their area and another authority selected the schools they would allow us to survey. Their selection was made on the basis of 'urban/rural areas and [schools] that would be in the best position to complete the [questionnaires], taking into account the exam periods.'

### Sampling of Primary Schools

The decision was made to stratify the sample by economic deprivation (2 categories) and school size (4 categories) within each of the 28 participating authorities. If there were 6 schools or more, we randomly sampled, but if there were only 5 schools in a particular cell, we sampled all those schools.

Originally, the project proposed to sample on the basis of denominational and non-denominational schools as well, but the salience of this distinction was not brought out in the research literature on pupil councils, nor children and young people's participation in schools.

**Economic deprivation:** The indicator used for economic deprivation was the proportion of a school's roll being eligible for free school meals (FSM), as is common within UK educational research (although with some recognised disadvantages – see Croxford 2000; Hobbs and Vignoles 2007). Schools were divided into two groups, divided by the median proportion of primary

school rolls eligible for FSM; viz. 12.79%, which have been labelled here as indicators of low and high economic deprivation.<sup>1</sup>

**School Size:** This was determined on the following basis in relation to location:

- a) Larger than average primary schools; **242 pupils** and above, based on the mean size of schools in 3 locations: 'Four cities', 'Other urban areas' and 'Accessible small towns'.<sup>2</sup>
- b) Average sized primary schools; **177-241 pupils**, where 177 represents the mean size of primary schools.
- c) Small schools; **53-176 pupils**, where 53 represents the mean size of primary schools in 'Remote rural areas'.<sup>3</sup>
- d) Very small schools; where the pupil rolls are **52 pupils and below**.

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<sup>1</sup> From the SEED School Meals survey (2006) a median of % of primary school population eligible for FSM was established. Those with no number were excluded from the survey. Those with a \* (\* denotes where number of pupils is 4 or less (zero included) or where this figure can be worked out) were treated as 0. Similarly \*\* (\*\* denotes where the difference between the number of pupils on the register and pupils with FME or pupils present and taking a FSM is 4 or less or where this figure can be worked out) is treated as 0. Note that there are quite a few \* and these appear to be typically for smaller schools, which are in turn in more rural authorities. (These could be counted, if need be). On this basis, the number of schools is 2187 schools and the median would be 1093 schools.

Further qualifications were:

- Schools in which no pupils took a school meal are only included in the drinking water, free fruit columns and breakfast club columns, as it is assumed that these schools do not provide school meals.
- Figures for primary schools may include some nursery school pupils attending primary schools.
- Local Authorities are issued with agreed guidance to allow for a figure to be given for those pupils whom they understand to be entitled to free school meals but who are not registered as such on their systems. This survey also shows the number of pupils actually registered. Some authorities returned the same number of pupils registered as entitled (generally those showing 100 per cent in the third column of tables 8 and 14).

<sup>2</sup> The census of schools (Scottish Executive 2005) contains information on school location in terms of:

- **Four cities** - settlements over 125,000 population. This covers the city conurbations of Edinburgh, Glasgow, Aberdeen and Dundee.
- **Other urban areas** - settlements of 10,000 to 125,000 people.
- **Accessible small towns** - settlements of between 3,000 and 10,000 people and within 30 minutes drive of a settlement of 10,000 or more.

<sup>2</sup> **Remote rural areas** - settlements of less than 3,000 people who are not within 30 minutes drive of a settlement of 10,000 or more people. (Scottish Executive 2005)

As the two SEED (2005; 2006) publications used to draw the sample were not the same, those schools for which the lists did not overlap were excluded from the sample. In addition, schools which were solely pre-school were not included in the survey, as they were outwith the study design.

### **Survey Design**

The initial aim was to send a questionnaire to schools for completion by the staff member who worked with the pupil council. Discussion with the Advisory Group resulted in the decision to survey the views of pupil council members as well. In order to compare opinion between the two groups both were asked the same questions in the 'opinions' part of the questionnaire.

In addition, the first section of the staff questionnaire asked for factual information about the operation of the pupil council. Basic school information was obtained from the SEED beforehand, such as: pupil numbers and eligibility for free school meals, number of teaching staff, sector and denomination.

The development of questions was based on issues arising from the literature on pupil councils, particularly gaps in information and a need to try to measure:

- The organisational context, culture and structures
- Tensions and conflicts in relation to the pupil council
- How pupil councils are viewed by different groups within the school
- Accountability

Particular questions were drawn from other studies to enable comparisons to be made (e.g. Alderson 2000 and Scottish Consumer Council (Tisdall et al. 2007)). Advisory Group ideas were also incorporated.

However, the final design of the questionnaires was influenced by more pragmatic issues. Firstly, in order to maximise the response rate and ensure that data collected were easy to manage and analyse, the aim was to keep the questionnaires as short as possible, using closed questions. Secondly, there was also a need to ensure that the questions would be relevant across all school sectors and be able to be answered by a wide age range. While the responses to the Local Authority Survey indicated that the majority of schools had pupil councils, it was felt that a filter question needed to be placed at the beginning of the questionnaire to acknowledge those who did not. In order to aid younger children and those with special needs, it was also known that the format of pupil councils might vary across schools, especially within the secondary sector. Schools might have year-specific or house councils in addition to, or instead of, one for the whole school. In order to aid analysis of responses, the staff survey asked for the bulk of the questionnaire to be completed only if there were a whole school pupil council.

### **Piloting**

Piloting was undertaken in two stages. The first was concerned with question development and checking each question for its phrasing, meaning and the sufficiency and appropriateness of the response categories. A larger number

of questions were included in this initial phase. This stage was undertaken in five schools; two primary, two secondary and one special school. In all the schools the questionnaire was piloted and discussed with members of the pupil council. Staff questionnaires were given to the relevant staff member but this was only returned in two cases. In addition to the piloting exercise highlighting issues in relation to the question wording and answer options, the exercise also provided information relevant to the provision of instructions.

The second stage piloting was undertaken to test the 'final' questionnaire for flow, question routing, timing and interest. This was undertaken by post with 25 schools. Responses were received from 13 pupil councils and 12 members of staff by the return date. The project team examined the responses and the final questionnaire was agreed.

### **Administration**

Each school was given a unique identifier that was printed on the address and on labels for the staff and pupil questionnaires. Return envelopes were attached to each of these, primarily to ensure that the pupil council were able to maintain confidentiality by returning their questionnaire separately from the member of staff. Each school envelope also contained a general letter of introduction and information for the headteacher or relevant staff member.

Contacts in all the participating local authorities were sent copies of the questionnaires, together with a list of the sample of primary schools in their area. Two authorities offered to undertake a central mail out to schools, and one provided address labels with a named member of staff for each of their secondary schools.

It was initially anticipated that two mailings would be necessary to gain a sufficient response rate. However, this was not possible due to the questionnaires going out so close to the end of the school year. Instead a monitoring system was established to track progress and inform subsequent action. Four weeks after the questionnaires had been distributed and two days before the stated return date, 623 questionnaires had been returned, although only 222 schools had returned both. At this point three methods were used to increase the response rate. Firstly, local authorities were asked to remind schools in their areas about the survey. Secondly direct contact was made with schools where only the pupil questionnaire had been returned to request the completion of one for the member of staff. Lastly, a reminder email was sent out to all schools.

### **Response Rates**

In total, 587 questionnaires were returned, giving a response rate of 35.0%. 476 questionnaires were returned by pupil councils (no response rate is given, because we have no sampling frame for pupil councils themselves).

Reported response rates for Scottish school surveys, funded by the Scottish Executive, were around 40-50% when the project was first planned (e.g. Lowden and Powney 2000; Menter et al. 2004). Our results, however, are higher than the 24% response rate reported by the school survey undertaken

by Cross et al. (2009) in the next academic year (2007-08), for Learning Teaching Scotland. It may be that schools are increasingly being researched and have other on-going demands, which is leading to lower response rates, as well as any issues related to the research process itself.

## **Coding, data entry and analysis**

### **SPSS data frame construction and pre-coding**

SPSS dataframes were constructed, tested and finalised over the period 11-22 June 2007. Two dataframes were set up: one for staff members' and one for pupil councils' returns. Construction of the dataframes required a series of decisions to be made about the following: using numeric or alphanumeric codes, producing a coding scheme and manual, coding non-response, coding multiple response questions and open-ended questions.

Alphanumeric symbols were used to represent pre-coded (closed) questions as letters have originally been used to code answers in the questionnaires. This was done in order to ease the data input process.

The coding scheme and manuals for staff and pupil datasets were produced before the data input stage in order to assist data input operators. As well as including coding information about pre-coded answers, the coding manuals contained instructions on the codes used for invalid and out of range responses, such as: two responses on single-response questions, additional comments in closed questions. The aim was to retain as much information given by respondents as possible.

In case of multiple answers in a single-answer question, data inputters had two options. Firstly, if a question had the 'other' response option, multiple answers would be coded as 'other' and specified in the subsequent 'other' variable. Secondly, if a question had no 'other' response option, multiple answers would be coded '88' and specified in the subsequent 'other' variable. The same rules applied to comments made by respondents on a particular response option or question in general. All 'other' variables could accommodate large portions of text (up to 800 characters). In some questions (e.g. Likert scale questions) comments could not be accommodated and these would be entered together with the corresponding question number in the last 'comments' question.

Non-response answers were coded '98' for 'Not applicable (NAP)' and '99' for 'Not ascertained (N/A)'. In several questions (e.g. Likert scale questions), code '9' was used for 'Don't know' answers.

Multiple-response questions were coded using the multiple-dichotomy method. Each response option would be treated as a separate variable with two responses: '0' for non-selection and '1' for selection. Multiple-dichotomy method was preferred since it allows a wider variety of statistical tests to be applied to multiple-response questions.

Open-ended questions were sorted and coded after the data input stage.

### **Data entry**

The data input stage was completed in the period 2 -12 July 2007. Briefing for data inputters was conducted on 2<sup>nd</sup> July. Coding manuals for the staff and the pupil council datasets were handed to each operator. Briefing included instructing operators about general rules for data inputting and introducing the coding scheme and coding manuals to operators. After the briefing, operators were given time to try entering several questionnaires. Data inputting was subsequently overseen for 2 hours on the first day of the data input stage, 1 hour on the second, third and fifth days of the data input stage. On these days, a random number of entered questionnaires were checked and operators were made aware of any mistakes.

### **Preparing the datasets for analysis**

Preparation of the datasets for analysis involved transferring the SPSS datasets from Mac to PC platforms, merging the datasets, data checking, cleaning, post-coding, categorising the responses, converting alphanumeric to numeric codes, and matching government statistics with the datasets.

Data checking included checking 35 randomly picked questionnaires. An additional 15 late questionnaires, which were returned after the data input stage, were entered.

Data cleaning involved checking all variables and correcting data entry errors, such as: out of range codes, duplicate responses, using non-response codes inappropriately, logical errors, etc. At this stage, all open ended variables were cleaned, sorted and grouped. The returns from three schools (numbers 31, 74 and 4048) were deleted from the staff dataset due to duplicate entries or incorrect completion of the questionnaires.

Post-coding involved coding the answers from the open ended response options and adding these codes to response options of questions. Only those answers with a large number of observations were coded and added to the range of response options.

Certain variables were assigned categories that have already been used in government statistics. These variables included school roll, eligibility for free school meals, school type, location and denomination. Primary schools with preschool units were classified as primary schools, while secondary schools with primary departments were counted as secondary schools.

It is important to keep in mind that ethnic minority data had considerable amounts of missing data. These data for independent schools were unavailable, which means that cross-tabulation analysis excludes all independent schools. In addition, 22% of state primary schools (102) have missing data for this variable.



Data on ethnic minority groups were matched from Scottish Executive files. For the pupil council dataset, five schools have been mismatched: (numbers 413, 414, 416, 433 and 596). For the staff dataset, eight schools have been mismatched due to no data being available in the census: (numbers 22, 413, 414, 416, 433, 596, 2134 and 3095). These were converted to the user-missing code of 99 (N/A).

## **Weighting**

### *General weight*

The general weight has been used in order to adjust the sample to better represent the population of Scottish schools in terms of the school sectors, school size and local authorities. The general weight was used to make an analysis at the national level and to estimate population parameters.

Weighting the dataset by school sectors (primary, secondary, special) adjusted the sample for oversampled secondary and special schools. Weighting by the LA districts resulted in a regional distribution of the schools in the sample that corresponds with the population distribution of Scottish schools across the LA districts (excluding the 3 local authorities who did not participate in the School Survey). This, in turn, eliminated the bias resulting from unequal selection probabilities in estimating population parameters.

This general weight did not specifically address the non-response bias; however, as shown below, it adjusted for the non-response bias across local authorities.

The general weight was calculated using iterative marginal weighting. It produced a final weight by multiplying the weight factors for the 3 key variables one by one until observations are weighted for all combinations of the weighting variables. The population figures were calculated using the School Census (2005) data. The groupings of school rolls were taken from Pupils in Scotland statistical bulletin (Scottish Executive 2006).

The tables below show the effect of weighting on the 3 key variables for staff and pupil datasets: school sectors, school size and local authorities. It can be seen that the most substantial adjustment was made across school sectors, where the weighted percentage of the primary schools in the sample was raised by 10.46% in the staff dataset and by 5.67% in the pupil dataset. On the other hand, the weighted percentage of the secondary schools was decreased by 8.15% in the staff dataset and by 6.48% in the pupil dataset. Thus, the samples have been weighted to correct for the oversampling of secondary and special schools. Additionally, the weighted percentage of the schools in one local authority was raised by 5.68% in the staff dataset and by 5.45% in the pupil dataset.

Table 1. Comparison of the sample distribution across the school sectors before and after weighting (%)

	Population	Staff dataset			Pupil dataset		
		Sample unweighted	Sample weighted	Weighted - unweighted	Sample unweighted	Sample weighted	Weighted - unweighted
Primary school	79.27	68.65	79.12	10.46	73.53	79.20	5.67
Secondary school	13.83	22.15	14.00	-8.15	20.38	13.90	-6.48
Special school	6.90	9.20	6.89	-2.31	6.09	6.90	0.81
Total	100	100	100		100	100	

Table 2. Comparison of the sample distribution in relation to school rolls before and after weighting (%)

	Population	Staff dataset			Pupil dataset		
		Sample unweighted	Sample weighted	Weighted - unweighted	Sample unweighted	Sample weighted	Weighted - unweighted
under 50	20.38	19.42	20.38	0.96	17.65	20.38	2.73
50-99	13.43	11.41	13.43	2.02	11.97	13.43	1.45
100-199	22.04	19.42	22.04	2.62	20.17	22.04	1.88
200-299	17.59	17.89	17.59	-0.30	17.65	17.59	-0.06
300-399	10.26	9.88	10.26	0.38	11.13	10.26	-0.87
400-499	4.23	3.24	4.23	0.99	3.78	4.23	0.45
500-599	1.25	1.87	1.25	-0.63	1.89	1.25	-0.64
600-799	3.20	3.58	3.20	-0.38	3.36	3.20	-0.16
800-999	3.02	5.96	3.02	-2.94	5.25	3.02	-2.23
1,000-1,199	2.61	4.26	2.61	-1.65	3.99	2.61	-1.38
1,200 and over	1.99	3.07	1.99	-1.08	3.15	1.99	-1.16
Total	100	100	100		100	100	

Table 3. Comparison of the sample distribution across local authorities before and after weighting (%) (sorted by population)

	Population	Staff dataset			Pupil dataset		
		Sample unweighted	Sample weighted	Weighted - unweighted	Sample unweighted	Sample weighted	Weighted - unweighted
Local Authority 21	0.88	0.87	0.87	-0.01	1.05	0.87	-0.18
Local Authority 5	1.75	0.98	0.98	-0.77	1.26	0.98	-0.28
Local Authority 11	2.13	1.25	1.25	-0.88	2.73	1.25	-1.48
Local Authority 25	1.31	1.25	1.25	-0.06	1.26	1.25	-0.01

Local Authority 13	0.66	1.55	0.89	0.63	1.55	0.92
Local Authority 10	2.70	1.67	-1.03	2.52	1.67	-0.85
Local Authority 18	2.36	1.67	-0.69	2.31	1.67	-0.64
Local Authority 28	2.43	1.67	-0.76	2.73	1.67	-1.06
Local Authority 9	2.67	1.86	-0.81	2.73	1.86	-0.87
Local Authority 7	1.39	2.08	0.69	1.47	2.08	0.61
Local Authority 27	2.69	2.12	-0.57	1.68	2.12	0.44
Local Authority 14	2.16	2.27	0.11	2.31	2.27	-0.04
Local Authority 8	3.46	2.42	-1.04	4.62	2.42	-2.20
Local Authority 3	2.32	2.50	0.18	2.73	2.50	-0.23
Local Authority 19	4.10	2.61	-1.49	4.41	2.61	-1.80
Local Authority 23	3.14	2.76	-0.38	2.94	2.76	-0.18
Local Authority 24	2.95	2.84	-0.11	2.52	2.84	0.32
Local Authority 29	3.53	3.18	-0.35	3.15	3.18	0.03
Local Authority 1	3.39	3.29	-0.10	3.15	3.29	0.14
Local Authority 22	2.35	3.60	1.25	2.52	3.60	1.08
Local Authority 4	3.82	3.63	-0.19	3.78	3.63	-0.15
Local Authority 6	6.82	4.70	-2.12	6.51	4.70	-1.81
Local Authority 12	5.97	5.57	-0.40	5.25	5.57	0.32
Local Authority 26	0.19	5.87	5.68	0.42	5.87	5.45
Local Authority 20	4.43	6.40	1.97	4.20	6.40	2.20
Local Authority 2	8.06	6.59	-1.47	9.03	6.59	-2.44
Local Authority 15	7.43	6.66	-0.77	6.51	6.66	0.15
Local Authority 17	7.58	8.25	0.67	7.14	8.25	1.11
Local Authority 16	7.33	9.88	2.55	8.40	9.88	1.48
Total	100	100		100	100	

*Primary school weight*

The primary school weight uses the variables of school roll and eligibility for free school meals (FSM) to adjust the primary schools sample to the national profile of primary schools. School roll and eligibility for FSM were used for weighting because these variables were originally used to stratify the population and then sample primary schools. The primary school weight is designed to provide unbiased population estimates when analysing data within the primary school sector.

The degree of the adjustments made as a result of the weighting of primary schools can be assessed through tables 4 and 5. As is shown in these tables, the extent of these adjustments is not substantial, with the maximum adjustment needed to reduce the percentage of the schools in the 250-299 school roll group (3.63% in the staff dataset and 3.87% in the pupil dataset).

Table 4. Comparison of the sample distribution of the primary schools across the school roll groups before and after weighting (%)

School roll	Population	Staff dataset			Pupil dataset		
		Sample unweighted	Sample weighted	Weighted - unweighted	Sample unweighted	Sample weighted	Weighted - unweighted
under 20	5.17	5.71	5.17	-0.54	4.00	5.17	1.17
20 – 49	14.45	12.16	14.45	2.29	13.43	14.45	1.02
50 – 99	14.25	12.66	14.25	1.60	13.71	14.25	0.54
100 – 149	12.35	9.43	12.35	2.92	9.71	12.35	2.64
150 – 199	13.86	16.63	13.86	-2.77	16.29	13.86	-2.43
200 – 249	12.49	11.91	12.49	0.58	10.00	12.49	2.49
250 – 299	9.27	12.90	9.27	-3.63	13.14	9.27	-3.87
300 – 349	6.54	6.20	6.54	0.34	6.00	6.54	0.54
350 – 399	5.91	7.69	5.91	-1.78	8.57	5.91	-2.66
400 – 599	5.22	4.22	5.22	1.00	4.86	5.22	0.36
600 and over	0.49	0.50	0.49	-0.01	0.29	0.49	0.20
Total	100	100	100		100	100	

Table 5. Comparison of the sample distribution of the primary schools by the groupings of entitlement to FSM before and after weighting (%)

Economic deprivation*	Population	Staff dataset			Pupil dataset	
		Sample unweighted	Sample weighted	Weighted - unweighted	Sample unweighted	Sample weighted
Low	49.27	47.76	49.27	1.51	47.14	49.27
High	50.73	52.24	50.73	-1.51	52.86	50.73
	100	100	100		100	100

\* Calculated as below (low) / above (high) the median FSM proportion

*Non-response analysis*

In order to assess the impact of non-response on the sample, a bivariate analysis using chi-square was employed. Characteristics of non-respondent and respondent schools were compared to assess how different the non-respondents were from the respondents. The analysis was based on the data available in the School Census (2005).

Table 6 presents the results of the chi-squared tests. There were two characteristics on which the distribution of the non-respondents was systematically different from that of the respondents: local authorities and location. The magnitude of the relationship between these variables and whether a school was a respondent or non-respondent can be assessed using Cramer's V statistics. We can see that there was a moderate relationship for local authorities and a weak one for location. As the local authorities and location variables were interrelated (Cramer's V=0.678,  $p < 0.001$ ), once the data were weighted by local authorities, the data were adjusted for location as well, with a likely consequent reduction in the difference between the respondents and the non-respondents.

Table 6. Chi-squared tests between the respondent and the non-respondent schools on the key characteristics

	Pearson Chi-Square	p	Cramer's V
Local authority	69.17	0.00	0.20
Type of funding	0.22	0.64	
School sector	1.57	0.46	
Location	18.49	0.00	0.11
Denomination	3.54	0.17	
School roll	13.71	0.19	

A closer look at the respondent and the non-respondent schools by local authorities (Table 7) reveals sizable differences. Four local authorities had significant number of non-respondent schools compared to respondent schools. These local authorities seemed to be underrepresented in the sample. However, the general weight adjusted the sample by local authorities and we can see that the weighted dataset increased the number of underrepresented schools in three authorities. It also slightly increased the number of the schools from one authority.

Table 7. Comparison of the distribution of schools by local authorities in unweighted and weighted datasets (%)

	Unweighted dataset			Weighted dataset	
	Non-respondents	Respondents	Respondents – non-respondents	Respondents weighted by general weight	Respondents weighted by non-respondents
Local Authority 1	3.14	3.54	0.40	2.70	-0.44
Local Authority 2	5.07	7.76	2.68	7.23	2.15
Local Authority 3	2.40	2.36	-0.04	2.59	0.19
Local Authority 4	3.87	3.54	-0.33	3.96	0.08
Local Authority 5	0.65	1.85	1.21	0.80	0.15
Local Authority 6	4.43	6.07	1.64	5.48	1.05
Local Authority 7	2.49	1.69	-0.80	1.43	-1.06
Local Authority 8	2.40	3.54	1.14	2.29	-0.11
Local Authority 9	2.12	2.53	0.41	2.13	0.01
Local Authority 10	1.75	2.70	0.95	1.82	0.07
Local Authority 11	1.48	2.02	0.55	1.35	-0.12
Local Authority 12	5.63	6.58	0.95	4.43	-1.20
Local Authority 13	2.68	0.67	-2.00	1.37	-1.30
Local Authority 14	2.58	2.02	-0.56	2.45	-0.13
Local Authority 15	6.00	7.25	1.25	6.84	0.85
Local Authority 16	11.35	8.09	-3.25	8.34	-3.01
Local Authority 17		1.18	1.18		
Local Authority 18	9.13	6.91	-2.22	9.16	0.03
Local Authority 19	1.66	2.19	0.53	1.86	0.20
Local Authority 20	2.03	4.22	2.19	2.37	0.34
Local Authority 21	8.03	4.22	-3.81	5.99	-2.03
Local Authority 22	1.01	1.01	0.00	0.73	-0.29

Local Authority 23	4.24	2.53	-1.71	3.29	-0.96
Local Authority 24	3.04	2.87	-0.18	2.84	-0.21
Local Authority 25	2.77	2.87	0.10	2.85	0.08
Local Authority 26	1.20	1.35	0.15	1.25	0.05
Local Authority 27	0.65	0.17	-0.48	7.42	6.77
Local Authority 28	2.77	2.53	-0.24	2.18	-0.59
Local Authority 29	1.48	2.36	0.88	1.82	0.34
Total	3.97	3.37	-0.59	3.05	-0.91
Total	100	100		100	

**Reliability of the survey**

Tables 8 and 9 present sampling errors for various proportions separately for the staff members' survey and the pupil council survey. The sampling error has been estimated using the formula for proportions under stratified random sampling. The formula adjusts for stratification through stratum size and stratum-specific proportions, thereby reducing sampling error. The sampling error increases the closer the proportion is to 0.5 (50%) and the smaller the size of each stratum.

Thus, the widest possible 95% confidence interval (margin of error) under stratified random sampling for the staff survey is 4%, while the widest possible 95% confidence interval under stratified random sampling for the pupil council survey is 4.6%.

**Table 8 Sampling errors for staff members' returns for different proportions**

Strata	N	n	90/10		80/20		70/30		60/40		50/50	
			SE	95% CI	SE	95% CI	SE	95% CI	SE	95% CI	SE	95% CI
52 pupils and below x Low economic deprivation 53-176 pupils x Low economic deprivation 177-241	382	66	0.005	1.0%	0.007	1.4%	0.008	1.6%	0.008	1.7%	0.009	1.7%
	298	55	0.004	0.9%	0.006	1.2%	0.007	1.3%	0.007	1.4%	0.007	1.4%
	124	24	0.003	0.5%	0.004	0.7%	0.004	0.8%	0.005	0.9%	0.005	0.9%



pupils x Low economic deprivation 242 and above x Low economic deprivation 52 pupils and below x High economic deprivation 53-176 pupils x High economic deprivation 177-241 pupils x High economic deprivation 242 and above x High economic deprivation	462	118	0.004	0.9%	0.006	1.2%	0.007	1.3%	0.007	1.4%	0.007	1.5%
	127	14	0.004	0.8%	0.005	1.0%	0.006	1.2%	0.007	1.3%	0.007	1.3%
	427	65	0.006	1.2%	0.008	1.6%	0.009	1.8%	0.010	1.9%	0.010	1.9%
	230	52	0.003	0.7%	0.005	0.9%	0.005	1.0%	0.006	1.1%	0.006	1.1%
	435	123	0.004	0.8%	0.005	1.1%	0.006	1.2%	0.007	1.3%	0.007	1.3%
<b>All strata</b>	2485	517	0.012	2.4%	0.016	3.2%	0.019	3.7%	0.020	3.9%	0.020	4.0%

**Table 9** Sampling errors for pupil councils' returns for different proportions

Strata	N	n	90/10		80/20		70/30		60/40		50/50	
			SE	95% CI	SE	95% CI	SE	95% CI	SE	95% CI	SE	95% CI
52 pupils and below x Low economic deprivation	382	62	0.005	1.1%	0.007	1.4%	0.008	1.6%	0.009	1.7%	0.009	1.8%
53-176 pupils x Low economic deprivation	298	39	0.005	1.1%	0.007	1.4%	0.008	1.6%	0.009	1.7%	0.009	1.8%
177-241 pupils x Low economic deprivation	124	28	0.003	0.5%	0.003	0.7%	0.004	0.8%	0.004	0.8%	0.004	0.8%
242 and above x Low economic deprivation	462	72	0.006	1.2%	0.008	1.6%	0.009	1.8%	0.010	1.9%	0.010	2.0%
52 pupils and below x High economic deprivation	127	14	0.004	0.8%	0.005	1.0%	0.006	1.2%	0.007	1.3%	0.007	1.3%
53-176 pupils x High economic deprivation	427	60	0.006	1.2%	0.008	1.6%	0.010	1.9%	0.010	2.0%	0.010	2.0%
177-241 pupils x High economic deprivation	230	31	0.005	0.9%	0.006	1.2%	0.007	1.4%	0.008	1.5%	0.008	1.5%
242 and above x High economic deprivation	435	107	0.004	0.9%	0.006	1.2%	0.007	1.3%	0.007	1.4%	0.007	1.4%
<b>All strata</b>	<b>2485</b>	<b>413</b>	<b>0.014</b>	<b>2.7%</b>	<b>0.019</b>	<b>3.6%</b>	<b>0.021</b>	<b>4.2%</b>	<b>0.023</b>	<b>4.5%</b>	<b>0.023</b>	<b>4.6%</b>

## Summary

In order to make generalisable statements about all schools in Scotland, careful steps have been taken to target the important variables that would be likely to discriminate between them in relation to expected variation in experiences of pupil councils. The achieved samples have then been weighted to reflect the true proportions of schools across the nation on the basis of school sector, school roll and local authority area. Since all secondary and special schools were included in the initial target, only the primary schools have been sampled due to their large magnitude. In these latter schools, weighting has been applied to reflect school rolls and deprivation, as measured by the proxy variable 'free school meals'. Thus, national generalisations can be made about all schools and also about primary schools specifically.

While the response rate would ideally have been much higher, the absolute numbers are quite large and, assuming that the weighted opinions reflect the overall views of staff and pupil council members, the consequent margin of error is less than 5% in both surveys. Nonetheless, we would need to be mindful of the possibility of bias due to differences between responders and non-responders.

## Descriptive analysis

The main report of the findings (see website) presents results of the bivariate descriptive analysis of the survey of pupil councils in Scotland. The variables were cross-tabulated with a set of independent variables and the existence of statistically significant relationships between them was tested using chi-squared test. The strength of relationship or effect was assessed using an appropriate measure of association as described below.

For nominal variables (or nominal by ordinal variables) Cramer's V statistic is used. Lambda ( $\lambda$ ) is used in question 9 in order to assess the exact effect of nominal independent variables (school sector, location) on the number of pupil council members. The Uncertainty Coefficient (UC) is used to assess the effect of local authority ratings since Lambda is impossible to compute. UC values are presented as percentages. Both Lambda and UC values represent the proportion (Lambda) or percentage (UC) reduction in errors in predicting a category of a dependent variable given knowledge of an independent variable. Thus, if UC is 12.3% when considering the effect of school sector on whether pupils received training or not, this means that by knowing whether a school is primary or secondary, we reduce the error in predicting whether pupils received training or not by 12.3%.

For ordinal variables, Gamma ( $\gamma$ ) is calculated to assess the strength of association. To assess the effect of local authority ratings, Somers' d measure is calculated and presented in percentages. Gamma and Somers' d values represent the proportion (Gamma) and percentage (Somers' d) reduction in errors in predicting a rank of a dependent variable given knowledge of an independent variable. Gamma and Somers' d values can be positive and negative, which indicate the direction of a relationship.

The following independent variables have been used in the analysis:

- School sector: Primary / Secondary / Special
- School roll: less than 50 / 50-99 / 100-199 / 200-299 / 300-599 / 600+
- Levels of economic deprivation as measured by the percentage eligibility to free school meals: Low (0-12.79%) / High (12.8%+)
- School location: Four cities / Other urban area / Rural area
- School denomination: Non-denominational / Denominational
- Local authority policy and action ratings: Low / Medium-low / Medium / Medium-high / High
- Local authority interest ratings: Low / Medium-low / Medium / Medium-high / High
- Percentage of pupils from ethnic minority groups: Less than 5% / 5 - 9% / 10 - 19% / 20% and more

The data on school sectors, school roll, location, denomination and pupil ethnicity is taken from School Census 2005. Figures on free school meals are drawn from School Meals Survey 2006. Information on free school meals and pupils from minority ethnic groups is unavailable for independent schools, which means that the cross-tabulation analysis involving these two independent variables excludes all independent schools.

## **Modelling the pupil council effectiveness using multiple regression**

This part of the report is concerned with providing some answers to three questions that form part of the research brief:

1. To identify likely predictors of pupil council effectiveness
2. To understand the relationship between the independent variables and the effectiveness of pupil councils
3. To describe the characteristics of pupil councils in schools with high perceived effectiveness of pupil councils.

In order to answer the first two questions, statistical modelling using multiple regression has been used, with perceived effectiveness as the dependent variable and a set of independent variables drawn from the questionnaire. The third question is then answered through a comparison between the pupil councils that have been to exhibit relatively high and low effectiveness.

The preparatory stage of the analysis included the creation of the dependent variable from a composite scale of effectiveness, based on the following six ordinal questions:

1. The pupil council has given pupils a say in how our school is run
2. The pupil council has improved things in our school
3. Having a pupil council makes a difference to how pupils feel about the school
4. How good do you think that the pupil council has been at listening to the views of all pupils?
5. How good do you think that the pupil council has been at trying to sort out the problems that pupils tell the pupil council about?
6. How good do you think that the pupil council has been at telling pupils in the rest of the school what the pupil council is doing?

### *Staff members' responses*

The resulting scale demonstrate high level of reliability (Cronbach's  $\alpha=0.81$ ). The scale varied from 8 to 30 with the mean and median scores of 24. The distribution is slightly negatively skewed with one outlying case, which has unusually low scores on all of the effectiveness measures. The cubic transformation improved the distribution noticeably, although a statistically significant Kolmogorov-Smirnov test indicated that the distribution still departs from normality ( $K-S=0.96$ ,  $p<0.001$ ).

Before running the regression analysis, all potential predictor variables had been examined in terms of the effect on the outcome variable using Eta ( $\eta$ ) statistics. All categorical predictor variables were converted into dummy variables prior to the analysis. Table 10 lists the potential predictors with the corresponding Eta values. We can see that the ordinal variables have the highest Eta values and, therefore, have the strongest influence on our dependent variable. We can expect these variables to be important contributors in regression models. The predictor variables having an effect higher than 0.1 have been retained for further analysis.

**Table 10 The list of predictor variables included in regression analysis with the estimated effect on the outcome variable**

	Eta ( $\eta$ )
Which of the following ways does your school use to consult with pupils?	
Circle time	0.248
Pupil surveys	0.129
As part of teachers' everyday work	0.165
Assemblies	0.122
Do members of the pupil council have meetings and/or correspondence with other decision-making structures within the school?	
No	0.158
Yes, with the Headteacher	0.231
Yes, a member of the pupil council is on the School Board/Parent Council	0.105
Yes, other	0.136
Which adults have been involved in actively supporting the pupil council?	
Headteacher	0.248
Guidance teacher	0.150
How did pupils become members of the pupil council?	0.130
In this school year, has the school provided staff with training to support their work on the pupil council?	0.136
In this school year, has the school provided pupils with training to support their work on the pupil council?	0.163
Are notes/minutes made about what happens at the meetings?	0.138
Whose job is it to make sure that things decided by the pupil council actually happen?	0.229
How do pupils and staff who are not involved with the pupil council find out what it has been doing?	
School assemblies	0.169
Pupil Council Notice Board	0.197
Pupil Council members are given time to talk to classes	0.126
Staff report back to classes	0.119
Newsletters	0.179
What do you think is the main reason your school has a pupil council?	0.208
Think about how your pupil council members are chosen. How fair do you think it is?	0.351

Who decides what is talked about at pupil council meetings?	0.141
How much do the following groups support the pupil council?	
Pupils who are not members	0.529
Teachers	0.433
Headteacher	0.377

In order to examine the influence of procedural predictor variables, a separate model with procedural factors only was estimated. However, the model was inadequate ( $R^2=0.12$ ) with only four predictors contributing significantly to the model (Having meetings/ correspondence with decision-making structures in schools, Pupil councils being actively supported by headteachers, Guidance teacher regularly attending pupil councils meetings, Whether notes/minutes are made about what happens at council meetings). This leads us to conclude that procedural factors are not useful predictors of pupil council effectiveness.

Stepwise regression was employed at the first stage in order to identify significant explanatory variables, since there was no specific hypothesis about the relationship between the predictors and the outcome variable. All the predictor variables that have been found to have a sizable influence on our outcome variable were included in the model.

A total of 12 iterative models have been estimated with the final model explaining 43% of the variance of the outcome variable. The model summary is presented in Table 11.

**Table 11 Summary of the stepwise regression model**

Adjusted R Square	Std. Error of the Estimate	F	Sig.
.434	4586.4680 1	23.521	.000

The next step was to put the significant explanatory variables in the new model, thereby controlling for the effect of the background variables (school sector, school roll, local authority). It has been estimated using the block entry method, with background variables entered in the first block and the predictor variables found to be important in the stepwise regression model entered in the second block. Multicollinearity has been monitored through the variance inflation factor statistic (VIF), which did not exceed 2.9. The minimum ratio of cases to variable in the model was 17:1 and the maximum ratio was 24:1.

The model summary and predictor information are presented in Tables 12 and 13. Firstly, we can see from the summary that the model significantly improves the prediction of the effectiveness scores compared to the average score as indicated by significant F statistics. Secondly, the predictor variables in the model explain a considerable portion of the variance in the effectiveness of pupil councils (42.5% after accounting for the background variables). However, this still leaves 57.5% of unexplained variation in

perceived pupil council effectiveness, which may be explained by other variables not covered in this study.

**Table 12 Summary of the final model**

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	Sig. F Change
Block 1	.074	.056	5923.48903	.074	4.143	.000
Block 2	.463	.425	4622.93787	.388	14.629	.000

Table 13 lists the parameter estimates for the predictor variables entered in the second block. We can see that nine predictors have a statistically significant effect on perceived pupil council effectiveness, when controlling for the background variables (i.e. their regression coefficients (b) are significantly different from zero):

1. Whether members of the pupil council have meetings and/or correspondence with other decision-making structures in the school or not
2. Using pupil council notice boards to communicate between the pupil council and other pupils and staff
3. Using staff reporting back to classes to communicate between the pupil council and other pupils and staff
4. Whether the school provided staff with training to support their work on the pupil council or not
5. How fairly pupil council members are chosen – Very fair
6. How much do other pupils (who are not members) support the pupil council – score 5 (A lot)
7. How much do other pupils (who are not members) support the pupil council – score 4
8. How much do other pupils (who are not members) support the pupil council – score 3 (Some)
9. How much does a headteacher support the pupil council: 5 (A lot)

Looking at the standardized beta coefficients (Table 3-4, column 4), we can see that other pupils' support and staff members' positive perception of how pupil councils are chosen are the most important predictors of the degree of pupil council effectiveness ( $\beta$  range 0.274-0.422,  $p < 0.001$ ). Having strong headteacher support and using pupil council notice boards as a mean of communication are the second most important predictors with  $\beta$  values of 0.198 and 0.121 respectively (both variables are significant at 0.01  $\alpha$ -level). The last three predictors are less contributing and significant at 0.05  $\alpha$ -level. It should be noted that there are two predictor variables that are marginally significant ( $p < 0.1$ ) and negatively related to the dependent variable.



Unstandardized b coefficients cannot be interpreted directly since the dependent variable has been transformed using the cube power. Column 3 in Table 13 presents the values converted back to raw numbers. These values can be interpreted directly. Thus, we can see that having a lot of support from other pupils increases the effectiveness of pupil councils by 20 points, while having some support increases the effectiveness by 14 points compared to having no support. Similarly, provision of training for staff members increases the pupil council effectiveness by 11 points as compared to not providing staff members with training. The standardised beta values indicate the importance of the variable in explaining effectiveness relative to the other variables in the model, having taken the different measurement scales of each variable. Thus, support from non-member pupils and fairness in the selection process provide the most explanation.

**Table 13 Regression coefficients for the staff members**

	Unstandardized Coefficients		Transformed b <sup>4</sup>	Standardized Coefficients	t
	b	Std. Error			
Intercept <sup>5</sup>	2237.015	2571.098			.87
School roll	1.142	1.160		.066	.98
Secondary <b>vs.</b> primary schools	-1387.215	954.742		-.095	-1.4
Special <b>vs.</b> primary schools	1596.984	906.385		.076	1.7
Local Authorities policy and action ratings: Low <b>vs.</b> High	-372.275	774.238		-.028	-.48
Local Authorities policy and action ratings: Medium-low <b>vs.</b> High	-830.917	904.823		-.048	-.9
Local Authorities policy and action ratings: Medium <b>vs.</b> High	-361.510	771.742		-.028	-.46
Local Authorities policy and action ratings: Medium-high <b>vs.</b> High	-193.048	1033.895		-.009	-.18
Members of pupil council have meetings and/or correspondence <i>with a headteacher</i> <b>vs.</b> members of pupil council do NOT have meetings and/or correspondence with a headteacher	-1039.246	579.448	-10.129	-.077	-1.7
Members of pupil council have meetings and/or correspondence <i>with other decision-making structures</i> in school <b>vs.</b> members of pupil council do NOT have meetings and/or correspondence with other decision-making structures in school ...	2202.544	940.979	13.011	.096	2.3
Ways of communicating btw. pupil council and other pupil and staff: <i>via pupil council notice boards</i> <b>vs.</b> NOT via pupil council notice boards	1507.946	513.880	11.467	.121	2.9
Ways of communicating btw. pupil council and other pupil and staff: <i>via staff reporting back to classes</i> <b>vs.</b> NOT via staff reporting back to classes	2419.493	951.877	13.425	.103	2.5
Ways of communicating btw. pupil council and other pupil and staff: <i>via newsletters</i> <b>vs.</b> NOT via newsletters	448.345	583.209	7.654	.032	.76
A school provided staff with training to support their work on pupil council <b>vs.</b> school did NOT provide staff with training	1297.493	617.213	10.907	.086	2.1

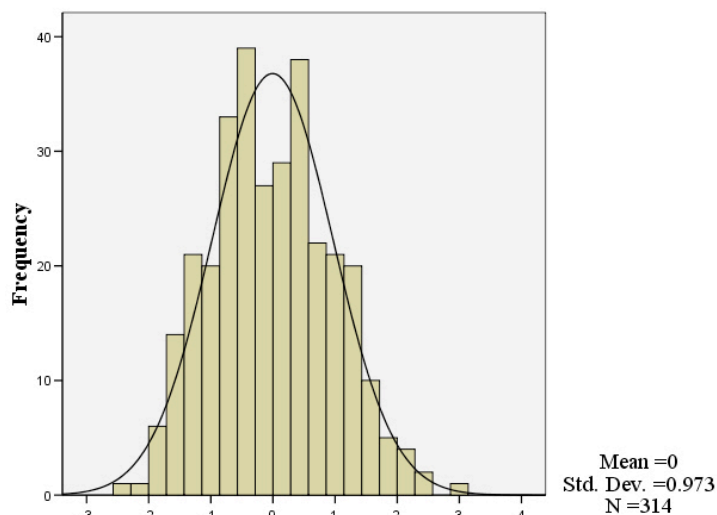
<sup>4</sup> The value of b (unstandardized coefficient) transformed back to raw numbers by taking the cube root.

<sup>5</sup> The dependent variable is the pupil council effectiveness measured on the scale from 8 to 30.

Notes are made about what happens at the meetings <b>vs.</b> notes are NOT made about what happens at the meetings	721.081	791.464	8.967	.037	.91
How fairly pupil council members are chosen: 5 <b>vs.</b> 3, 2, 1	3368.288	720.143	14.990	.274	4.6
How fairly pupil council members are chosen: 4 <b>vs.</b> 3, 2, 1	724.899	775.537	8.983	.053	.93
<i>The pupil council and the Head Teacher</i> make sure that things decided by the pupil council happen <b>vs.</b> NOT the pupil council themselves	-22.936	742.848	-2.841	-.002	-.03
<i>The staff member who comes to pupil council meetings</i> make sure that things decided by the pupil council happen <b>vs.</b> the pupil council themselves	-519.744	826.423	-8.040	-.038	-.62
The Headteacher who does not come to pupil council make sure that things decided by the pupil council happen <b>vs.</b> the pupil council themselves	-2350.793	1269.077	-13.297	-.086	-1.88
How much do other pupils (who are not members) support the pupil council: 5 (A lot) <b>vs.</b> 2,1 (None)	8400.781	1116.722	20.329	.422	7.5
How much do other pupils (who are not members) support the pupil council: 4 <b>vs.</b> 2,1 (None)	5690.428	917.493	17.853	.413	6.2
How much do other pupils (who are not members) support the pupil council: 3 (Some) <b>vs.</b> 2,1 (None)	3021.808	798.686	14.457	.248	3.7
How much does a headteacher support the pupil council: 5 (A lot) <b>vs.</b> 3,2,1 (Some-None)	2452.625	795.842	13.486	.198	3.0
How much does a headteacher support the pupil council: 4 <b>vs.</b> 3,2,1 (Some-none)	721.403	831.687	8.9	.053	.86

In order to assess the assumptions of linear regression, we examined the residuals, as shown in Charts 3-1 and 3-2. From the first chart, we can see that residuals are reasonably normally distributed. Chart 3-2 shows that there are signs of a heteroscedstic relationship between the predicted values of the dependent variable and the residuals, such that greater error variation is to be found nearer the mean predicted values. However, this cannot be eliminated using the variables that are available from the questionnaire and leaves some room for further explanation to be found. While there are some outliers, these are within the typical proportions found outside the 95% confidence interval for individual cases.

Chart 3-1 Distribution of standardized residuals



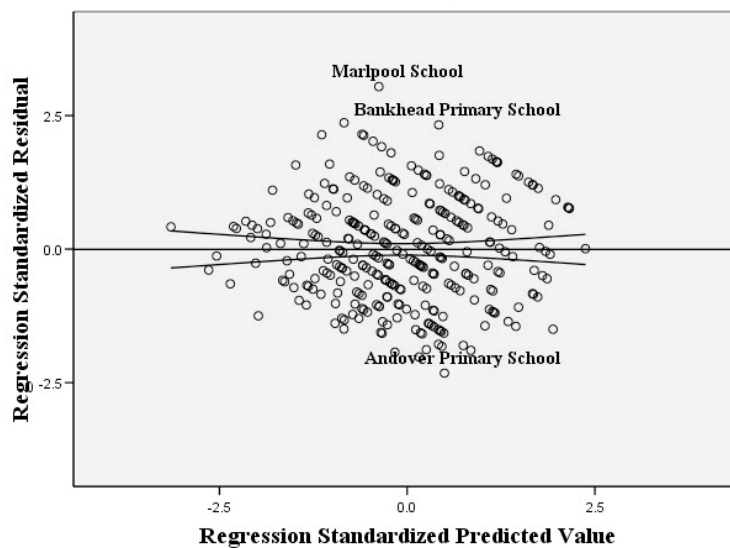
Pupil council members' responses

The summated measure of pupil council effectiveness, as perceived by members of the pupil councils themselves and consisting of six ordinal variables, exhibited an adequate level of reliability with Cronbach's  $\alpha$  equal to 0.73. The range of the summated scale is 23 with the minimum score of 7 and the maximum of 30. The mean and median effectiveness score is 25 with a standard deviation of 3.45. The distribution is distinctly non-normal as made clear by the statistically significant Kolmogorov-Smirnov test and by looking at the histogram of the distribution (Chart 3-3), which demonstrates negative skew and a peaked distribution (leptokurtic pattern). Application of the cube transformation improves the situation by spreading the distribution of scores (Chart 3-4), although the Kolmogorov-Smirnov test remains significant (K-S = 0.83,  $p < 0.001$ ).

At the preliminary all potential

stage,

Chart 3-2 Scatterplot



independent

variables have been tested for influence on dependent variable using ( $\eta$ ) statistics. 14 lists the potential predictors of council effectiveness. Eta values greater than 0.1. The predictor

been the Eta Table pupil with 0.1.

variables are very similar to those found in staff responses earlier. Again ordinal independent variables have a greater influence on the dependent variable. There is one influential independent variable here that has not any influence on the outcome variable compared to staff members' responses (How often has the pupil council met?).

**Table 14 The list of predictor variables included in regression analysis with the estimated effect on the outcome variable**

	Eta ( $\eta$ )
Which of the following ways does your school use to consult with pupils? Circle time As part of teachers' everyday work Assemblies	0.286 0.228 0.172
Do members of the pupil council have meetings and/or correspondence with other decision-making structures within the school? Yes, a member of the pupil council is on the School Board/Parent Council	0.174
Which adults have been involved in actively supporting the pupil council? Headteacher Guidance teacher Youth/ community education worker	0.103 0.239 0.120
Does the pupil council have a budget?	0.136
In this school year, has the school provided staff with training to support their work on the pupil council?	0.112
How often has the pupil council met?	0.142
Whose job is it to make sure that things decided by the pupil council actually happen?	0.210
How do pupils and staff who are not involved with the pupil council find out what it has been doing? School assemblies Pupil Council Notice Board Pupil Council members are given time to talk to classes Newsletters	0.140 0.162 0.169 0.200
What do you think is the main reason your school has a pupil council?	0.162
Think about how your pupil council members are chosen. How fair do you think it is?	0.364
How much do the following groups support the pupil council? Pupils who are not members Teachers Headteacher	0.468 0.397 0.309

The potential predictor variables identified above had been entered in the stepwise regression model in order to identify significant contributions in explaining the dependent variable. 11 modifications had been made before the final model has been estimated. The model fit was good, with 41% of variance explained (compared to 43% from staff responses) and 11

independent variables having a statistically significant effect on the pupil council effectiveness scores, as shown in Table 15.

**Table 15 Summary of the stepwise regression model**

Adjusted R Square	Std. Error of the Estimate	F	Sig.
.410	4382.9661 1	19.199	.000

The significant predictors, initially identified with the help of stepwise regression, were finally estimated using the block entry method with the background variables entered in the first block. Minimum case to variable ratio was 18:1. The VIF statistic, while showing some multicollinearity, did not exceed 4.3. In Table 16 we can see that the final model accounts for a substantial amount of variation in the dependent variable (44%).

**Table 16 Summary of the final model**

Model	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
				R Square Change	F Change	Sig. F Change
Block 1	.205	.197	5114.5313 1	.205	24.505	.000
Block 2	.484	.444	4256.7687 1	.279	8.024	.000

Table 17 contains the regression coefficients for all the predictor variables. The highlighted rows in the table indicate the statistically significant predictor variables. Compared to staff members' responses, we can see a different picture here. Thus, in this model the teachers' support for pupil councils appears to be one of the most contributing predictors in terms of explaining the effectiveness of pupil councils, whereas in the staff members' model, other pupils' and headteachers' support are significant factors of effectiveness. Another difference from the staff model is that consulting with pupils as part of teachers' everyday work is significant in explaining the pupil council effectiveness. Finally, while in the staff model the significant predictors included using pupil council notice boards and staff members reporting back to classes as the means of communication, in the pupil council model the significant independent variables include using newsletters as a mean of communication between pupil councils and other students and staff members.

Looking at the standardized coefficients, we see that the most significant predictor of the pupil council effectiveness is whether the pupil council membership is considered to be very fair or not. Having a pupil council that is considered to be elected very fairly increases the effectiveness of a pupil council by 15 points compared to a pupil council being considered not very fairly elected (on the scale from 7 to 30). Other extremely important predictors are having a lot of teachers' support for pupil councils, communicating through newsletters and consulting with pupils as part of teachers' everyday work. All of these variables are significant at 0.01  $\alpha$  level. The other less contributing but significant predictor variables include provision of training for staff members, which increases the pupil council effectiveness by 11 points and having a lot of support from other pupils, which increases effectiveness by 14 points. Additionally, pupil councils are perceived by pupil members to be more effective in primary than secondary schools (14 points difference), while there is insufficient evidence of relative effectiveness in special schools.

Table 17 Regression coefficients for the pupil council members

	Unstandardized Coefficients		Untransformed $b^6$	Standardized Coefficients	t	Sig.
	b	Std. Error				
Intercept <sup>7</sup>	9530.588	1599.510	21.202		5.958	(
School roll	-0.051	1.211	-0.370	-0.003	-0.042	(
Secondary <b>vs.</b> primary schools	-2888.912	1125.519	-14.242	-0.205	-2.567	(
Special <b>vs.</b> primary schools	1920.828	1129.818	12.431	0.081	1.700	(
Schools consult with pupils as part of teachers' everyday work <b>vs.</b> NOT as part of teachers' everyday work	1852.937	650.276	12.283	0.130	2.849	(
Members of pupil councils are on School Boards/ Parent Councils <b>vs.</b> members of pupil councils are NOT on School Boards/ Parent Councils	-1105.597	1156.294	-10.340	-0.046	-0.956	(
Guidance teacher has been actively supporting the pupil council <b>vs.</b> guidance teacher has NOT been actively supporting the pupil council	-935.527	1026.528	-9.780	-0.049	-0.911	(
A school provided staff with training to support their work on pupil council <b>vs.</b>	1413.352	638.343	11.222	0.100	2.214	(

<sup>6</sup> The value of b (unstandardized coefficient) transformed back to raw numbers by taking the cube root.

<sup>7</sup> The dependent variable is the pupil council effectiveness measured on a scale from 7 to 30.

school did NOT provide staff with training						
Ways of communicating btw. pupil council and other pupil and staff: pupil council members are given time to talk to classes <b>vs.</b> NOT via pupil council members talking to classes	860.628	655.734	9.512	0.061	1.312	(
Ways of communicating btw. pupil council and other pupil and staff: via <i>newsletters</i> <b>vs.</b> NOT via newsletters	1986.972	591.783	12.57 2	0.152	3.358	(
How fairly pupil council members are chosen: 5 <b>vs.</b> 3, 2, 1	3384.634	708.749	15.01 4	0.296	4.776	(
How fairly pupil council members are chosen: 4 <b>vs.</b> 3, 2, 1	1012.145	741.338	10.04 0	0.084	1.365	(
How much do other pupils (who are not members) support the pupil council: 5 (A lot) <b>vs.</b> 1 (None)	2653.252	1265.29 8	13.84 4	0.157	2.097	(
How much do other pupils (who are not members) support the pupil council: 4 <b>vs.</b> 1 (None)	172.977	1157.02 1	5.572	0.013	0.150	(
How much do other pupils (who are not members) support the pupil council: 3 (Some) <b>vs.</b> 1 (None)	-196.225	1047.26 3	-5.811	-0.017	- 0.187	(
How much do other pupils (who are not members) support the pupil council: 2 <b>vs.</b> 1 (None)	- 2809.852	1206.19 9	- 14.11 1	-0.155	- 2.330	(
How much do teachers support the pupil council: 5 (A lot) <b>vs.</b> 2,1 (None)	2807.797	1069.66 1	14.10 8	0.240	2.625	(
How much do teachers support the pupil council: 4 <b>vs.</b> 2,1 (None)	1423.927	1054.09 7	11.25 0	0.113	1.351	(
How much do teachers support the pupil council: 3 (Some) <b>vs.</b> 2,1 (None)	1099.662	1048.20 8	10.32 2	0.082	1.049	(
How much does a headteacher support the pupil council: 5 (A lot) <b>vs.</b> 2,1 (None)	1035.324	953.101	10.11 6	0.089	1.086	(
How much does a headteacher support the pupil council: 4 <b>vs.</b> 2,1 (None)	-154.898	1035.99 7	-5.371	-0.011	- 0.150	(
How much does a headteacher support the pupil council: 3 (Some) <b>vs.</b> 2,1 (None)	-193.849	1126.06 2	-5.787	-0.011	- 0.172	(

The assessment of residuals shows that residuals are normally distributed (Chart 3-5) and there is no distinct pattern in the scatterplot of the residuals against their predicted values (Chart 3-6). Once again, there is no excessive proportion of outliers among the schools.



Chart 3-5 Distribution of standardized residuals

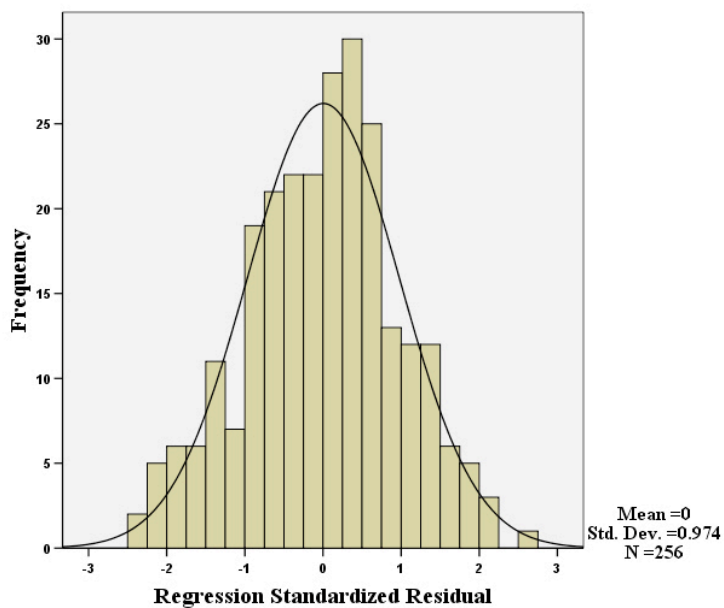
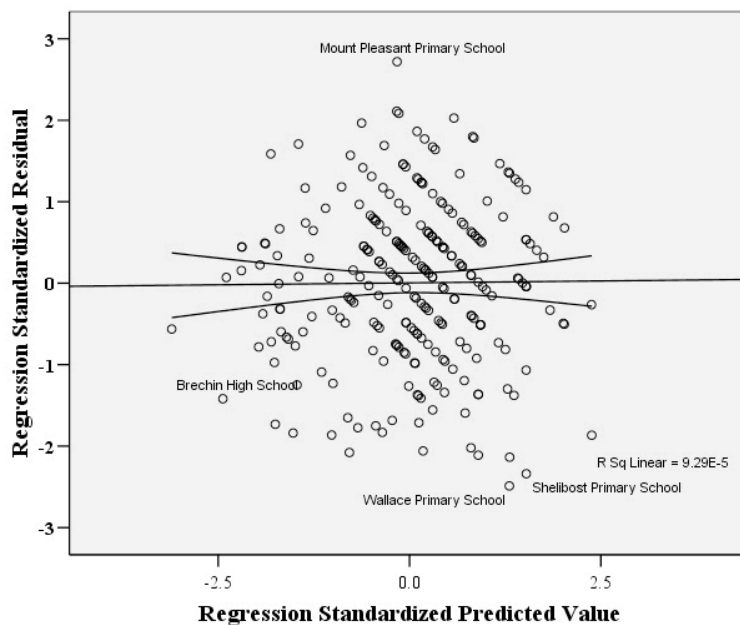


Chart 3-6 Scatterplot



## Summary

The models of pupil council effectiveness, as perceived by staff and pupil members, respectively, provide reasonably robust evidence of explanatory relationships between some key variables in the questionnaire and the composite measure developed to represent effectiveness. The two models show very similar relationships, with effectiveness best explained by the degree of perceived fairness in the selection of pupil members, ways of communicating (although the medium varies between notice boards and newsletters), support from other pupils and training for staff in their supportive role. There are some differences based on whether pupil involvement is seen as part of teachers' everyday work (important to pupil members) and correspondence between pupil councils and other decision-making structures in schools, and staff reporting back to classes (important to staff members).

In terms of the background variables used in the construction of the samples, the only distinctive variable that helped to explain perceived effectiveness among pupil members was in relation to school sector, with primary schools being seen as more effective in this regard than secondary schools. However, while this might be the case, the views in primary schools were taken from pupils who had no experience of pupil councils in secondary schools. Additionally, in comparing the sectors there were few large primary schools and small secondary schools of a similar size, which makes it more difficult to be able to rule out the effect of size on these perceptions. There may also be a problem of comparing pupils' perceptions across different age groups and hence maturity of perception and articulation of those views, not to mention differing experiences; i.e. it might be that the differences reflect a more positive outlook among primary school pupils than secondary school pupils.

**Works cited**

- Cross, B, Hall, J., Hall, S., Hulme, M., Lewin, J., McKinney, S. (2009) *Pupil Participation in Scottish Schools*, [http://www.gla.ac.uk/media/media\\_115808\\_en.pdf](http://www.gla.ac.uk/media/media_115808_en.pdf) (accessed 17.7.09)
- Croxford, L. (2000) 'Is Free-Meal Entitlement a Valid Measure of School Intake Characteristics', *Educational Research and Evaluation*, 6(4): 317-335.
- Hobbs, G. and Vignoles, A. (2007) *Is Free School Meal Status a Valid Proxy for Socio-Economic Status (in Schools Research)?* CEE DP 84, <http://cee.lse.ac.uk/cee%20dps/ceedp84.pdf> (accessed 17.7.09)
- Lowden, K. and Powney, J. (2000) *Drug Education in Scottish Schools 1996-1999*, <http://www.scre.ac.uk/cat/186003053X.html> (accessed 21.3.05)
- Menter, I., Holligan, C., Hutchings, M., Seagraves, L with Dalgety, J. (2004) *Holding it all together? The management of supply cover in the teaching profession*, <http://www.scotland.gov.uk/Resource/Doc/933/0007603.pdf> (accessed 21.3.05)
- Scottish Executive Education Department (2005) *Scottish schools addresses, roll figures and teacher numbers (FTE) as per September 2005 School Census* <http://www.scotland.gov.uk/Resource/Doc/933/0031698.xls> (accessed 4.5.07)
- Scottish Executive Education Department (2005) *School Census, Sept 2005*, <http://www.scotland.gov.uk/Publications/2005/09/0031698> (accessed 28.07.07)
- Scottish Executive Education Department (2006) *School Meals in Scotland, June 2006*, <http://www.scotland.gov.uk/Publications/2006/06/05141444/0> (accessed 30.07.07)
- Tisdall, E.K.M. et al. (2007) *School councils and pupil participation in Scottish secondary schools*, Glasgow: Scottish Consumer Council, <http://scotcons.demonweb.co.uk/education/SCCFinalPupilCouncilsReport.pdf.pdf> (accessed 17.7.09)