The *National Singing Programme* for Primary schools in England: An initial baseline study

Graham Welch g.welch@ioe.ac.uk, **Evangelos Himonides, Jo-Anne Saunders, Ioulia Papageorgi, Tiija Rinta, Claire Stewart, Costanza Preti, Jennifer Lani**

Institute of Education, University of London, UK

Abstract

This paper reports on research into the opening phase in the creation of an initial baseline profile of children's vocal pitch behaviours in speaking and singing in a diverse range of Primary schools in England. The research is part of a new UK Government funded 'National Singing Programme' that is to be launched in November 2007 and designed to improve the quality of singing in every Primary school in England. Within the overall research methodology (which also includes assessment of teacher self-efficacy in singing and their knowledge of the teaching of singing, a pupil questionnaire and school singing culture focused assessments), a key focus is on investigating children's current singing behaviours. A specially designed child singing competency instrument was piloted that drew on two published singing development scales and other child voice research literature. The research protocol was then applied at the beginning of the new academic year 2007-2008 to the singing behaviours of n=1,324 children (mainly aged 7+ and 10+ in order to provide two contrasting age groups). Children were assessed individually and drawn from thirty Primary schools across England. Initial data collection and analyses suggest that age and sex differences are evidenced, in line with those reported in previous literature; older children and girls tend to have higher mean ratings on the various measures. In particular, girls tend to make significantly greater development in their singing competency with age compared to boys. Overall, there are a wide range of singing behaviours evidenced in sex, age and ethnicity groupings. Younger children (aged 7+) exhibit limited common overlap in their comfortable singing ranges, although there is greater homogeneity in the comfortable singing ranges of the oldest children (aged 10+). The data reported in this paper form part of the evidence base for the current state of singing in primary schools in England prior to the introduction of the National Singing Programme. A picture is beginning to emerge that suggests that, although little has changed in underlying singing competency over the past three decades, there are pockets of singing excellence that demonstrate singing development is possible for all children if they are provided with appropriate educational opportunities in supportive contexts.

Keywords

Singing, children, baseline profiling

Introduction

The National Singing Programme (2007) is part of a UK Government initiative to support the development of musical activities under the umbrella of its 'Music Manifesto', defined by the Department of Culture, Media and Sport (DCMS) as '…a campaign for improvement in music education. It is about creating more music for more people.' The new Department for Children, Schools and Families (DCSF – created in 2007) reported that its predecessor, the Department for Education and Skills (DfES) had invested over £500 million in music education between 1999 and 2008, with £95 million proposed for investment in 2007/08 alone.

The Music Manifesto was launched in July 2004 by the then Schools Minister, David Miliband, and the Arts Minister, Estelle Morris, together with sixty plus signatories from the music industry. It is described currently on the Music Manifesto website as 'the result of a unique collaboration between the DfES and DCMS [two Government Ministries] with music organisations, musicians, teachers and composers, the music industry, broadcasting, teacher and musicians' unions, arts and education charities and Trusts' (see http://www.musicmanifesto.co.uk/history [retrieved 21 July 2007]).

> 'At the heart of the Music Manifesto is a desire to see more opportunities in music for more young people – from high quality curriculum tuition to out of school hours youth and garage bands; from composing to live performance, from classical concerts to DJing and gigs. In its final form, the Music Manifesto offers a strategic direction for the future of music education and a common agenda for joint action.' (ibid)

Subsequently, in October 2006, the 2nd Report of the Music Manifesto group ('Making every child's music matter') recommended that singing[1] be provided for all early years and primary children by 2012, in part because of the opportunity afforded for the development of a cultural programme (2008-2012) that would be linked to the London-based Olympic Games (Education Guardian, 18th October, 2006).

[1] In the introduction to the report, Marc Jaffrey, the 'Music Manifesto Champion' wrote 'Singing has the potential to involve children and young people in music on a scale that we have not witnessed before. It is the most elemental form of music making, and is within the grasp of all of us, whatever our ability. It is a powerful community activity binding individuals and community together.'

> 'Singing offers the most direct route to providing a music-making experience for all children and young people, so we believe it should be a central element of the universal music offer. As a result, we recommend putting group singing at the heart of all primary school musical activity.'
>
> (Music Manifesto Report No 2, 2006:8)

In response, the UK Government's then Secretary of State for Education and Skills, Alan Johnson, together with the then Culture Minister, David Lammy, announced in January 2007 the launch of an additional £10m funding package to support school singing, both in and out of school hours, through a major national singing campaign for primary schools, led by the British composer and broadcaster Howard Goodall in a new role as the 'Singing Ambassador' for England (DfES Press Notice, 16th January 2007 - http://www.dfes.gov.uk/pns/DisplayPN.cgi?pn_id=2007_0009).

Also included in the proposed initiative were:

- the development of a '21st Century Songbook to provide a top 30 song list for whole school/whole class singing', nominated and bid for by teachers and children;
- the intention for Cathedral Choir Schools (of which there are 34) to work in partnerships with local schools and other music providers to boost local singing;
- a recognition for increased investment in the education of teachers to promote singing in primary schools;
- the roll-out of the 'Music Start' programme to engage parents and young children in music making

(See also: http://findoutmore.dfes.gov.uk/2007/01/music_matters.html and http://www.howardgoodall.co.uk/news/news.htm).

Included in the January 2007 DfES Press Notice was a report that 'A recent Youth Service Survey 2006 found that 79% of schools said that singing is an important part of school life and that 70% use singing in National Curriculum subjects as well as in music.' Other research commissioned by Youth Music in 2006 revealed that, although 91% of 7-19 year olds were estimated to listen to music, only 39% were actively engaged in music making (Youth Music, 2006).

Subsequently, following a tendering process, the two Government Departments (DCMS, DfES) jointly appointed a consortium of Youth Music, The Sage Gateshead, Faber Music, and advertising agency Abbot Mead Vickers to lead on the actual provision of the National Singing Programme in 2007-2008.

Included in the intentions of the Programme are that 'children experience high-quality singing, both within and without their daily school curriculum, on a daily basis' and that 'Every school has a teacher committed to facilitating high quality singing and vocal work for the whole school'.

The 'Sing Up' National Singing Programme was launched in November 2007 and a team from the Institute of Education, University of London, led by the first author, were appointed to undertake a research evaluation of key elements of the Programme. Two prime foci were: (i) to undertake an initial baseline audit of singing in randomly selected schools and (ii) to link this baseline data collection to a pre- and post-impact evaluation of particular Programme interventions with children and adults (teacher, parents and other professionals involved in promoting singing in community contexts).

This paper reports the outcomes of first month of baseline profiling (September to October, 2007) with regard to participant children's singing and other vocal behaviours. Other aspects of the research evaluation (children's views on singing in and out of school; teachers' abilities in the teaching of singing (taking appropriate account of their experience and professional role within the school); teachers' attitudes to singing in and out of school; the views of headteachers, parents and school Governors concerning singing and its place in and out of school) will be reported subsequently.

Methodology

Key research challenges that needed to be addressed were (i) the timeframe available for baseline data collection (between the start of the new academic year for schools in September 2007 and the official Government launch of the Programme in November) and (ii) the size of the school population in England[2].

Accordingly, the research protocol for the assessment of singing and other vocal behaviour (i) drew on established models on singing development from the literature (see below) and (ii) focused on a geographical spread of schools located within five major city conurbations: the South-East (London), South-West (Bristol), Midlands (Birmingham), North-East (Newcastle) and North-West (Manchester), supplemented by small numbers of schools in other parts of the country in urban, suburban and rural settings, as well as a number of Cathedral Choir Schools. Contacts were made with Local Authority music advisors and university music education colleagues for advice on possible participant schools[3], seeking to draw on local knowledge to ensure that a diverse range of school singing 'cultures' were accessed.

Within each school, participant children were drawn from two contrasting age groups, 7-year-olds and 10-year-olds, representing the youngest and oldest children in the Upper Primary school age phase of Primary schools in England. Previous research (e.g. Welch, 1998; 2006a, 2006b; 2007) had demonstrated that clear developmental differences in

[2] According to the Office for National Statistics (SFR 38/2006), there are 17,504 Primary schools in England. These contain 4,148,950 children as at January 2006. Of these, 3,338,250 are aged between five and ten years. The gender proportions are 1,705,250 males (51%) and 1,633,000 females (49%).

[3] See Acknowledgements.

singing behaviour by age and sex were likely to be evidenced by the selection of these two age groups. Other recent findings from research into the acoustics of children's singing voices (Sergeant & Welch, in press) and children's vocal health in singing and speaking (Rinta & Welch, in press; Williams *et al*, 2005) similarly supported such a conception.

Furthermore, the previous research literature indicated that it would be helpful to assess several aspects of children's vocal behaviour in order to build a composite, rounded picture. The protocol, therefore, investigated (i) the children's *habitual speech pitch centre* (by asking each participant to count backwards from ten and noting the pitch in relation to an adjacent piano keyboard), (ii) *comfortable singing range*[4] (by imitative singing of a musical song fragment at various pitches, transposed upwards and downwards on the keyboard), (iii) *singing behaviour in two well-known song items* (either 'Twinkle, Twinkle' and 'Happy Birthday' or one or other items that the particular child knew well – on advice from the teacher – if these were unknown). Developmental singing competency for these two songs was assessed against two established rating scales (Rutkowski, 1997; Welch, 1998). Previous recent research (Mang, 2006) had demonstrated that the two scales could be used alongside each other to investigate complimentary aspects of singing development. The Rutkowski (1997) scale is a measure of singing voice development, whereas the Welch (1998) scale assesses vocal pitch-matching development[5] (see Figure 1).

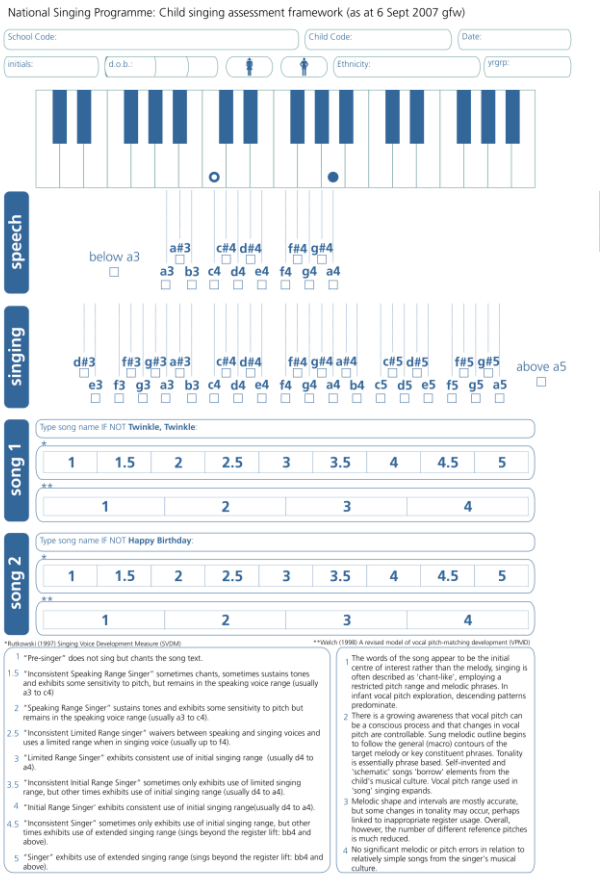

Figure 1: National Singing Programme: Child singing assessment protocol response sheet

Children were visited at their schools where they were recorded individually in a quiet space. Each child was taken through the assessment protocol, normally being tested

[4] Comfortable singing range, rather than singing range limits, is a more valid measure of children's customary singing behaviour with regard to song items in their local culture (Welch, 1979).

[5] **Rutkowski (1997) *Singing Voice Development Measure (SVDM)***

1	"Pre-singer" does not sing but chants the song text.
1.5	"Inconsistent Speaking Range Singer" sometimes chants, sometimes sustains tones and exhibits some sensitivity to pitch, but remains in the speaking voice range (usually a3 to c4 [note: the pitch labels have been altered to bring them in line with modern conventions in which middle C = c4, 256 Hz]).
2	"Speaking Range Singer" sustains tones and exhibits some sensitivity to pitch but remains in the speaking voice range (usually a3 to c4).
2.5	"Inconsistent Limited Range singer" waivers between speaking and singing voices and uses a limited range when in singing voice (usually up to f4).
3	"Limited Range Singer" exhibits consistent use of initial singing range (usually d4 to a4).
3.5	"Inconsistent Initial Range Singer" sometimes only exhibits use of limited singing range, but other times exhibits use of initial singing range (usually d4 to a4).
4	"Initial Range Singer' exhibits consistent use of initial singing range (usually d4 to a4).
4.5	"Inconsistent Singer" sometimes only exhibits use of initial singing range, but other times exhibits use of extended singing range (sings beyond the register lift: b^b4 and above).
5	"Singer" exhibits use of extended singing range (sings beyond the register lift: b^b4 and above).

Welch (1998) *A revised model of vocal pitch-matching development (VPMD)*

Phase 1	The words of the song appear to be the initial centre of interest rather than the melody, singing is often described as 'chant-like', employing a restricted pitch range and melodic phrases. In infant vocal pitch exploration, descending patterns predominate.
Phase 2	There is a growing awareness that vocal pitch can be a conscious process and that changes in vocal pitch are controllable. Sung melodic outline begins to follow the general (macro) contours of the target melody or key constituent phrases. Tonality is essentially phrase based. Self-invented and 'schematic' songs 'borrow' elements from the child's musical culture. Vocal pitch range used in 'song' singing expands.
Phrase 3	Melodic shape and intervals are mostly accurate, but some changes in tonality may occur, perhaps linked to inappropriate register usage. Overall, however, the number of different reference pitches is much reduced.
Phase 4	No significant melodic or pitch errors in relation to relatively simple songs from the singer's musical culture.

individually in a small group that was drawn from the class. This allowed the other members of the group to observe and see what was required (and had been shown previously to be an appropriate method of accessing better quality responses that individual testing alone – Plumridge, 1972). To avoid the effects of vocal modeling, no starting pitch was given for the song items and, although the researcher provided verbal encouragement to the child, they did not offer any sung prompt (*cf* Mang, 2006). All children completed the assessments and none were excluded from the study. Participants' responses were noted onto individual assessment forms (Figure 1), and data were subsequently entered via a web-based *portable document format (PDF)* form to allow the data to be collated for processing. Each participant was coded in order to enable comparative assessment of singing development at a later date if necessary.

Because of the large numbers of participants it was necessary to create a relatively large research team to undertake the fieldwork. Consequently, the reliability of the assessment process was undertaken initially by moderation, with members of the research team undergoing initial training on sampled items, then normally undertaking a school visit in pairs prior to making visits on their own. The validity and ease of use of the assessment protocol was established through a short piloting process prior to commencement of the main data collection.

Results

In the first month of the project (mid September to mid October) thirty schools across England were visited and 1,324 children were assessed. These included n=607 children aged seven years ($\overline{X}$ age 7.48y) and n=546 aged ten plus ($\overline{X}$ age 10.4y). The remainder (n=171) were children in adjacent Primary age groups who had been part of the classes being assessed and so were included in order to ensure that no child felt excluded.

Concerning participant ethnicity (using data provided by the schools according to official Ministry classification) 68% of participants were White, 14% Asian, 7% Mixed race, 6% Black, 4% Other and <1% Chinese. Overall, 48% were female and 52% were male.

The children's *spoken pitch centre* ranged between a^3 (220Hz) and e^4 (330Hz), with a bias towards b^3. This is similar to that reported in the literature on children's spoken pitch over three decades ago (Greene, 1972). Younger children (aged 7+) tended to have slightly higher vocal pitch centres ($c\#^4$) in speaking compared to their older peers (aged 10+) (b^3). No clear sex differences were evidenced. With regard to ethnicity, Asian participants tended to have a bias towards $c\#^4$, whereas all the other groups tended to be slightly lower, around b^3.

Children's *comfortable singing ranges* by age group were similar at the extremes, but differed in terms of the most common pitches that they shared. The most common comfortable range exhibited by the youngest age group (aged 7+) was a seventh from a^3 to g^4. In contrast, the most common comfortable singing range for the oldest age group (aged 10+) was wider from g^3 to c^5 (see Figure 2). This older group comfortable range is virtually identical to that reported in a summary of the research literature almost three decades ago (namely, a^3 to c^5, see Welch, 1979). However, whilst it has long been recognised that there is considerable individual variety in children's ranges, these differences in most common comfortable ranges by age group are not necessarily matched by the published available song repertoire.

Figure 2a: Comfortable singing ranges with most common pitches (darker colour) and extremes (lighter colour) for children aged 7+ (Year 3) and 10+ (Year 6). Middle c (c^4, 256Hz) is marked with the circle for reference.

With regard to their *song singing performance* against the two rating scales, there was a general increase in scores across the two age groups. Younger children (aged 7+) had a mean rating of 3.13 on the Rutkowski (1997) scale and 2.71 on the Welch (1998) scale. These scores equate to (a) just below the mid-point on the Rutkowsi scale, i.e. '"Limited Range Singer" [who] exhibits consistent use of initial singing range (usually d4 to a4)' and (b) towards the penultimate stage on the Welch scale 'Melodic shape and intervals are mostly accurate, but some changes in tonality may occur, perhaps linked to inappropriate register usage. Overall, however, the number of different reference pitches is much reduced' (see footnote for full scales).

Older children aged 10+ had mean scores that were slightly (but significantly) higher on both scales, i.e. Rutkowski $\overline{X}$ 3.34 and Welch $\overline{X}$ 2.88. (Using independent samples two-tailed T-tests, the differences between the means for the two year groups are significant using the Rutkowski rating scale, $t(1151) = 3.34$, $p = 0.001$, at the level of significance Alpha=0.050. Similarly, the differences between the means for the two year groups are also significant using the Welch rating scale $t(1151) = 3.02$, $p = 0.003$, at the level of significance Alpha=0.050).

When the data are investigated for sex differences, females are rated more highly overall on each scale compared to males (Rutkowski: $t(1151) = 4.027$, $p<0.0001$; Welch: $t(1151) = 4.292$, $p<0.0001$.) The age trend of higher ratings with increasing age is still present (Rutkowski: female $\overline{X}$ aged 7+ = 3.21 ($\sigma = 0.99$) compared with male $\overline{X}$ aged 7+ = 3.06 ($\sigma = 1.04$); female $\overline{X}$ aged 10+ = 3.51 ($\sigma = 1.04$)

compared with male $\overline{X}$ aged 10+ = 3.16 (σ = 1.09); Welch: female $\overline{X}$ aged 7+ = 2.80 (σ = 0.94) compared with male $\overline{X}$ aged 7+ = 2.63 (σ = 0.98); female $\overline{X}$ aged 10+ = 3.04 (σ = 0.92) compared with male $\overline{X}$ aged 10+ = 2.72 (σ = 0.95). However, the statistical differences at age 7+ between girls and boys are either non-significant (Rutkowski) or just significant (Welch: $t(605) = 2.109$, p=0.035 (significant at Alpha 0.05). Whereas, for the oldest age group (10+), there are highly significant differences, with females much better than the males (Rutkowski: $t(544) = 3.841$, p=0.0000; Welch: $t(544) = 3.977$, p<0.0001 (significant at Alpha 0.05).

Data on singer age and ethnicity do not demonstrate any clear differences on either scale, again focused around the mid point on the Rutkowski scale and towards the penultimate point on the Welch scale.

For each age group and variable (sex and ethnicity) on both scales, there is a range of scores. Relatively small numbers of children were rated at the lowest levels (11% [Rutkowski] and 13% [Welch] at age 7+; reducing to 8% [Rutkowski] and 9% [Welch] at age 10+). The majority of each age group were rated as demonstrating intermediate levels of singing competency (57% [Rutkowski] and 64% [Welch] at 7+; 52% [Rutkowski] and 60% [Welch] at 10+). A smaller proportion of children achieved the highest competency ratings and this proportion increased with age (33% [Rutkowski] and 23% [Welch] at 7+, rising to 40% [Rutkowski] and 31% [Welch] at 10+).

In addition, it was noted that children in some individual schools had much higher ratings overall. As an example, one school in the North East of England had an average overall pupil score of 2.2 out of 4.5 (the mean of the two rating scales), whereas a neighbouring school had the highest average pupil score within the whole sample at 3.54 out of 4.5. This suggests that there is a school factor that needs to be investigated further. There is some evidence that high scoring schools tend to have a particular commitment to the development of a singing culture, supported by committed school leadership and often specialist advice from Local Authority or other community-based resources.

Discussion and Conclusions

The data on the singing behaviours of these 1,324 represent the opening phase of the baseline profiling for the national Singing Programme. These will be added to in the weeks that follow in order to provide a more composite picture of singing in Primary schools across England.

Initial data collection and analyses suggest that age and sex differences are evidenced, in line with those reported in previous literature; older children and girls tend to have higher mean ratings on the various measures. The evidence of increasing disparity between the sexes in their singing competences from age seven to ten is in line with longitudinal research in the 90s that demonstrated the emergence of such differences between the ages of five and seven years (Welch, *et al*, 1997; see Welch, 2006a for an overview). Taking previous studies and the current data set together, it would seem that singing in school is a gendered activity. Girls, in general, tend to increase their singing competency from age five through to eleven, but boys appear to develop less slowly, even though they entered school with identical ranges of singing skills as their female counterparts.

There is no clear evidence that ethnicity is a factor in singing competency development. However, there are wide range of singing behaviours evidenced for sex, age and ethnic groupings.

Younger children (aged 7+) exhibit limited common overlap in their comfortable singing ranges, although there is greater homogeneity in the comfortable singing ranges of the oldest children (aged 10+). These differences in most common comfortable ranges by age group are one of the challenges that will need to be addressed in the publication of new repertoire and the proposed National Song Book.

Overall, the data are in line with previous studies on children's singing behaviour and development that have been published since the middle of the 20th century and suggest that little has changed to alter the underlying singing competencies of Primary school children over the past three decades. Nevertheless, there are pockets of singing excellence in individual schools that demonstrate singing development is possible for all children if they are provided with appropriate educational opportunities in a supportive cultural context. This is a positive basis for the introduction of the National Singing Programme with its emphases on providing structured workforce development, new singing resources, and the identification, celebration and sharing of singing excellence.

Acknowledgements

The research team wish to thank Maurice Walsh, Senior Vocal Tutor with Manchester Music Service; Ula Weber of Ex Cathedra; Dr Penelope Harnett, University of West of England; Dr Liz Mellor, York St John University; and Sarah Kekus and Edward Milner of The Sage Gateshead for their invaluable support in identifying participant schools. We are also extremely grateful to all the schools (pupils, teachers and headteachers) for their time and commitment to participate in this research activity.

References

Green, M. (1972). *The Voice and its Disorders.* London: Pitman.

Mang, E. (2006). The effects of age, gender and language on children's singing competency, *British Journal of Music Education, 23*, 161-174.

Plumridge, J.M. (1972). *The Range and Pitch Levels of Children's Voices, in relation to Published Material for Children's Voices*. Unpublished Diss. Dip. Adv. Study of Ed, University of Reading.

Rinta, T., & Welch, G.F. (in press). Should Singing Activities Be Included in Speech and Voice Therapy for Prepubertal Children? *Journal of Voice*. [Published online 12 September 2006]

Rutkowski, J. (1997). The nature of children's singing voices: Characteristics and assessment. In: B.A. Roberts (Ed.), *The Phenomenon of Singing* (pp. 201-209). St. John's, NF: Memorial University Press.

Sergeant, D.C., & Welch, G.F. (in press). Age-related changes in Long-Term Average Spectra of children's voices. *Journal of Voice*. [Published online 15 July 2007]

Welch, G.F. (1979). Vocal range and poor pitch singing. *Psychology of Music*, *7*(2), 13-31.

Welch, G. F. (1998). Early childhood musical development. *Research Studies in Music Education, 11*, 27-41.

Welch, G.F. (2005). Singing as Communication. In: D. Miell, R. MacDonald, & D. Hargreaves (Eds.), *Musical Communication*. (pp. 239-259). New York: Oxford University Press.

Welch, G.F. (2006a). Singing and Vocal Development. In: G. McPherson (Ed.) *The Child as Musician: a handbook of musical development.* (pp. 311-329). New York: Oxford University Press.

Welch, G.F. (2006b). The musical development and education of young children. In: B. Spodek & O. Saracho (Eds.), *Handbook of Research on the Education of Young Children*. (pp. 251-267). Mahwah, N.J.: Lawrence Erlbaum Associates Inc.

Welch, G.F. (2007). Om sångutveckling [Singing as a developmental behaviour]. In: G. Fagius, (ed.). Barn och Sång. Hur, vad och varför sjunger vi med barn? (pp. 55-66). [Children and singing. How, what and why are we singing with children] Lund: Studentlitteratur AB.

Welch, G.F., Sergeant, D.C. & White, P. (1997). Age, sex and vocal task as factors in singing 'in-tune' during the first years of schooling. *Bulletin of the Council for Research in Music Education, 133*, 153-160.

Williams, J., Welch, G.F. & Howard, D.M. (2005). An exploratory baseline study of boy chorister vocal behaviour and development in an intensive professional context. *Logopedics Phoniatrics Vocology*, *30*(3/4), 158-162.

Youth Music (2006). *Omnibus survey*. [Retrieved from http://www.youthmusic.org.uk/news/general.jsp?ID=511 27 October 2007]