Gender differences in musical instrument choice

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Abstract

Historically, there have been differences in the musical instruments played by boys and girls with girls preferring smaller, higher pitched instruments. This paper explores whether these gender preferences have continued at a time when there is greater gender equality in most aspects of life in the United Kingdom. Data were collected from the 150 Music Services in England as part of a larger survey. Some provided data regarding the sex of pupils playing each instrument directly. In other cases, the pupils' names and instruments were matched with data in the national Common Basic Data Set to establish gender. The findings showed distinctive patterns for different instruments. Girls predominated in harp, flute, voice, fife/piccolo, clarinet, oboe, and violin and boys in electric guitar, bass guitar, tuba, kit drums, tabla and trombone. The least gendered instruments were African drums, cornet, French horn, saxophone and tenor horn. The gendered pattern of learning was relatively consistent across education phases with a few exceptions. A model was developed which sets out the various influences which may explain the continuation of historical trends in instrument choice given the increased gender equity in UK society.

Key words: Age, Gender, Musical instrument preferences

Short biographies

Dr Susan Hallam is Professor of Education at the Institute of Education, University of London and currently Head of the Institute's School of Lifelong Education and International Development. She pursued careers as both a professional musician and a music educator before becoming an academic in 1991. Her research interests include disaffection from school, ability grouping and homework and issues relating to learning in music, practising, performing, musical ability, musical understanding and the effects of music on behaviour and studying. She is the author of ten books including *Instrumental Teaching: A Practical Guide to Better Teaching and Learning (1998), The Power of Music (2001)* and *Music Psychology in Education (2005)* and over one hundred other scholarly contributions. She is past editor of *Psychology of Music*, *Psychology of Education Review*, and *Learning Matters.* She is past Chair of the *Education Section of the British Psychological Society*, treasurer of the *British Educational Research Association*, an auditor for the *Quality Assurance Agency* and an *Academician of the Learned Societies for the Social Sciences.*

Dr Andrea Creech has followed careers as a professional musician, music administrator and researcher. She has held principal positions in Canadian and British orchestras, and was co-founder and Director of Clare Music Makers, a community music school in Ireland. More recently Andrea has worked on research teams for several education projects and currently is Researcher in the School of Arts and Humanities, Institute of Education, London and facilitator for Doctoral School Research Methods training courses. Her special research interests are musical development across the lifespan and the impact of interpersonal relationships on learning and teaching outcomes. Andrea has presented her work at international conferences and published widely.

Dr Lynne Rogers is Lecturer in Teacher Education 14-19 Psychology at The Institute of Education, University of London. She had extensive experience of work in schools as a music teacher and in a range of management positions prior to becoming an academic. She has undertaken extensive research in relation to behaviour in school; parenting programmes; disaffection from school including the role of alternative curricula; learning, studying and homework in adolescents; and issues relating to music education. Her publications include reports for the Department for Education and Skills and academic journal articles. She is currently secretary of the Education Section of the British Psychological Society.

Introduction

Historically, all cultures have differentiated the roles of males and females. The nature and extent of this differentiation has varied between cultures and within them depending on other factors, for instance, social class, religious beliefs (Maccoby, 1988; Unger and Crawford, 1992). One aspect of this differentiation has been the gender-stereotyping of the musical activities which are perceived as appropriate for males and females and, in parallel with this, the gender-stereotyping of particular instruments. The latter may depend on a range of factors including the shape or size of the instrument, its pitch, quality of sound, or the need for particular characteristics in order to play it, for instance, physical endurance. While examples of these differences can be found in many cultures, most large-scale explorations of the gender-stereotyping of musical instruments have been carried out in the developed world in relation to Western instruments.

The cultural gender-stereotyping of instruments inevitably has an impact on the preferences of boys and girls for playing particular instruments leading to girls typically preferring to play smaller, higher pitched instruments. There are also other differences in the ways in which boys and girls engage with music. There is extensive evidence from around the world that boys are under represented in those learning to play an instrument (ABRSM, 1994; Acker, 1994; Gates, 1989; Green, 1993; 1997; Hanley, 1998, Koza, 1994; Mizener, 1993). Girls also tend to perform better in school music examinations (DES, 1991; Agak, 2002), despite there being no consistent gender differences in measured musical ability (Shuter-Dyson and Gabriel, 1981; Apfelstadt, 1984; Gordon, 1986), or teachers' ratings of musical ability (Hallam, 2004a). Girls also report more positive competence beliefs and values for instrumental music than boys (Eccles, Wigfield, Harold and Blumenfeld, 1993; Crowther and

Durkin, 1982), although positive attitudes towards music increase with age for both genders (Crowther and Durkin, 1982). Boldizar (1991) found that children with higher 'feminine' scores on the Children's Gender Role Inventory gave higher rankings for music suggesting that music was regarded by males and females as a 'feminine' subject (Colley, Comber and Hargreaves, 1994), although boys demonstrate more interest in music when it is linked to technology and report more positive attitudes towards and confidence in using music technology than girls (Comber, Hargreaves and Colley, 1993).

Green (1997), in a qualitative study of secondary school students and teachers regarding their perceptions of girls and boys participation in and responses to musical activity, found that girls were perceived to be interested and successful in singing, playing classical music and in dealing with notation while boys were seen to have greater confidence in improvisation and composition. Green also reported that girls were perceived to be more persistent and more successful with instrumental study and seemed to have a broader listening repertoire and to be open to a wider range of musical styles than boys. Hargreaves, Comber and Colley (1995) came to similar conclusions. There is also evidence that the association of music technology with composition in the secondary school classroom has led to boy's greater involvement in this area of music and that the 'masculine' technological nature of popular music may have led to boys' higher levels of engagement with instrumental performance within this genre. (Green, 1997). These findings have been replicated in Canadian schools (Hanley, 1998).

Historically, instruments such as drums, trombone and trumpet have tended to be played more by boys, while flute, violin and clarinet have tended to be played by girls (Abeles and Porter, 1978). Recently, Sheldon and Price (2005) carried out an extensive survey of gender and instrumentation in wind and percussion ensembles from 25 countries including 8146 children. The data showed a gender-bias in instrument selections. There was a preponderance of

females in the upper woodwinds with flute dominating followed by oboe, clarinet and bassoon. There was a prevalence of males in the remaining sections with tuba dominating, followed by euphonium, trombone, trumpet and percussion. More males played saxophones and horn but the proportions were less disparate. This trend was almost world wide with the exception of Asia, where female instrumentalists predominated. This supports findings from earlier research and that by Cramer, Million, and Perreault (2002), Fortney, Boyle and DeCarbo (1993) and Trollinger (1993).

These instrument gender-stereotypes seem to be shared by parents (Delzell and Leppla, 1992). For instance, from a selection of 8 instruments, clarinets, flutes and violins were preferred by parents for girls, while drums, trombones and trumpets were preferred for boys. The cello and the saxophone were seen as having no significant gender association (Abeles and Porter, 1978). Another study, which included more instruments, showed that parents preferred harp, piccolo, glockenspiel, cello, piano, French horn and oboe for girls to learn while guitar, cymbals, saxophone, double bass and tuba were preferred for boys (Griswold and Chroback, 1981).

Girls tend to select a wider variety of instruments which they would like to play along the feminine - masculine continuum than boys. Zervaoudakes and Tanur collecting data between 1959 and 1990 showed an increase in the proportion of females who played both feminine and masculine instruments. The effects were greatest at the primary school, with stereotypical choices remaining at secondary level (Zervoudakes and Tanur, 1994). There is some evidence that these stereotypical preferences can be changed. Presenting instruments to children aurally and visually without players can encourage boys to select more feminine instruments, although it has little effect on girls' choices which continue to be selected from a wide range (Abeles and Porter, 1978). Changing the gender-role model playing the instrument has also

been shown to be effective with children aged 5-7. When a female was playing a 'masculine' instrument more girls opted for playing it (Bruce and Kemp, 1993). Where children choose to play an instrument which is considered gender-inappropriate they may experience bullying or loss of popularity in school (Howe and Sloboda, 1992). Children are aware of which instruments are gender typical and have clear ideas about which ones are likely to lead to bullying if they are played (O'Neill and Boulton, 1995; O'Neill, 1997).

In the UK, reflecting the changing role of women in society, girls are now more successful than boys in examinations in most subjects at most levels (DfES, 2005). This has been accompanied by an increase in girls 'laddish' behaviour (Jackson, 2006) and involvement in delinquency (Osler et al., 2002; Smith, 2004). Given these changes and the emphasis in the UK on equal opportunities, we might expect that gendered instrumental preferences would have changed over time. The aim of the study reported here was to establish the proportions of boys and girls playing different instruments within the English education system and whether these proportions remained consistent across each educational phase.

Methodology

The data analysed in this paper were derived from a larger survey study which was commissioned by the Department for Education and Skills to research the way that the 150 Local Authority Music Services in England were functioning. An extensive consultation process was undertaken with representatives of Music Services to ensure that the questionnaire which was developed was user friendly, easy to understand and addressed questions of relevance to them. The questionnaires were made available through commonly available word processing packages and offered over e-mail or, if required, in paper form.

Where Music Services had access to information about pupil's biological sex they were asked to supply it in relation to the instrument being learned. Where this was not the case, Music Services were asked to supply pupil names, year group and instrument on a data-base. These data were then matched with that from the national Common Basic Data Set to provide information about pupil sex, special educational needs, ethnicity and free school meals. Where Music Services had devolved funding to schools and pupil lists were not available centrally, Local Authorities (LAs) were asked to provide a list of names of pupils learning and their instruments which could then be tracked through the Common Basic Data Set. Where LAs provided pupil data electronically, data were matched using either the Unique Pupil Number (UPN), the pupil's name, the school or key stage.

Even where UPNs were available for pupils the matching process was not perfect. Where the first point of matching was the pupil's name there were difficulties because of inaccurate spelling. Using more means of identification, school and year group only served to reduce the numbers matched as there were more variables where there was the possibility of inaccuracy. On average the matching process was 80% successful. This means that data based on the process are systematically an underestimate. However, missing data were randomly distributed between Music Services, so the proportions of children of each sex learning each instrument in each year group are fairly represented in this paper. Data were analysed to calculate the percentage of boys and girls learning each instrument in each education phase and overall.

Findings

Music Services offered a very wide range of musical instruments for pupils to learn. In addition to the instruments listed in Table 1 the 'other' category included a range of Indian,

West Indian, South American, Eastern European and African instruments. In addition, there were examples of the provision of tuition of early music (viols, harpsichord, lute) alongside rock music instruments, DJ-ing, music technology and a variety of folk musics, and other less common instruments (fife, harmonium, harmonica, ocarina, tin whistle, mandolin, hand-bells, banjo). Relatively few Music Services provided tuition for pre-school children. The level of tuition increased through the primary years with the largest proportion of tuition taking place between the ages of 7 and 11.

Table 1 provides the details of the total number of children playing each instrument in each key stage. Key Stage 1 (KS1) includes children aged 5-7, Key Stage 2 (KS2) children aged 7-11, Key Stage 3 (KS3) children aged 11-14 and Key Stage 4 (KS4) children aged 14-16. Pupils in the post 16 category are aged 16-19. Data were also collected for pupils learning pre-school and those aged 19 and over. The numbers learning pre-school were very small and have not been included separately in the table although they do contribute to the overall totals. Gender information was not available for pupils aged 19 and over so they have not been included.

The overall gender differences in playing instruments and an overview of the relative numbers learning each instrument are provided in Table 1. The instrument most commonly played was the violin (19%) probably because it is relatively cheap to buy and is available in a range of sizes for young children. The next highest group consisted of pupils playing guitar, including acoustic, electric, bass and undifferentiated (16.3%), followed by flute (10%) and clarinet (9%). Seven percent of children played keyboard, 4.3% kit drum, 4.5% the piano, 4.6% the trumpet, and 4% had voice training. More children learned to play African drums and steel pans than the bassoon, baritone, euphonium, French horn, saxophone, oboe, tuba and recorder.

Overall, 60% of those learning were girls. This proportion changed from 51% in pre-school to 57% in KS1 and then remained stable at 60% for the remainder of compulsory schooling. The most gendered instruments were the harp (90% girls), flute (89% girls), electric guitar (81% boys), bass guitar (81% boys), voice (80% girls), fife/piccolo (79% girls), oboe (78% girls), tuba (77% boys), kit drum (75% boys), tabla (74% boys), clarinet (73% girls), and trombone (71% boys). The least gendered instruments were African drums, cornet, French horn, saxophone and tenor horn. The gendered pattern of playing was relatively consistent across all key stages with some exceptions.

The small number of pupils learning to play any instrument in KS1 and post 16 meant that these were not reliable indicators of gender differences. If we ignore both KS1 and post 16 data where the sample sizes were much smaller, there is a consistently higher proportion of girls playing the bassoon and the piano and boys playing acoustic guitar, electric guitar, trombone, and trumpet at a ratio of about 2:1 in all key stages. In some instruments where girls predominate this domination increases at the point of change to the secondary phase, for instance, in relation to playing the cello, clarinet, viola, and violin. The same pattern occurs in relation to the flute and oboe, but these were already more heavily gendered at primary school. The most dramatic change occurred in relation to voice tuition, where there was a huge increase in the proportion of girls taking tuition at KS3 largely because of the large decrease in boys receiving tuition. This may have been related to boys' voices breaking at around this age, although there was no subsequent increase in the later years of schooling. The proportions of boys and girls playing the recorder at KS2 were relatively similar but became more differentiated through KS3 and KS4, as did the playing of steel pans and tenor horn.

Table 1 about here

There was a gradual increase in the percentage of boys learning African drums across all phases, bass guitar became more dominated by boys at secondary school as did guitar (undifferentiated). Double bass became more male dominated in KS4 after fairly even proportions played double bass in KS2 and KS3. The percentage of boys playing percussion increased at KS3 and then declined at KS4. Girls predominated in playing keyboards at KS2 but the proportion of boys increased through to KS4. In contrast, kit drumming was dominated by boys overall, but with a gradual increase in the proportion of girls at KS4.

For some instruments there were relatively few gender differences throughout the school years, for instance, cornet, French horn, saxophone, and the 'other' category. In some cases, while the proportion of boys was greater at all key stages, there was considerable variation in proportions of girls and boys between key stages, for instance the euphonium, music technology and baritone.

Discussion

At a time when gender equality is accepted as appropriate and desirable in most Western cultures and when girls are out performing boys in most subjects and phases of education in the UK, why do there continue to be such marked gender preferences for some musical instruments and so few for others. Why are there differences in the stability of those trends across educational phase? There are many possible contributory factors. Figure 1 sets out some of the possibilities categorizing them under three headings, social, individual and instrument factors.

Figure 1 about here

Social factors which may be important include role models and stereo-typical expectations of which instruments are appropriate for each gender. Cultural factors, including those relating to religion may be important here. Parental influence may be important at primary school while peers may exert increasing influence as pupils approach adolescence. There is some evidence that siblings may also be influential, younger children sometimes deliberately choosing a different instrument to an older successful sibling to establish their own individual musical identity (Davidson and Borthwick, 2001).

At the level of the individual, the age of beginning to learn may determine initial choice, other factors influencing whether there is a change in instrument later on, continuation with the same instrument or cessation of all tuition. Depending on age children will have preferences for different types of sound, and musical genres. The way that physical interaction with the instrument occurs may be important. Boys may prefer instruments that are struck or require high levels of physical exertion. The technical difficulty of the instrument and level of persistence required to play it may also play a part as evidence indicates that boys tend to do less practice than girls (Hallam, 2004b). The increasing proportion of girls learning to play kit drums and electric guitar in the later phases of education suggests that the instrument choice is linked to the development of identity, Closely related to this is the extent to which value is attached to conforming to gender stereotypes. This may be an inhibitory factor for boys who may come under great pressure from peers if they engage in any activity which is seen as 'feminine'.

The nature of the instrument itself is also influential. Pitch, tone quality and appearance may all contribute to initial decisions about which instrument to play. There is much anecdotal

evidence of individuals responding to the sound of a particular instrument. However, for some children, it may simply be an issue of access, which instruments are available in the particular school that they attend, their cost, and in the case of the large instruments whether transport is available. The way that the instrument is presented to the students may be influential, for instance, whether its performance is modeled by a male or female player. The extent to which pupils are aware of the gendered nature of a particular instrument, in conjunction with the way it is introduced within the education system may also be important, particularly in relation to those instruments from another culture, for instance, African drums. The physical requirements of some instruments may preclude some pupils learning to play them. Another consideration may be whether the repertoire for the instrument lends itself to solo or group music making.

The power of each of these factors to influence which instrument is played will vary. Where cost of the instrument and transport are not an issue the individual will have greater choice, although family influences may remain strong. Where opportunities are limited, children may have no choice of instrument simply being allocated what is available. Given the data from the survey it appears that even where there is apparently free choice, stereotypical views of masculinity and femininity still play an important part in determining choice. There is clearly a need for research which systematically explores the interactions between the various factors in the model outlined above in different cultures and contexts. Another fruitful area for exploration would be the circumstances under which boys and girls choose to play instruments which are gendered differently to their biological sex.

What are the implications of this for teachers? They need to be aware of the strongly gendered nature of instrument choice and make it clear to prospective pupils that it is entirely appropriate for them to play any instrument whether it is perceived as feminine or masculine

in character. They also need to ensure that children playing instruments which are gendered differently to their biological sex, for instance, boys playing flutes, are not bullied as a result of their choices. If they wish to promote more cross gender instrumental playing they need to provide cross gendered role models particularly at demonstration sessions. A more radical option may be to have single gendered ensembles where there is a clear need for boys and girls to play the whole range of instruments to support the ensemble. Once such ensembles are established there will be plentiful role models for future pupils.

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Table 1: Total number of pupils learning each instrument at each key stage differentiated by gender

	Key Stage 1		Key Stage 2		Key Stage 3		Key Stage 4		Post 16		Total	
Instrument and %	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
African drums (undifferentiated) .8%	50%	50%	51%	49%	47%	53%	40%	60%		100%	50%	50%
	125	126	1270	1221	249	280	36	54		2	1680	1683
Bassoon .3%	86%	14%	56%	44%	64%	36%	61%	39%	67%	33%	62%	38%
	6	1	171	133	294	162	133	86	72	35	676	417
Baritone .4%	50%	50%	41%	59%	36%	64%	44%	56%	33%	66%	41%	59%
	4	4	401	580	117	211	44	57	8	16	574	868
Cello 3%	61%	39%	64%	46%	70%	30%	70%	30%	70%	30%	66%	34%
	211	136	5206	2901	1922	829	721	313	290	122	8351	4301
Clarinet 9%	58%	42%	70%	30%	78%	22%	78%	22%	76%	24%	73%	27%
	118	86	14047	6049	8816	2482	2856	797	856	265	26696	9680
Cornet 2%	48%	52%	47%	53%	52%	48%	50%	50%	55%	45%	48%	52%
	60	65	2988	3372	1186	1103	286	286	75	61	4597	4888
Double bass .4%	60%	40%	47%	53%	50%	50%	42%	58%	46%	54%	47%	53%
	3	2	312	346	223	226	105	145	54	63	697	782
Euphonium .5%	33%	66%	31%	69%	43%	57%	27%	73%	40%	60%	33%	67%
	2	4	313	690	192	323	59	160	30	45	596	1222
Flute 10%	89%	11%	87%	13%	91%	9%	92%	8%	92%	8%	89%	11%
	319	40	19147	2920	11301	1057	3739	334	1313	119	35823	4472
French horn .4%	50%	50%	50%	50%	46%	54%	53%	47%	50%	50%	49%	51%
	3	3	460	452	248	286	101	91	56	56	868	888
Gamelan .2%	55%	45%	57%	43%	82%	18%	74%	26%	50%	50%	58%	42%
	31	25	368	282	37	8	23	8	8	8	467	331
Guitar (acoustic) 8%	34%	66%	37%	63%	35%	65%	36%	64%	37%	63%	36%	64%
	421	814	7790	13245	2885	5290	1038	1817	172	296	12315	21483
Guitar (electric) .9%		100%	14%	86%	18%	82%	20%	80%	22%	78%	19%	81%
		3	27	162	405	1803	246	993	47	165	725	3126
Guitar (bass) .4%		100%	36%	64%	18%	82%	19%	81%	20%	80%	19%	81%
		6	29	52	143	642	122	531	19	75	313	1306
Guitar (not separated) 7%	34%	66%	40%	60%	37%	63%	31%	69%	24%	76%	38%	62%
	178	342	5950	8782	2669	4581	851	1876	90	281	9745	15869
Harp .02%			85%	5%	89%	11%	91%	9%	100%		90%	10%
			11	2	24	3	10	1	7		52	6
Keyboard 7%	58%	42%	62%	38%	60%	40%	55%	45%	50%	50%	62%	38%
	694	499	10523	6563	4508	3007	1387	1133	90	90	18352	11306
Kit drums 4.3%	17%	83%	22%	78%	24%	76%	28%	72%	39%	61%	25%	75%
	20	96	818	2963	1982	6325	984	2579	178	282	3982	12247
Music Technology .4%		100%	46%	54%	40%	60%	44%	56%	25%	75%	43%	57%
		1	278	326	138	204	173	221	26	77	615	829
Oboe .6%	40%	60%	67%	33%	78%	22%	75%	25%	84%	16%	78%	22%
	2	3	546	273	761	210	295	82	183	36	1787	605
Percussion (orchestral) 2%	43%	57%	33%	67%	25%	75%	31%	69%	34%	66%	30%	70%
	64	84	1178	2428	932	2767	534	1162	117	224	2827	6666

Table 1 (continued)

	Key Stage 1		Key Stage 2		Key Stage 3		Key Stage 4		Post 16		Total	
Instrument and %	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
Piano 4.5%	60%	40%	67%	33%	69%	31%	65%	35%	62%	38%	66%	34%
	705	472	5593	2777	3542	1593	1751	963	376	227	11982	6044
Recorder .3%	50%	50%	51%	49%	59%	41%	66%	34%	61%	39%	55%	45%
	68	67	104	101	62	43	29	15	19	12	292	243
Saxophone .4%	38%	62%	50%	50%	48%	52%	50%	50%	51%	49%	50%	50%
	9	15	101	100	112	120	110	109	79	75	414	421
Sitar .03%			53%	47%	87%	13%	75%	25%			63%	37%
			42	38	27	4	3	1			72	43
Steel Pans 1.6%	61%	39%	55%	45%	61%	39%	66%	34%	73%	27%	58%	42%
	30	19	2219	1794	1033	671	365	186	37	14	3687	2687
Tabla .1%	21%	79%	26%	74%	25%	75%	29%	71%	50%	50%	26%	74%
	6	22	72	208	29	87	5	12	5	5	118	334
Tenor Horn .8%	40%	60%	51%	49%	54%	46%	60%	40%	58%	42%	52%	48%
	17	26	1135	1097	397	342	126	85	48	35	1723	1585
Trombone 1.5%	17%	83%	31%	69%	28%	72%	30%	70%	19%	81%	29%	71%
	4	20	1043	2339	468	1217	172	402	47	196	1734	4175
Trumpet 4.6%	10%	90%	38%	62%	38%	62%	36%	64%	34%	66%	37%	63%
	39	357	4090	6702	1743	2904	487	876	155	301	6615	11143
Tuba .2%		100%	21%	79%	23%	77%	24%	76%	28%	72%	23%	77%
		2	48	185	64	211	36	112	20	52	168	562
Voice 4%	51%	49%	61%	39%	90%	10%	88%	12%	83%	17%	80%	20%
	373	357	2303	1466	5346	626	4501	606	884	178	13479	3312
Viola .9%	64%	36%	66%	34%	74%	26%	74%	26%	76%	24%	69%	31%
	30	17	1502	767	611	215	231	82	114	36	2489	1117
Violin 19%	66%	34%	73%	27%	79%	21%	76%	24%	75%	25%	74%	26%
	3167	1620	38885	14219	10233	2678	2797	908	874	288	56000	19763
Other fife/ piccolo .1%	80%	20%	78%	22%	85%	15%	90%	10%	100%		79%	21%
	16	4	374	104	11	2	9	1	2		412	111
Other flugel horn .02%	100%		63%	27%	43%	57%	50%	50%	50%	50%	61%	39%
	13		25	15	10	13	4	4	2	2	54	34
Other unspecified 1.5%	54%	46%	56%	44%	52%	48%	49%	51%	59%	41%	54%	46%
	554	474	1662	1324	504	460	210	218	68	47	3038	2558

* Data are an underestimation as up to 20% of pupils learning to play an instrument were unable to be matched with the Common Basic Data Set

Figure 1: Factors affecting instrument choice