



SING EVERY DAY

An evaluation of a VOICES8 Foundation school-based singing project in Hackney, London 2019.

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SING EVERY DAY

Evaluating our work is paramount to not only helping ensure our work has a positive impact, but also to helping us learn, respond to the needs of project participants, and continue developing as a leading vocal music charity.

Key questions we ask when embarking on a project include:

- What outcomes are we seeking to achieve?
- What does success look like?
- What kind of impact can we have?
- What constitutes a positive impact?
- Will it be a lasting impact?
- How can we measure the impact?

When working with children and teachers we ask:

- Could project outcomes be measured not only in terms of musical impact, but also in terms of wider social benefits?
- What about the impact on children's learning?
- What are participating teachers gaining from the project? Are we helping develop their skills?
- What is our team learning?
- Are we applying our learning?

As I write this introduction, I have just spent several days in primary schools working with Year 1 children and their teachers. The teachers are amazing and the children of course, lovely. Each session with the children was filled with warm-up activities, the VOCES8 Method, learning songs, fun and laughter. The children (and their teachers and teaching assistants) were engaged throughout.

Not one of these primary schools has a music teacher on staff. Some require each classroom teacher to deliver a weekly music lesson. Others rely on projects delivered by visiting organisations.

When we began working with these schools only 2 teachers were comfortable leading some singing with their class. Only 1 has had any formal music training.

The demands of teaching 5 and 6 year olds cannot be overstated, especially in schools where a large percentage of the children speak English as a second language and many come from difficult backgrounds. These schools also have several children in each class with special educational needs including children with autism, learning difficulties and physical disabilities.

Teachers have a great deal to cover to ensure each child is meeting their expected learning targets. Reading for example is a key focus, with all children in Year 1 undertaking a phonics screening check in the Summer Term.

Most Year 1 teachers recognise how much children enjoy singing and many describe how singing is part of the early years programme in reception but is not used nearly as much (and sometimes hardly at all) once children reach Year 1. Many recognise how singing can be used not only for enjoyment, but also as part of learning. However, teacher training programmes include very little time for giving teachers the skills and confidence they need to lead singing. For some teachers, being asked to lead singing is a source of fear and not something they feel happy doing.

It is with all this in mind that we embarked on **Sing Every Day**, a project designed to provide inspiring singing opportunities for Year 1 children and their teachers. Key to the project was training and support for classroom teachers in order to give them the confidence and skills to lead singing. Participating schools were asked to embed 5 to 10 minutes of singing into every day.

How did we decide what to evaluate? We asked Hackney Music Service and classroom teachers what would be most valuable for them. We read studies that looked at links between singing and social inclusion; singing, musical instruction and cognitive development; singing and phonological development (how children develop the ability to understand and use the sounds of language) and studies that looked at singing development in children.

We then considered what the Foundation can provide. Our team of professional singers are both performers and workshop leaders. Excellence in both is integral to our mission to inspire singers and teachers of all ages and abilities, and to our belief that everyone should have the opportunity to engage in music making. When working in schools we can provide teacher training and regular school visits to work with the children, however the nature of our team's performing schedule means we cannot provide weekly in-school sessions. We can get schools started on their singing journey, provide additional support along the way and provide special projects for schools looking to work with professional singers and performance opportunities.

We also looked at feedback from our previous projects with primary schools and asked what we could learn through working with teachers.

Finally, we sought advice from Professor Welch, Dr Saunders and Dr Purves whose input has been invaluable.

In many ways this evaluation is the beginning of a longer journey. There is still much more to learn both for the Foundation and for researchers. The impact of singing every day on the executive

function of children is especially interesting.

We hope the publication of this evaluation will encourage more primary schools to incorporate singing every day. The schools that participated in this project have continued to embed singing in their curriculum with one school now singing every day with Years 1, 2 and 3. Participating teachers are far more confident about leading singing and are sharing their skills with other teachers.

With the right mentoring and support, teachers can become more confident in leading singing. They can bring the joy and the benefits of singing to the children they teach. This would be a wonderful thing to see in both primary schools that have a music teacher, and the many schools that do not.

On behalf of the Foundation I would like to say a special and heart felt thank you to the teachers who participated in **Sing Every Day**, and to Xanthe Sarr of Hackney Music Service. It was a privilege to work with each of the teachers, and Xanthe's support in all the work we do with Hackney Music is invaluable.



ANN WRIGHT
Director of Education

BIOGRAPHIES

Professor Graham Welch

Professor Graham Welch PhD holds the UCL Institute of Education (formerly University of London) Established Chair of Music Education since 2001. He is a Past President of the International Society for Music Education (ISME) (2008-2014) and elected Chair of the internationally-based Society for Education, Music and Psychology Research (SEMPRE). He holds Visiting Professorships at universities in the UK and overseas, and is a former member of the UK Arts and Humanities Research Council (AHRC) Review College for Music (2007-2015).

Publications number approximately three hundred and fifty and embrace musical development and music education, music and general teacher education, the psychology of music, singing and voice science, and music in special education and disability. New publications include an updated Oxford Handbook of Music Education (2018, five volumes) and the Oxford Handbook of Singing (2019). He is also working with Margaret Barrett (University of Queensland) on the forthcoming Oxford Handbook of Early Childhood Early Music Learning and Development. He was Chair of the Paul Hamlyn Foundation National Working Group on music education in England (inspire-music.org) from 2015-2017, working closely with Katherine Zeserson. He is Chief Editor for a Routledge book series related to the psychology of music and music education, and a senior editor for the new open access SAGE journal 'Music and Science'.

Dr Jo Saunders

Dr Jo Saunders (Institute of Education, University College London) lectures across Primary and Secondary Postgraduate courses for Initial Teacher Education, and is Module leader for the Philosophy of Music and Music Education course on the MA in Music Education. She supervises doctoral students interested in both adolescent and teacher musical identity and engagement, and vocal pedagogy. She is involved with a range of research projects, including work with hearing impaired students and singing, the impact of instrumental learning on musical/other than musical development, as well as singing to support children with English as an additional language.

Particular research interests include effective singing pedagogy, adolescent musical identity, composition in primary classrooms and mapping the musical pathways of children in and out of school. Recent work has included the integrated teaching of music and mathematics in the primary classroom. Additional research strands focus on the interplay between musical identity and teacher identity.

Dr Ross Purves

Ross Purves is an Associate Professor of Music Education at the UCL Institute of Education and a Senior Fellow of the Higher Education Academy. Ross studied music at City University and the Guildhall School of Music and Drama, later completing an MA in music education at the Institute of Education, University of London, a PGCE in post-compulsory education at the University of Greenwich and a PhD in music education at the UCL Institute of Education.

Before joining the staff of UCL in July 2018, Ross was Senior Lecturer in Education at De Montfort University, Leicester, where he led modules in music and arts education, computing and educational technology between 2013 and 2018. Ross was Joint Course Manager for Music at Luton Sixth Form College between 2006 and 2013 and also served as Music Subject Coordinator for a school-centred initial teacher education programme.

He has written on various aspects of music education, teachers' initial education and professional development, educational computing and the application of geospatial methods. His work has appeared in a range of academic journals and the OUP Handbook of Music Education. Ross has presented research at various UK and European education and music conferences and is an experienced performing musician and arranger. Between 2016 and 2018 he was a member of the Musicians' Union Teachers' Section National Committee and is currently on the Music education Committee of the London Music Fund. He received De Montfort University Vice-Chancellor's Distinguished Teaching Award in both 2017 and 2018.

Alice Bowmer

Alice is a musician, violin teacher and researcher who began teaching music in 2008 with children aged 6 months – 6 years. Alice now runs a music teaching practice where she works with pupils between 6-18 years, as well as supporting community music projects for preschool children.

Alice's research evolved from a desire to understand more about how her students were learning, both musically and in other aspects of their development (motor function, language and cognition). Her experience suggests that careful attention to all of these elements is highly effective when helping children to learn new skills.

Alice is an honorary research associate at UCL Institute of Education and her current research looks at how music and arts training can impact upon executive functions, speech, language and communication skills. She is also particularly interested in how group synchronisation may support attentional mechanisms and therefore the possibility for perception.

Kathryn Mason

Kathryn is a developmental psychologist, researcher and musician with over 12 years' experience in developmental, cognitive and educational research. Her work focuses on how children acquire language, thinking and problem-solving skills (known as executive functions), and the underlying mechanisms that make some activities particularly effective in supporting these areas of young people's development. She completed her doctorate at University College London in 2017, where she designed and evaluated the effect of a music-based intervention on deaf children's executive function skills.

Kathryn has always been driven to explore the potential for music training to grow and reinforce key cognitive skills throughout the lifespan, and is dedicated to conducting research with a collaborative approach, working with Deaf and hearing teachers, musicians, artists, other practitioners and young people. In 2018, she co-founded the research group 'Music and Cognition' with Alice Bowmer, which aims to understand and explain the impact that music and the arts can have on young people's development.

THANK YOU

The Foundation is grateful for the support of our donors which allows us to further our work with children, young people and teachers. We are particularly grateful to the following trusts, foundations and individuals whose support made **Sing Every Day** possible.

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Goldsmiths' Charity

Plasterers' Charity

Richard Harris on behalf of the L. G. Harris Trust

Lord Northampton



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INTRODUCTION

It has been reported that early music experiences can have a beneficial impact on a wide range of developmental features in children, embracing cognitive, emotional, physical and social domains*.

For example, a recent Canadian population-level analysis of associations between school music participation and academic achievement of N=112,916 children in Grades 7-12 in British Columbia (Guhn, Emerson & Gouzouasis, 2019) found that music participation (vocal and instrumental) was related to higher Provincial examination scores in mathematics, science and English (controlling for participants previous academic achievement and sociodemographic backgrounds).

In a smaller-scale, longitudinal study, N=265 children in Grades 1 to 8 (ages 6 to 14) from a school in an economically disadvantaged neighbourhood of a US city were selected by lottery to participate in an out-of-school music programme (Holochwost et al, 2017). This offered individual and large ensemble instrumental education over a two-year period, based on the *El Sistema* model from Venezuela. Compared to matched controls, the impact of programme enrolment included higher levels of academic achievement, as measured by standardised tests in reading, mathematics, and language arts, and superior performance on select tasks of short-term memory (STM) and Executive Functions (EFs)—the latter seen as foundational cognitive capacities that include working memory, inhibition and cognitive flexibility (Bowmer et al, 2018). »

* (see Barrett et al, 2019; Hallam 2015; Schlaug, 2015; Silvia et al, 2016, for reviews).





Introduction continued

- » Internationally, UNESCO (2019) defines ‘early childhood’ as 0-8 years and highlights (2016) four main profile areas by which early childhood development can be assessed. These are executive function, social and emotional development, motor development and early literacy and numeracy. For each of these four areas, there is a growing database of research literature that demonstrates that these can be nurtured through sustained engagement in musical activity. This is evidenced in studies on children’s *executive function* (e.g., Bowmer et al, 2018; Bugos & DeMarie, 2017; Frischen et al, 2019; Moreno et al., 2011; Zuk et al, 2014), *social and emotional development* (Alemán et al, 2017; Barrett, 2011, 2017; Hallam, 2010; Welch et al, 2014), *motor development* (both in children, Derri et al, 2001; Zachopoulou, Tsapakidou & Derri, 2004, as well as in child and adult musicians, Schlaug, 2015) and also early *literacy and numeracy* (Anvari et al, 2002; Cohrdes, Grolig & Schroeder, 2016; Moritz et al, 2013; Williams et al., 2015).

Nevertheless, one of the challenges in the provision of effective music education in childhood is the level of confidence, expertise and musical self-efficacy of the teachers. A wide range of studies have reported that generalist teachers often lack confidence when it comes to organising the teaching and learning of music (e.g., Mills (1989), Hennessy (2000/2017), Stunell (2006) and McCulloough (2006) in England; Stakelum (2008) in Ireland; Ballantyne (2007), Barton (2015) and Jeanneret (1997) in Australia; Bresler (1993) in the USA, and also in non-English speaking countries, such as Austria, Italy, Netherlands and Slovenia (Biassutti et al 2015), Portugal (Mota 2015), and Brazil (Mateiro 2011)). However, there is evidence that focused instruction can improve children’s singing abilities (Demorest, Nicols, & Pfordresher, 2017; see Welch, 2016/2019 for a review), such as demonstrated by the UK Government’s National Singing Programme *Sing Up* (2007-2012; Welch et al 2010).



Furthermore, a recent Australian initiative was designed to address this professional need in generalist teachers through the creation of a National Music Teacher Mentoring Program (NMTMP). This was piloted in 11 Australian primary schools, drawn from New South Wales (20-week implementation in eight schools) and Victoria (10-week implementation in three schools). The focus for the programme, undertaken with classes of children from Kindergarten through to Year 2 (ages 4-8y), was for seven specialist music educators to mentor 19 generalist classroom teachers 1:1 over one or two school terms, including mentored support in the classroom.

The number of children in the mentored classes was 237, with 55 children outside the programme acting as matched controls, making a total N of 292. An independent evaluation focused on children's singing and attitudes to singing (Barrett et al, 2018, 2019) and reported that the intervention was successful. Children in the mentored classes improved significantly over time on both measures (singing and attitudes) compared to the controls, particularly Year 1 children, irrespective of gender or socio-economic status. In addition, 36 evaluative interviews were undertaken with teachers and school principals. Analyses of responses indicated improved teacher confidence, a willingness to share their professional development with colleagues, and the positive impact on the mentee of the mentors' expertise and passion for music.

Overall, these previous studies provide positive precedents for the VOCES8 Foundation and its work in schools. 'Sing Every Day' was a project led by the VOCES8 Foundation in partnership with Hackney Music Service Network (HMS) in London. The aim for the project was the development of young children's singing in two Hackney Primary schools. Two classes of 6yo children participated in each school across two school terms in 2019 (January through to July). The project was designed around regular in-school, whole-class singing sessions, underpinned by mentored Continuing Professional Development (CPD) for the participant generalist Class Teachers. Each CPD session, eight in total—four in the Spring Term and four in the Summer Term—lasted approximately one hour and

was led by a professional singer from the VOCES8 team. Prior to the class-based sessions, the Year 1 teachers had training sessions with the team leader, supplemented by follow-up sessions as the programme progressed. The musical content with the participant classes drew on a portfolio of specially designed activities, including theme-based exemplar song and vocal development materials.

These were part of a specially-designed VOCES8 approach to singing development with children and young people (Smith, 2013) that formed the basis for the 'Sing Every Day' programme. Children from two equivalent-aged classes in another Hackney Primary school who did not receive the specialist music input acted as 'controls' to the four 'project' classes. The total number of children participating were n=86 in the two project schools and n=35 in the control school. An evaluation of key features of the project was undertaken by a team of independent researchers from the International Music Education Research Centre (iMerc) at the University College London (UCL) Institute of Education, working in close collaboration with the VOCES8 Foundation, HMS and the three participant schools (see Annex 1). ■

1 Two older classes of children in the control school received a separate programme of music from the Foundation as a benefit of taking part in the project.

METHODOLOGY

The aims of the partnership were to evaluate musical and selected wider benefits of a structured singing programme in two Primary schools in Hackney. The research evaluation drew on a range of established research tools in a combined, mixed methods approach (collecting quantitative and qualitative data) in order to measure particular impacts in and through singing.

The impact assessment protocol included:

- **Demographic measures** of children's general profiles, including data in relation to the official Indices of Multiple Deprivation (IMD) as applied to their localities; IMD is the official measure of relative deprivation for small areas (or neighbourhoods) in England and draws on seven domains of deprivation (Ministry of Housing, Communities and Local Government, 2019); Hackney has the second greatest levels of relative deprivation of all the London Boroughs, with just under half of its LSOAs (small neighbourhood areas) in the highest quintile (20%) nationally. Hackney also has a high proportion of its LSOAs in the most deprived 10% nationally on the Income Deprivation Affecting Children Index (IDACI) (Leeser, 2016) and has a high proportion of children from Black and Minority Ethnic (BAME) backgrounds. (See Annex 2 for more detail.) Participant children were aged between 5.2 and 6.3 years.
- Measures of individual **children's singing behaviour** and development, drawing on an established protocol used for the five-year evaluation of the UK Government's National Singing Programme *Sing Up* (2007-2012, Welch et al, 2009) and which was also adapted for the NMTMP in Australia (Barrett et al, 2018);
- **Reading attainment**, using in-school data;
- A measure of children's perceived sense of **social inclusion**, using a specially-designed 26-question tool (Welch et al, 2010), funded as part of the EC's three-year international project The Usability of Music for the Social Inclusion of Children (2008-2011);
- A measure of children's sense of the **Quality of School Life** (Eerola & Eerola, 2014);
- Observations of teachers' singing pedagogy, based on a research tool created as part of the evaluation of *Sing Up* and *In Harmony* projects (Saunders et al, 2011); and
- Measures of participant children's **executive function**, a multi-dimensional cognitive construct that refers to gaining strategic control over personal mental/metacognitive processes, such as related to working memory, inhibition and cognitive flexibility (Bowmer et al, 2018).



All data were collected in line with the latest British Educational Research Association's (BERA) Ethical Guidelines (2018) (<https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2018>) and with formal approval from the UCL Institute of Education Research Ethics Committee (18th January 2019, No. Z6364106/2019/01/85). UCL's new ethical approval process required all the participants to provide formal agreement to take part in the evaluation.

This embraced the school (headteacher), teachers, parents and children. Consequently, although all children in the focus classes took part in the VOCES8 Foundation singing activities, only a subset of these had all the elements of the ethical permissions and were available for the impact evaluation. In addition, some of the children were absent or unwell on the research visit days and so had incomplete data. Therefore, the full analyses are based on $n=63$ children for whom we have complete datasets across the three schools, $n=46$ in the intervention schools and $n=17$ in the control school. ■

2 The small areas used are called Lower-layer Super Output Areas [LSOA], of which there are 32,844 in England. They are designed to be of a similar population size with an average of 1,500 residents each and are a standard way of dividing up the country. The Index of Multiple Deprivation ranks every small area in England from 1 (most deprived area) to 32,844 (least deprived area).² London: Department for Communities and Local Government (DCLG), Indices of Deprivation (2015).

MAIN FINDINGS

Singing

Children’s singing was assessed individually at two points in the programme, at the beginning and at the end. The measure of singing competency was based on two well-known songs, one with a limited pitch range (Twinkle, Twinkle) and the other with a more extended pitch range (Happy Birthday).

Sung performance was assessed against two established rating scales (Rutkowski, 1997; Welch, 1998). The Rutkowski scale is a measure of children’s vocal register use; the Welch scale is a developmental measure of singing in-tune (and time). The two scales had been used previously in combination in the evaluation of the National Singing Programme in England (Welch et al, 2009) and in earlier research in Hong Kong (Mang, 2003). One of the scales (Welch, 1998) was also used in

the recent Australian NMTMP research evaluation (Barrett et al, 2018).

The Normalised Singing Score (NSS) of the children’s singing – a score out of 100 – was plotted against the two time points (baseline and end of project) with reference to a benchmark mean derived from the National Singing Programme *Sing Up* dataset for n=151 children of the same age (5.2-6.3 years) – see Figure 1 and Table 1.

Table 1: Mean Normalised Singing Scores (NSS) for participants in the three schools at the beginning and end of the VOCES8 Foundation programme (n=63) compared to the national mean for n=151 children of the same age from the *Sing Up* dataset.

Normalised Singing Scores	Pre Mean Score	Post Mean Score	NSS Benchmark, National data
Intervention School A	63.39	71.49	66.48
Intervention School B	64.80	72.65	
Control School	62.79	66.76	

As can be seen from Table 1 and Figure 1, participants in each of the three schools were, on average, below the national mean in terms of their singing competency at the start of the project. However, the means for children in each school had improved by the end, with the two intervention schools improving more.

The change was statistically significant across all three schools ($F(1,60)=10.612$; $p<0.01$), although the differences between the schools were non-significant. This was also evidenced when looking at the development data solely for singing in-tune (Welch, 1998), Figure 2. »

Figure 1: Participants' mean Normalised Singing Scores (NSS) at baseline and end of project for the same children (n=63); the horizontal dotted line represents a national NSS mean for the same age group. The NSS scale varies between 22.5 (speaking) and 100 (competent singing).

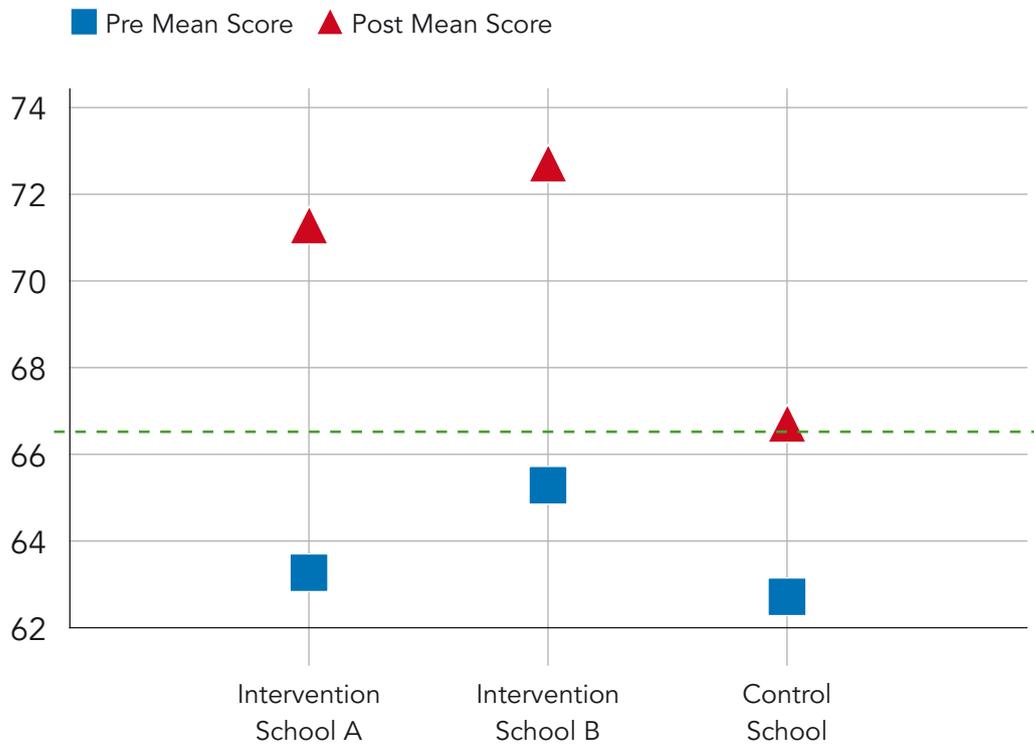
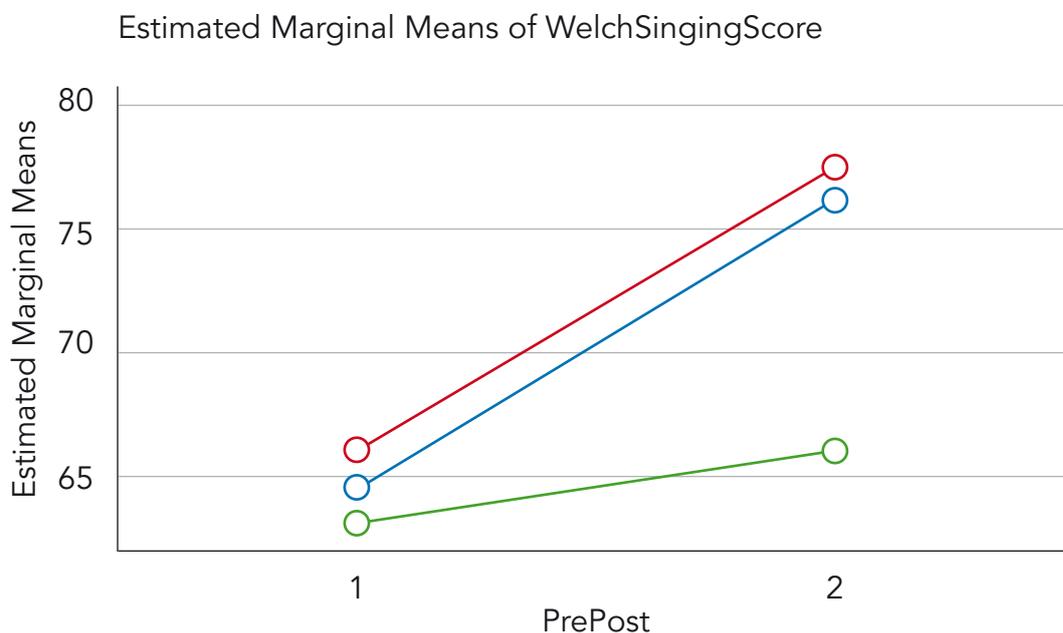
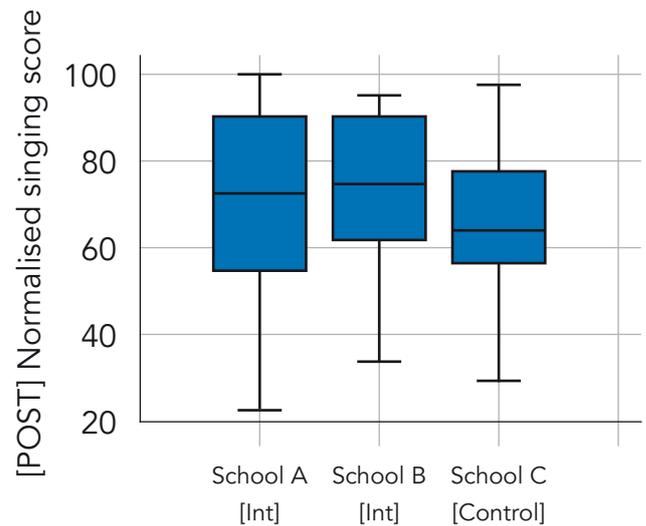
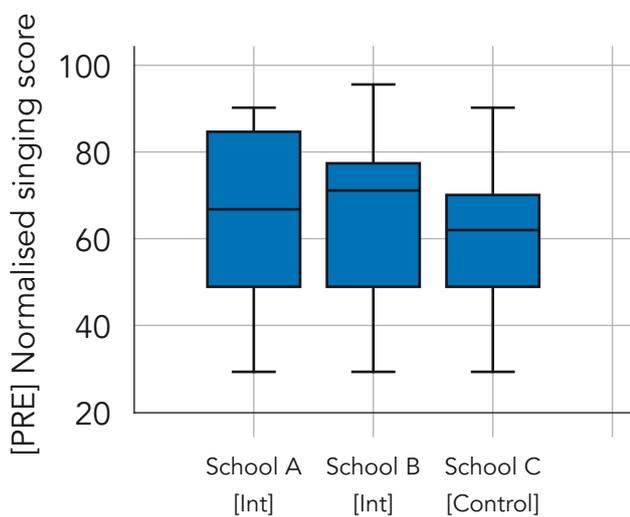


Figure 2: Singing development ratings for the three schools over time using the Welch (1998) data only. Children in the two intervention schools improved more than in the control school.



MAIN FINDINGS Singing

Figures 3a and 3b: Box plot distribution of ratings at the start and end of the project in quartiles around the mid-point in the distribution – the median; 50% of child ratings in a school are covered by the box.



- » Exploring the NSS singing data in more detail, improvements are evidenced in changes in the distribution of scores at the two assessment time points (Figures 3a and 3b).

In each school, there are some children who had developed their singing competency much more than others, whilst some children appear to have made little progress (the least developed 25% at baseline). However, the change bias in the overall distributions over time is positive, especially for the two intervention schools.

In order to understand why children in the 'control' school also improved on average

(albeit noting that this was a relative small number of children), firstly it is to be expected that there may be positive changes in singing competency, especially with girls, over time (as evidenced in the large national dataset, Welch et al 2012) and, secondly, one of the participant class teachers in the 'control' school was also the school's music specialist, and so it might be expected that singing in her class would improve over time.

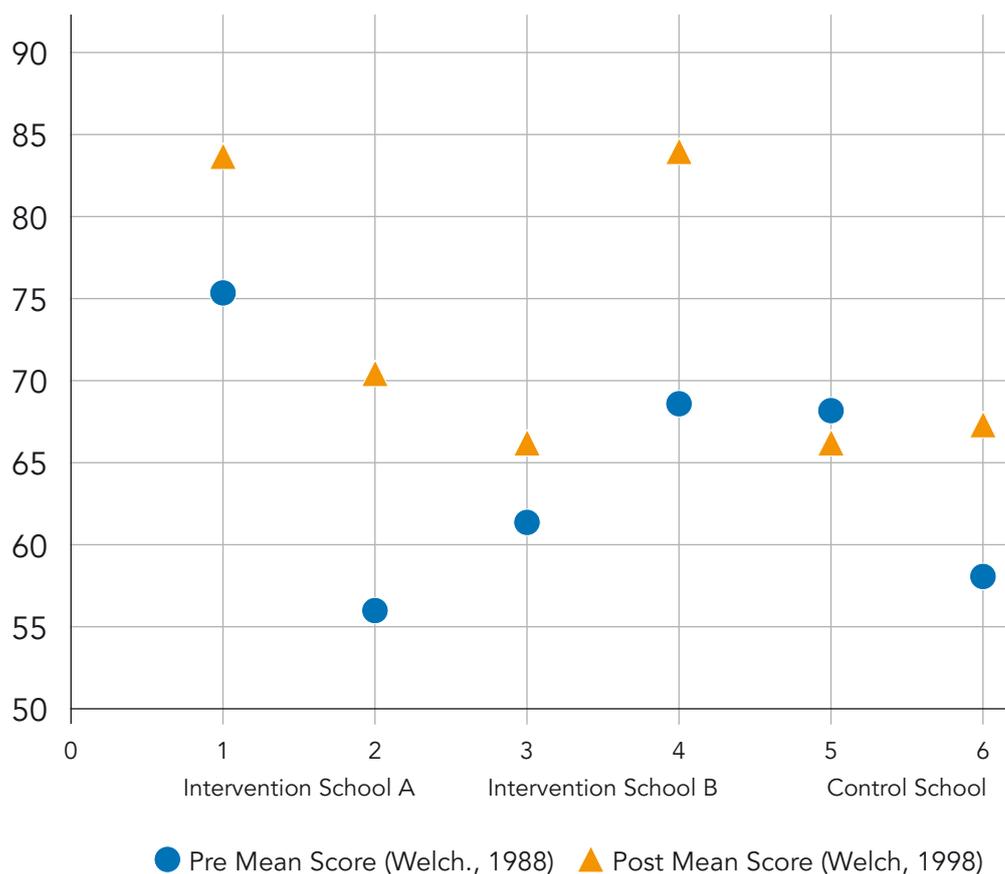
This is evidenced in an analysis of mean singing in-tune development changes for each class using the Welch scale (Table 2 and Figure 4). »

Table 2: Mean singing competency ratings (Welch, 1998) for each of the six classes over time.

Normalised Singing Scores	Class	Pre Mean Score (Welch 1998)	Post Mean Score (Welch 1998)
Intervention School A	Class 1	75	83.75
	Class 2	55.68	70.45
Intervention School B	Class 3	61.11	66.28
	Class 4	68.75	84.37
Control School	Class 5	68.01	66.28
	Class 6	57.81	67.19

Figure 4: Mean singing competency ratings (Welch, 1998) for each of the six classes over time.

Mean singing competency ratings at the beginning and the end of the VOCES8 Foundation intervention for six classes, four intervention (Schools A and B) and control (School C).



MAIN FINDINGS Singing

- » The data indicate that three of the four intervention classes demonstrated a relatively large mean improvement over time, as did one of the control classes. For the other control class there was no measurable change, but a very slight regression (Table 2).

Nevertheless, overall, across the three schools, there was a statistically significant improvement using the Welch measure ($F(1, 57) = 11.481$, $p < .001$). This statistical outcome was a product of an overlap in improvements between classes, although it is clear from Figure 4 that one

class in each intervention school were more developmentally advanced in their singing than their peers.

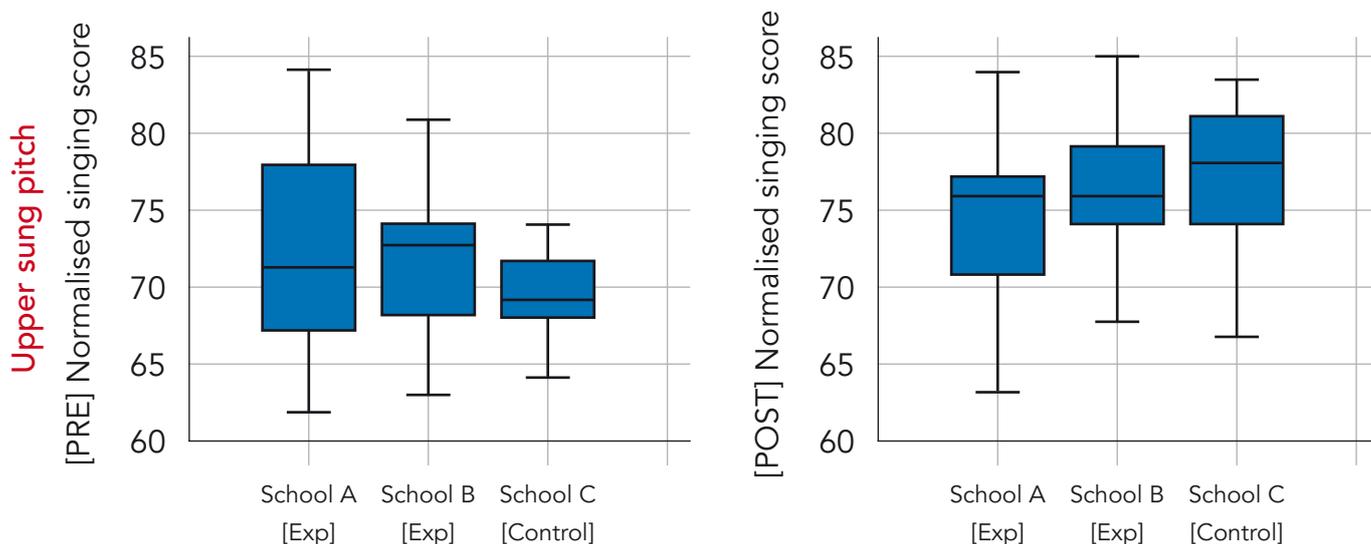
Also related to singing behaviour, opportunity was taken during the assessment to explore children's comfortable sung pitch range by asking each child to glide their voices up and down to 'ah' [a]. As can be seen from Figure 5, children expanded their mean singing range in each school, but with children in intervention school B and the control school changing slightly more than those in intervention school A ($F(2,60) = 5.016$; $p = 0.01$).

Figure 5: Mean comfortable singing ranges at the beginning and end of the project for n=63 children.

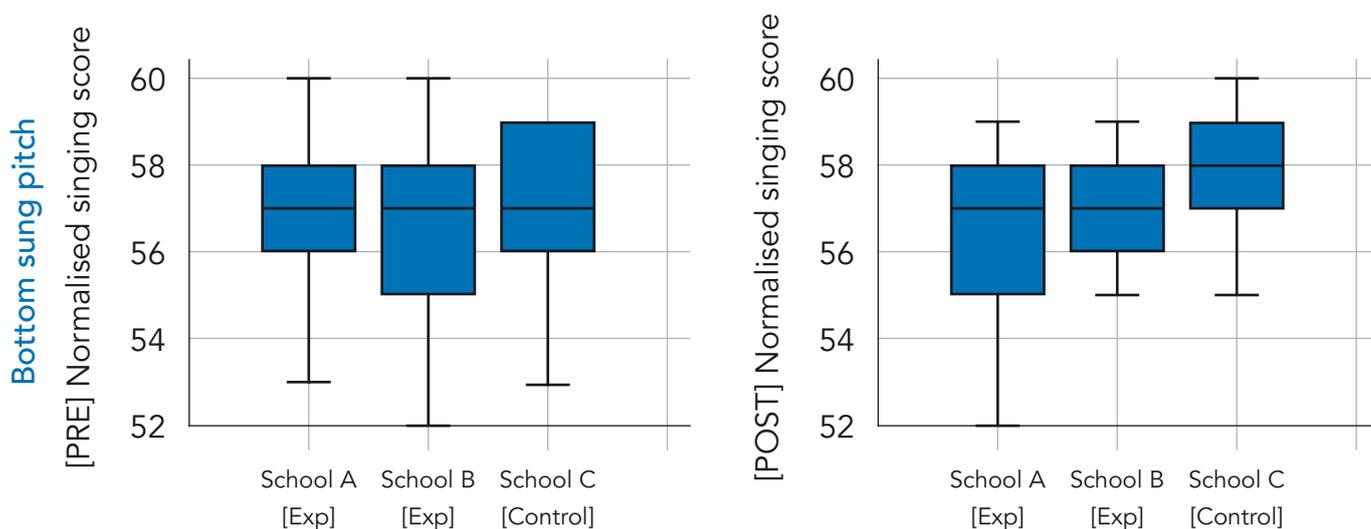
School	Pre-Singing Intervention	Post-Singing Intervention
Intervention School A		
Intervention School B		
Control School		



Figures 6a and 6b: Box plot distribution of upper and lower sung pitch at the start and end of the project in quartiles around the mid-point in the distribution – the median; 50% of the sung pitch ratings in a school are covered by the box.



'Middle C' (c4, 260Hz) = 60 in midi



The implication is that the majority of children were beginning to explore a range of vocal registers by the end of the intervention period, an interpretation that is supported by the positive mean changes across the participant population in their Normalised Singing Scores (NSS), as reported earlier, given that the Rutkowski component of the assessment is focused on children's vocal register use. These changes are also evidenced in the box plot distributions (see Figure 6a and 6b). A minority of children continued to have a limited sung pitch range. ■





MAIN FINDINGS

Teacher Development

Opportunity was taken during the project for members of the evaluation team to observe (a) example VOCES8 mentored singing sessions with teachers and their pupils, and (b) teachers undertaking class singing activities without the professional mentor being present. Participant school staff were also interviewed on camera as part of a video record of the project (Murphy, 2019).

Observations were undertaken of the singing sessions led by three of the four participating teachers with their classes (one teacher requested that she not be observed at that time). Each observed session was indicative of the activities that the teachers led as part of their embedded practice supported by the project. This included (but was not limited to) whole body warm up activities, rehearsal of songs from the repertoires, musical games supporting aspects of vocal technique, pulse, part singing, dynamics, pitch range and diction.

The video interview and observational data from these different sources indicate that class teacher participants in the two intervention schools were highly engaged with the VOCES8 singing programme. Individual teachers spoke about how the mentored experience had enabled them to (a) become more confident in leading singing activities with their classes, and (b) be more competent in their singing leading practices. For example, one teacher spoke about how she was now able to model singing for children to copy rather than just putting on audio and video and asking the children to sing along. In part, the increased confidence came from having seen and experienced a range of strategies to encourage singing activities with their pupils, including how to warm up the voice, the body and the brain. They spoke about being more confident of incorporating singing in their lessons and of how this professional confidence was matched by children being more willing and confident to use their own voices, both to sing and also in their talk related to 'literacy and maths' activities. Teachers also spoke about how workshop-based sessions had spun off into children's own play, with examples noted of children singing together in small groups, forming

'bands' and expanding friendships with their peers. Such findings related to the positive impact of professional, class-based music mentoring are in line with data on classroom-based mentoring of generalist teachers from elsewhere in the world, such as in Australia (e.g., Barrett et al, 2018; Barrett et al, 2019).

Two examples of effective observed generalist classroom teacher behaviour in the absence of the VOCES8 mentor are provided in Figures 7a and 7b. Here the images represent one observed singing lesson from each intervention school. The data in the Figures are presented in two main sections: (i) teacher behaviours over time across the lesson and (ii) pupil behaviours over time – see the grouping labels on the left side of the figure.

In the first example, with regards to the pupil behaviours over this 17-minute session, the observation data indicate that children were engaged and on-task throughout (see top two rows of Figure 7a). Pupils were also vocalising across the whole session, primarily singing (orange line), but also speaking (pupil shared thinking, teacher led). The first three minutes were dedicated to an array of warm up activities that involved the whole body. Pupils, arriving back into the classroom from the playground, were invited to join in with the actions, with both teacher and pupils demonstrating their recall of previous lessons. Musical modelling by the teacher was strong throughout the session, as was the use of peer modelling during the later stages.

Teacher A presented a strong musical vocal model throughout, whilst also using gestures and other non-verbal communication to control dynamics, sustain pupil engagement, including taking moments to listen and offer a brief comment, and

calm the energy of specific pupils. She used her classroom positioning in relation to the learners to good effect – for example, by moving closer to pupils to indicate close listening, moving to sit beside a pupil who was struggling to engage, and stepping away from the sightline of the group during a peer led activity. Teacher talk diminished as the session progressed and was more often used over pupil singing so as to provide formative feedback and praise. The specificity of the praise varied, including, at times, some elements of more globalised praise. The teacher used her knowledge of the individual pupils and questioning techniques so as to encourage longer dialogues, including speculative talk. Once the activities had been recalled and rehearsed, the teacher established a cyclical pattern in which pupils demonstrated mastery and received praise for so doing, before further activities were introduced. Other elements of effective pedagogy were noted, such as appropriate planning for the session, the setting of explicit success criteria for the pupils, as well as modelling and explaining, and using questions to encourage the children to demonstrate their understanding.

Similarly, analyses of the data from the observed lesson by Teacher B suggest that she was equally effective (Figure 7b). Engagement in singing was evidenced from the very beginning of the session and was maintained throughout. The teacher provided a strong musical model, using her own voice to good effect, modelling aspects of technique and interpretation. Teacher talk was concise and used to support established behaviours (such as appropriate posture and breathing) and to engage pupils in short dialogues in order to identify how they could improve their performance.

This was combined with physical gesture and simile so as to enable pupils to imagine the intended effect. Peer modelling was also used to good effect and was well-received, with pupils positively engaging with their peer singing experts. Following the rehearsal of an activity, closed questioning was used purposefully so as to support recall and to test understanding. This was combined with open questioning that fostered the pupils' engagement with speculative talk about upcoming issues. The teacher was able to make links between the singing activities and the pupils' wider experiences, so as to contextualise their learning. This, combined with the inclusive approach, created a context in which singing was an achievable and accessible activity.

As with Teacher A, Teacher B allowed the flow of the session to be seamless and with high energy evidenced throughout. The teacher offered a strong musical example, using their voice to model across the session, and used gesture and facial expression as further means of support. The teacher listened to, and valued, the singing of pupils throughout the session and offered explicit feedback and feedforward, as well as recognition of achievement for both musical and other-than-musical outcomes. Teacher talk was used in a concise manner, with brief pauses in singing to engage in spoken dialogues. These interventions were always closely aligned with her learning objectives.

In summary, the value of the VOCES8 professional mentoring in situ was demonstrated by the class teachers' subsequent behaviours in leading singing with their pupils, as well as in their positive comments concerning their own learning as well as that of their pupils. ■

MAIN FINDINGS Teacher Development

Figure 7a: Teacher A-led session in the absence of the mentor

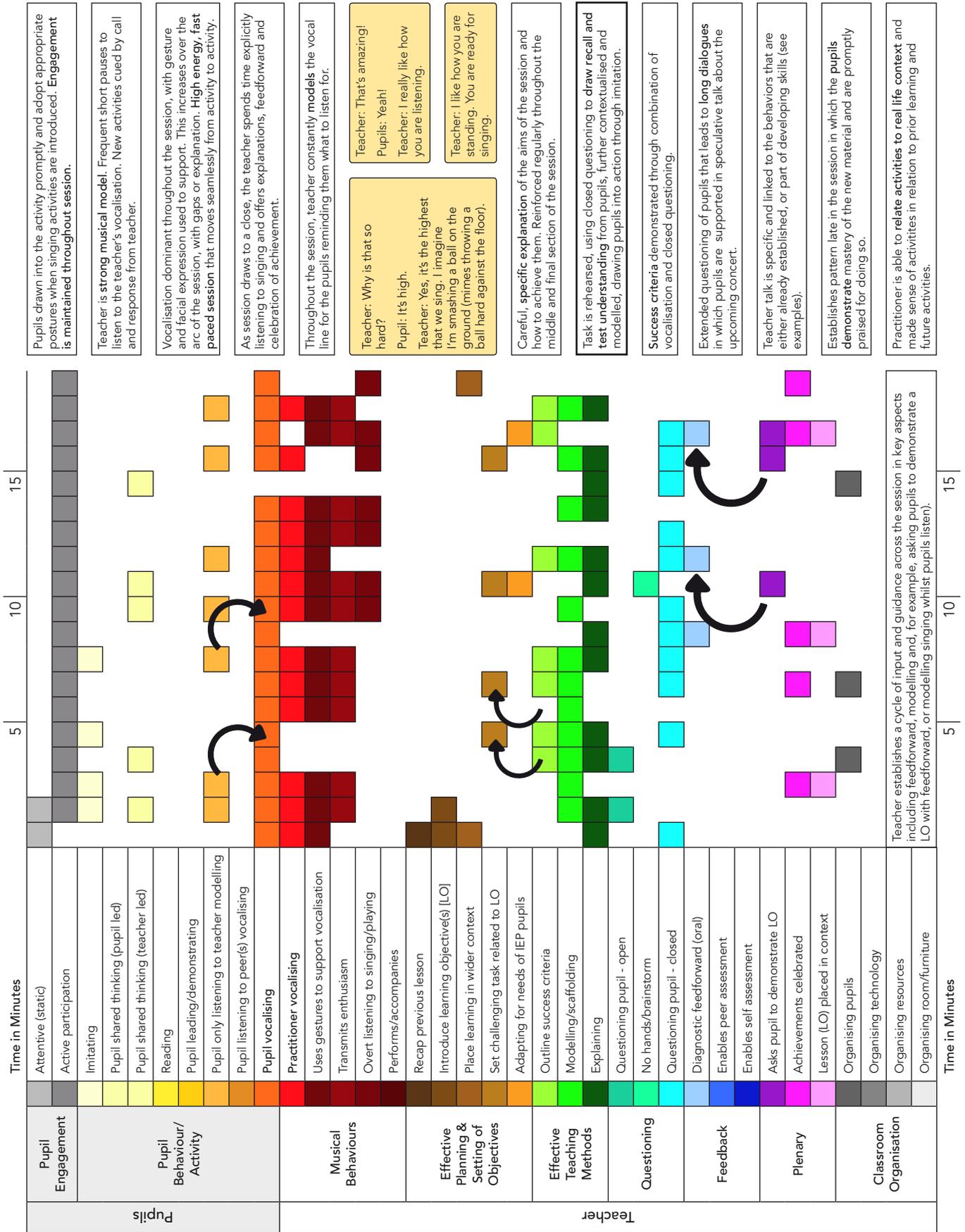
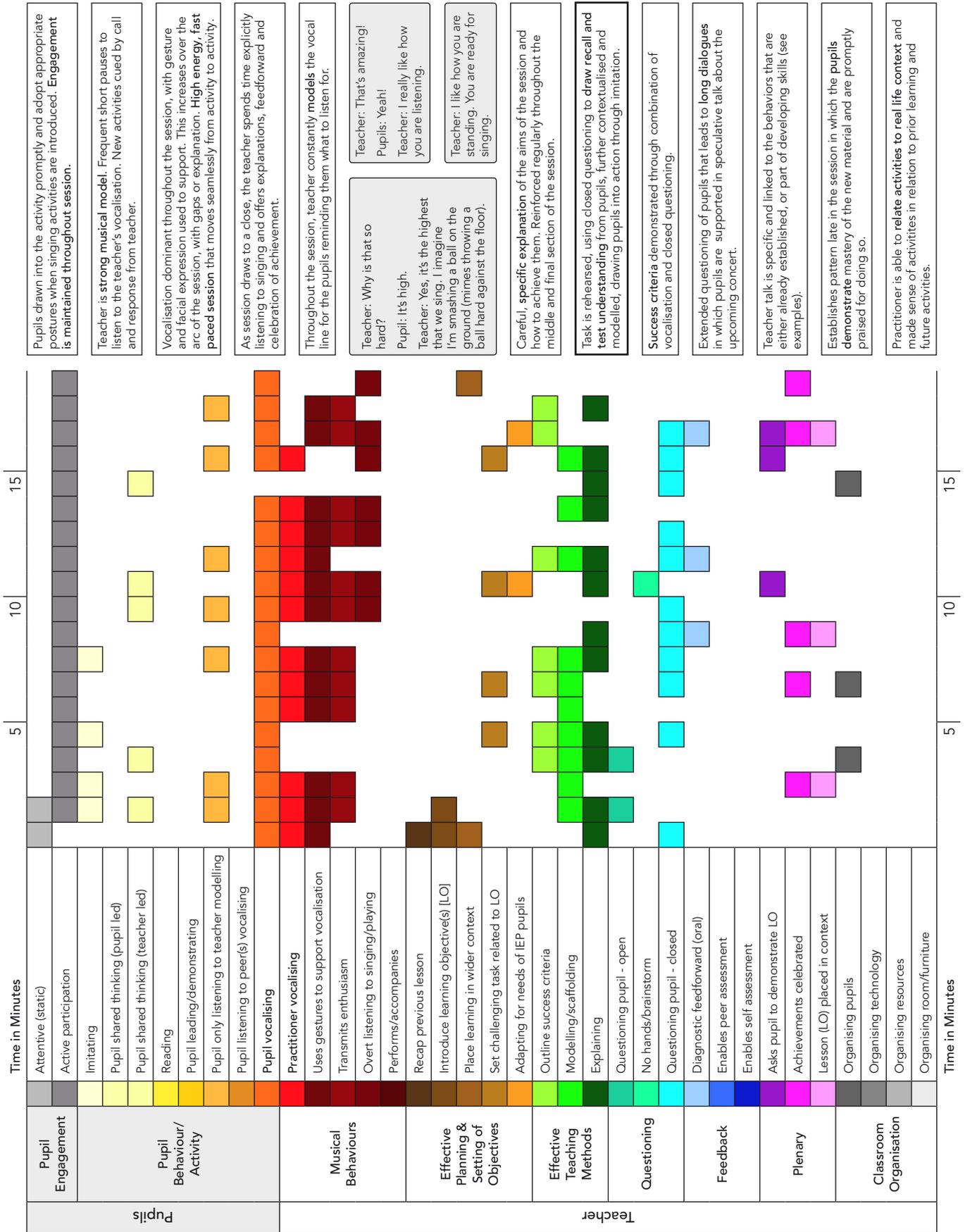


Figure 7b: Teacher B-led session in the absence of the mentor



MAIN FINDINGS

Reading

Within the available resource for the independent project evaluation, it made sense to use the schools' own reading assessment data to explore whether or not any change in singing competency might be related to the same children's reading development.

Related to their statutory duty, schools are expected to monitor pupil's language and literacy development as part of their internal quality monitoring procedures. Statutory reporting for Year 1 pupils (age 5-6y) relates to phonics and Year 2 (age 6-7y; end of Key Stage 1) includes reading. On contacting the schools, we discovered that each school had its own internal system for monitoring reading (Table 3).

Given this diversity, it was necessary to translate the internal pupil reading data into three generic categories of reading attainment: (a) 'below' = 'working towards the expected level', (b) 'expected' = 'working at the expected level for their age', and (c) 'above' = 'working beyond the expected level for the child's age and at greater depth'. This allowed a comparison for pupils' reading to be made between the schools (Figures 8a and 8b).

Analyses of the reading data for the three participant schools suggest that there were

significant differences between them at the beginning of the project (Figure 8a) (AD=7.08, $p < .01$). The relative distribution in the proportions for each school across the three categories were distinct from each other. However, by the end of the project, there were positive changes in the distributions and these were similar enough to be regarded as coming from a common population with no statistical difference between them.

Inspection of the data suggests that this end-of-project commonality was being driven by major changes in the reading assessment ratings for pupils in the control school where the proportion of children below age-related expectations ('working towards') halved from 82.35% to 41.18% (AD=4.63, $p < .01$). With regards the two intervention schools, there were non-significant changes for school A (AD=0.324, n.s.), but a significant positive improvement for school B (AD=3.35, $p < .02$). ■

Table 3: Internal reading assessment protocols for each school.

NC = National Curriculum; EFYS = Early Years Foundation Stage; 'Reading Recovery' is a literacy programme that is designed for the lowest achieving children aged around six that enables them to reach age-expected levels within twenty weeks – see <https://www.ucl.ac.uk/reading-recovery-europe/reading-recovery>

School	Reading Assessment Scheme Apparently in Use	Examples of assessment data
School A	Old NC and EYFS Levels, combined with holistic assessments of 'Below Expectation', 'Working at Age Expected', 'Above Expectation' and 'Greater Depth'	Below 40-60s+ 1b, 1b+, Above 1b+
School B	'Working towards', 'Expected Standard', 'Greater Depth'.	Working towards Expected Standard Greater Depth
School C	Daily Supported Reading / Reading Recovery Levels	1, 2, 3,... 18

Figure 8a: Reading assessment percentages for n=63 pupils at the beginning of the project

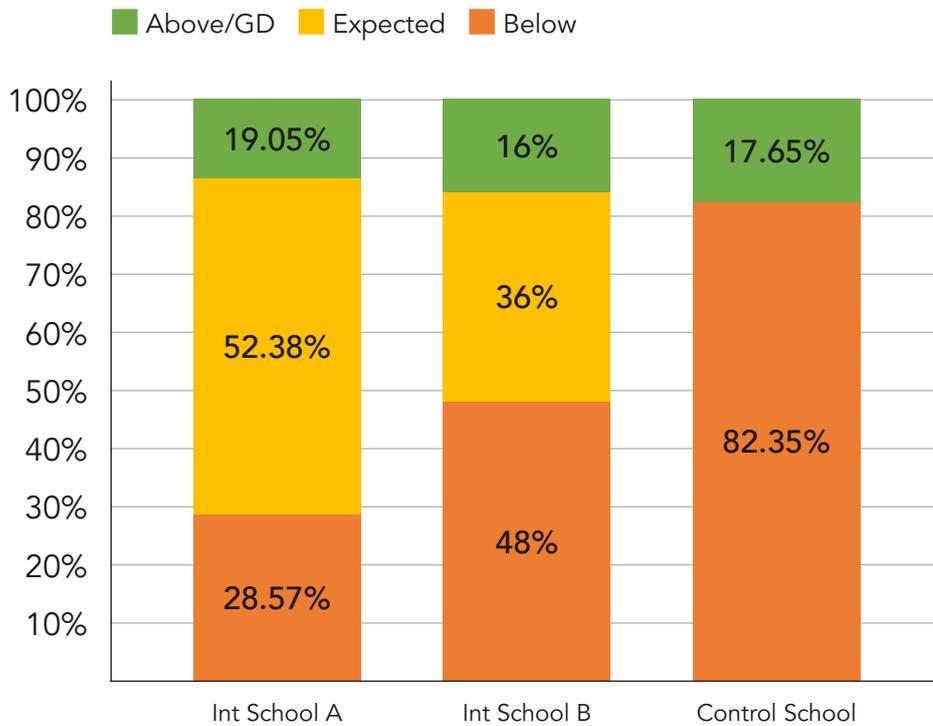
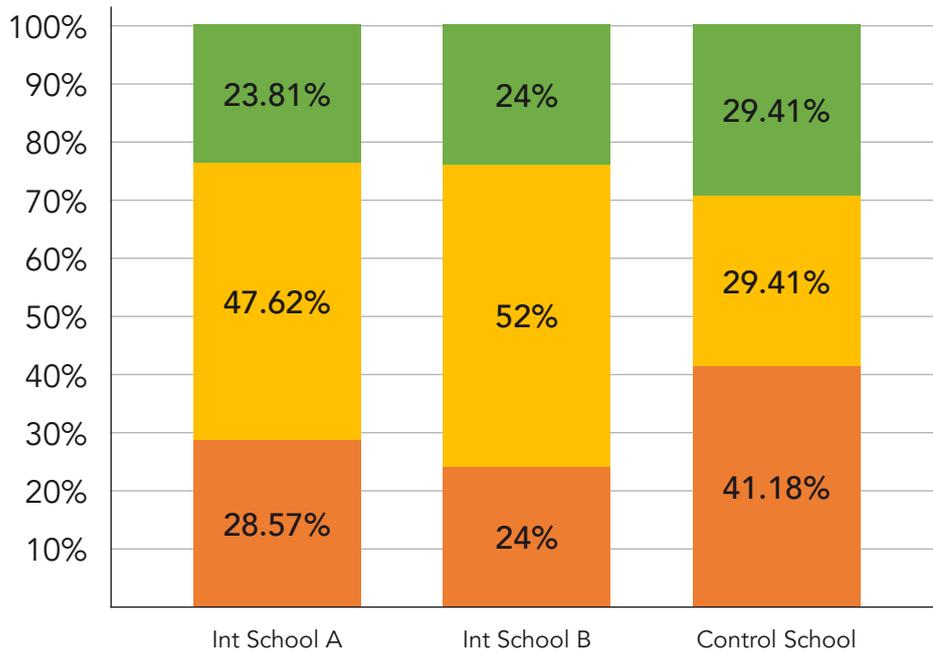


Figure 8b: Reading assessment percentages for n=63 pupils at the end of the project



MAIN FINDINGS

Social Inclusion

One of the other non-musical measures that was used to assess any possible wider benefits of the VOCES8 singing programme was social inclusion. Previous research had suggested that successful singing in a group is likely to be related to a greater sense of belonging or connectedness to others, both in children (Welch et al, 2014) and adults (Clift & Morrison, 2011; Kreutz, 2014).

For the purposes of this evaluation, each pupil completed a simple questionnaire with the individual support from a member of the research team. Pupils were asked to choose one from a set of five smiley faces that best matched their level of agreement with the particular statement, with n=26 statements overall.

Example statements were 'The children in my class are very friendly', 'Other children ask me to play with them', 'I feel left out of things at school' and 'I am never lonely' (Welch et al, 2010).

Statements were in a randomised order and embraced factors related to belonging, contentment, inclusion, loneliness, motivation, participation and social integration.

Table 4 reports changes in the mean scores (maximum 7, minimum 1) for the three participant schools at the beginning and end of the project. These data are represented pictorially in Figure 9. The means were generally just above the mid-point on the seven-point scale at both time points (pre- and post-intervention).

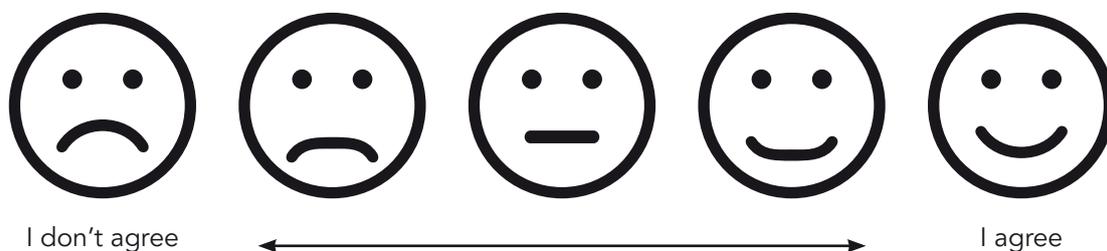
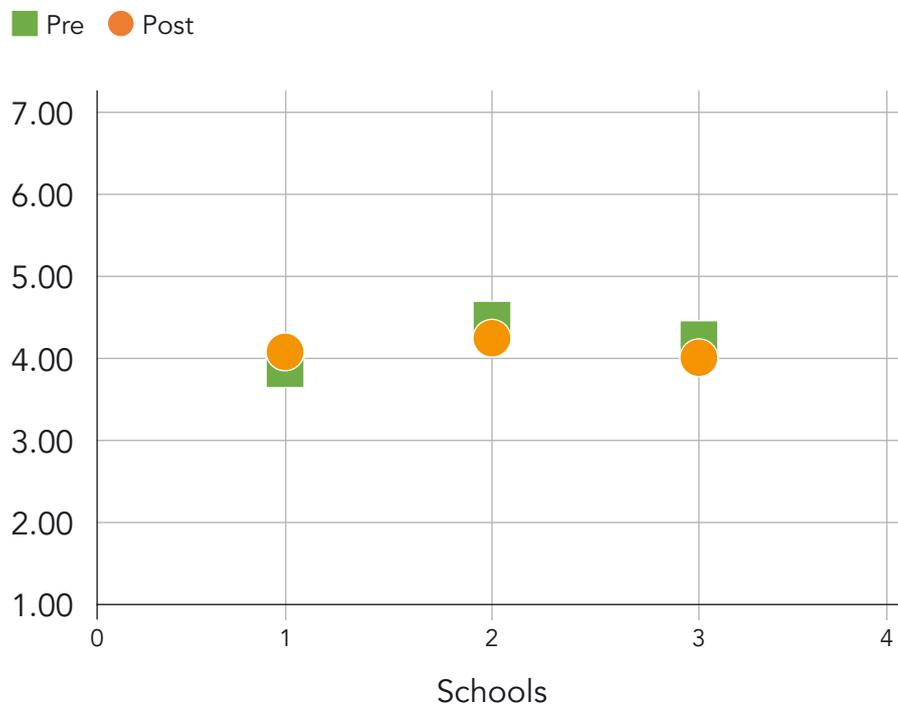


Table 4: Mean social inclusion scores for participant pupils at each school at the beginning and end of the project.

School	Pre Mean Score	Post Mean Score
Intervention School A	3.88	4.01
Intervention School B	4.26	4.13
Control School	4.14	3.99



Figure 9: Mean social inclusion ratings for each of the three schools at the beginning and end of the project (n=63 children).



Inferential statistical analyses indicate that there were no significant changes in the mean ratings for social inclusion overall, nor were there any no significant changes between schools. Pupils were generally positive about their sense of social inclusion across the time period. ■

MAIN FINDINGS

Quality of School Life

Pupils were also asked about their perceptions of the Quality of School Life (QSL) (based on a framework by Eerola & Eerola, 2014). A similar research tool and interview technique was used as for the social inclusion questionnaire. There were n=30 statements accompanied by sets of seven smiley faces.

Pupils looked at the questionnaire and one of the researchers read out each statement in turn. Pupils then chose the smiley face that best matched their level of agreement with the wording. Examples were 'Learning is fun', 'I enjoy being in school', 'Teachers treat me fairly in class', 'I enjoy my school work' and 'I am doing well at school'. The QSL factors across the questionnaire embraced achievement and opportunity, general satisfaction

with school, identity in class, status in class, negative affects, and teacher-pupil relations.

Statistical analyses revealed non-significant changes over the period of the intervention (see Table 5 and Figure 10). There were no significant changes overall across the three participant schools, nor were there any significant changes between the schools.

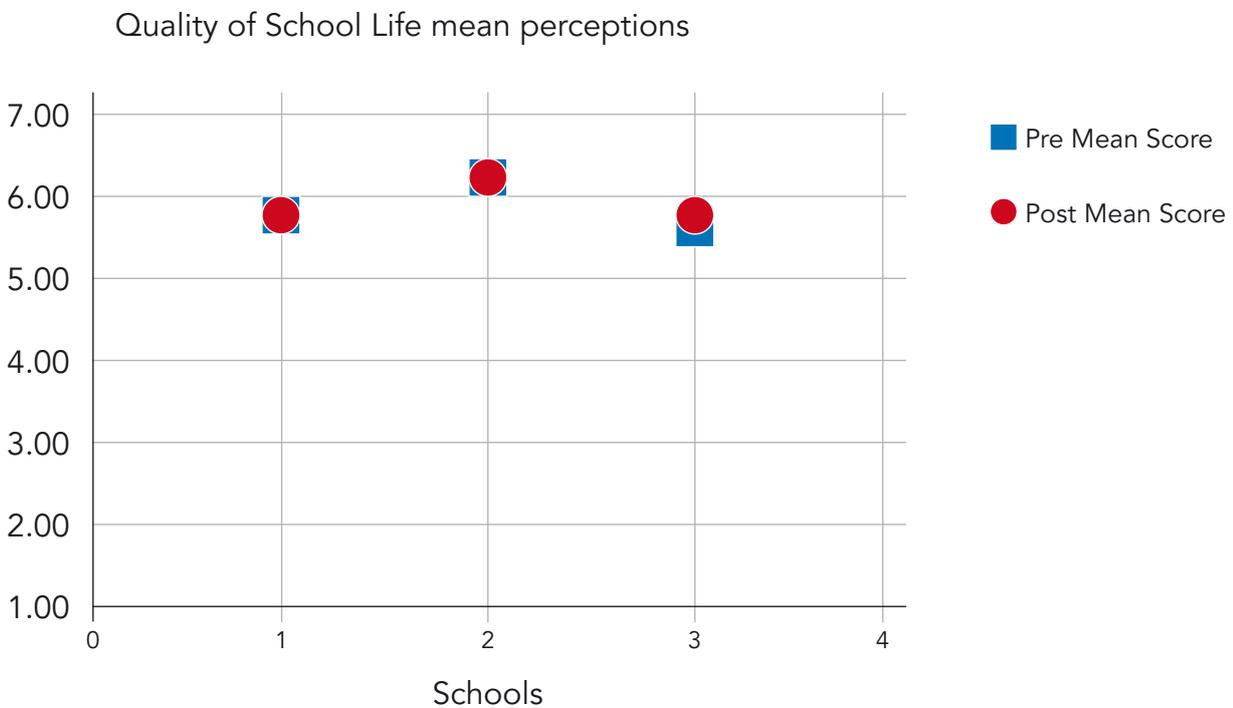
Table 5: Quality of School Life means at the beginning and end of the project.

School	Pre Mean Score	Post Mean Score
Intervention School A	5.83	5.84
Intervention School B	6.09	6.18
Control School	5.75	5.92





Figure 10: Quality of School Life means at the beginning and end of the project (n=63 children).



However, there was one interesting feature within these data. Four statements were designed to explore negative affects 'I feel lonely at school', 'I feel restless at school', 'I feel depressed at school' and 'I sometimes get upset at school'.

Over time, there was increased and statistically significant disagreement with these four statements ($F(1,60) = 7.531$; $p < 0.01$), that is, pupils tended to be less likely to have negative emotions about school (as defined by these four statements). ■





MAIN FINDINGS

Executive Function

Four tests that measured executive function (EF) were undertaken 1:1 with the pupils. These were as follows:

- **Peg tapping**

The peg tapping task is a measure of response inhibition. Children are given a wooden dowel, and told “When I tap the table one time, you tap the table two times; and when I tap it two times, you tap it one time”.

The children have to remember the rules of the game and inhibit the prepotent response which is to copy the tester’s number of taps. After two practice trials, the children are given 20 tapping trials and their number of correct responses are recorded.

- **Nonsense Word Repetition**

Nonsense word repetition is a measure of phonological working memory. Children hear nonsense words of different syllabic length (e.g., banifer, or perplisteronk). They are asked to repeat each word immediately after they hear it. They score one point for each accurate repetition of a nonsense word, out of a possible 40.

- **Digit Span**

The digit span task is a measure of working memory. The tester reads a string of numbers out loud, and the child has to recall and repeat the numbers back in the correct order.

Trials begin with two-digit strings, and go up to nine-digit strings. (e.g. 1-7, 4-3-7 etc.).

- **Digit Span backwards**

The backwards digit span condition requires children to recall strings of numbers in reverse order. For example, if the tester reads out 1-3-6, the child needs to reply 6-3-1.

Scores on this test represent the maximum number of number strings that children could accurately recall backwards. This complex memory task is a measure of executive-loaded working memory.

Overall, children’s performance on all four tasks improved over time from the baseline to the end of the project. The exception was for children who were given the more challenging peg tapping task at 150bpm (Beats per Minute) – these children showed no significant improvement, likely due to ceiling effects.

The school that children attended had no effect on children’s performance between the two testing time points, i.e., improvements in EF performance were seen in all three schools. ■

MAIN FINDINGS

Correlations between the different measures

In general, all measures were strongly correlated within themselves at the two time points, pre- and post-intervention. This suggests that they were consistent in what they were seeking to measure. With regards to specific elements of the assessments and their relationship to each other, the following significant correlations emerge:

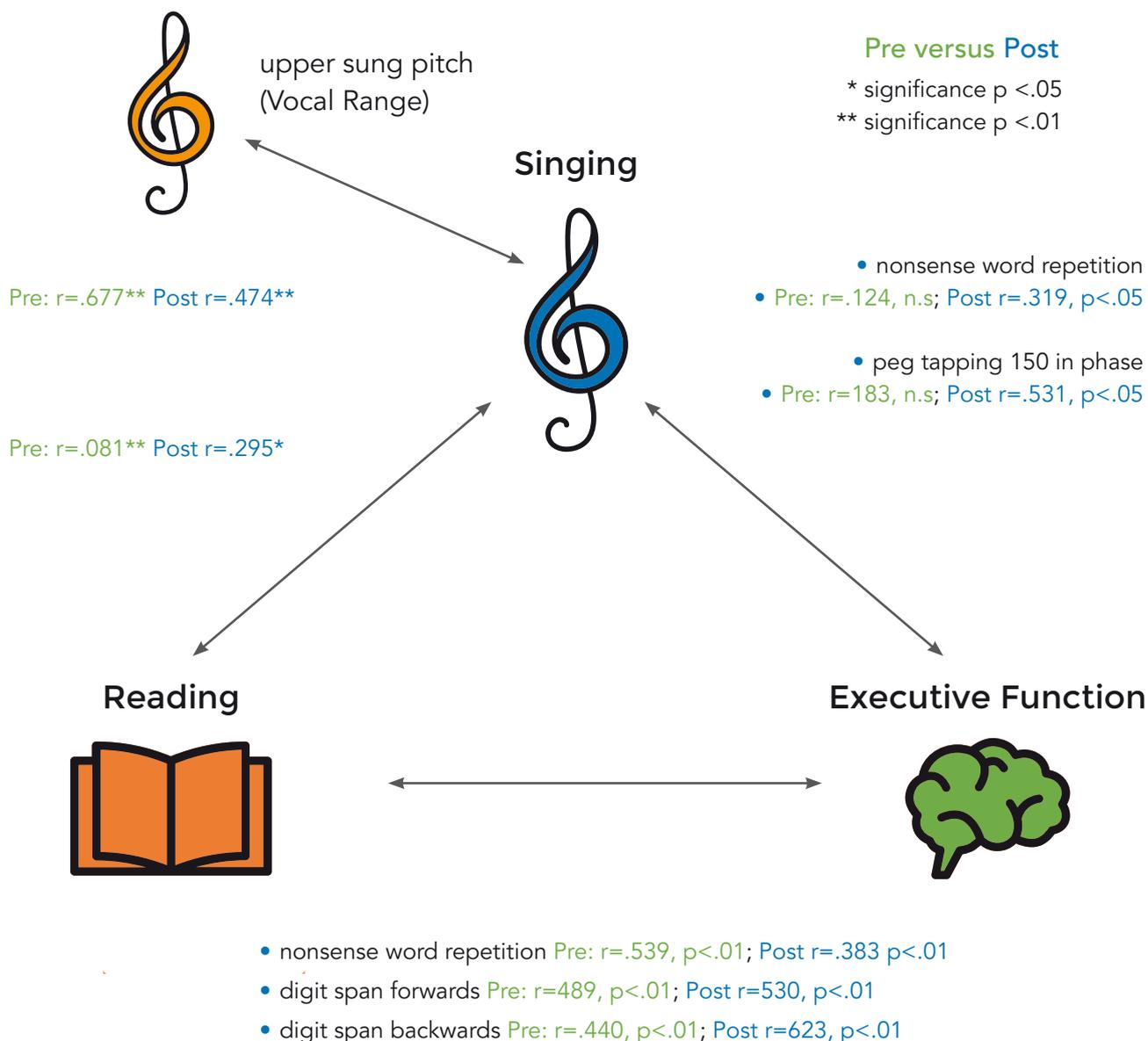
- Although there were very little changes between time points in the **Social Inclusion** and **Quality of School Life** measures, these were positively correlated with each other. Higher responses on one measure were correlated with similarly higher ratings on the other (Pre: $r=.533$, $n=.51$, $p<.01$; Post: $r=.653$, $p<.01$). However, there was no obvious statistical correlation between Social Inclusion, Quality of School Life and singing (Normalised Singing Scores (NSS)). There was one positive correlation between the post-NSS scores and an element of Quality of School Life, namely perceptions of achievement and opportunity ($r=.260$, $p<.05$).
- With regards to **singing**, children's upper sung pitch – and, by implication, sung pitch range – is positively correlated with rated singing competency (Normalised Singing Score: NSS) (Pre: $r=.677$, $p<.01$; Post: $r=.474$, $p<.01$). Children who are better singers tend to have a larger sung pitch range than their less vocally developed peers.
- With regards to **reading**, the pupils' reading assessment data are correlated positively with their singing competence at the end of the project ($r=.295$, $p<.05$), but not at the beginning ($r=.081$, n.s.). This end-of-project alignment implies that positive changes in one are likely to be related to positive changes in the other.

Although we cannot determine which might be driving the other given the relatively small number of pupils taking part, the positive correlation is encouraging and also fits with the other correlations reported below related to reading and Executive Functions.

- Children's Normalised Singing Scores (NSS) are positively correlated with aspects of **Executive Function** at the end of the project, namely (a) peg tapping 150 in phase (Pre: $r=.183$, n.s.; Post: $r=.531$, $p<.05$) – a measure of (fast) inhibition and (b) nonsense word repetition (Pre: $r=.124$, n.s.; Post: $r=.319$, $p<.05$), being a measure of phonological working memory (and hence linked to reading).
- **Reading attainment** is correlated with **Executive Functions** (EF) on three of the four EF measures – nonsense word repetition related to phonological working memory (Pre: $r=.539$, $p<.01$; Post: $r=.383$, $p<.01$), digit span forwards, a measure of working memory (Pre: $r=.489$, $p<.01$; Post: $r=.530$, $p<.01$), and digit span backwards, executive loaded working memory (Pre: $r=.440$, $p<.01$; Post: $r=.623$, $p<.01$).

The positive relationships between singing, reading and aspects of Executive Functions are represented pictorially below in Figure 11.

Figure 11: Positive correlations between singing, reading and Executive Functions at the end of the project, although less so at the beginning (n.s. = non-significant; $p < .05$ = less than 1 in 20 chance of this finding occurring accidentally; $p < .01$ = less than 1 in 100 chance of this finding occurring accidentally).



A related set of statistical analyses was computed for the Welch (1998) element of the singing assessment (related to singing in-tune) in order to allow a comparison with the recent Australian classroom-based mentoring study (Barrett et al, 2018). Very similar positive correlations emerge between these three aspects in this sub-analysis (Welch et al, under review). ■

DISCUSSION AND CONCLUSIONS

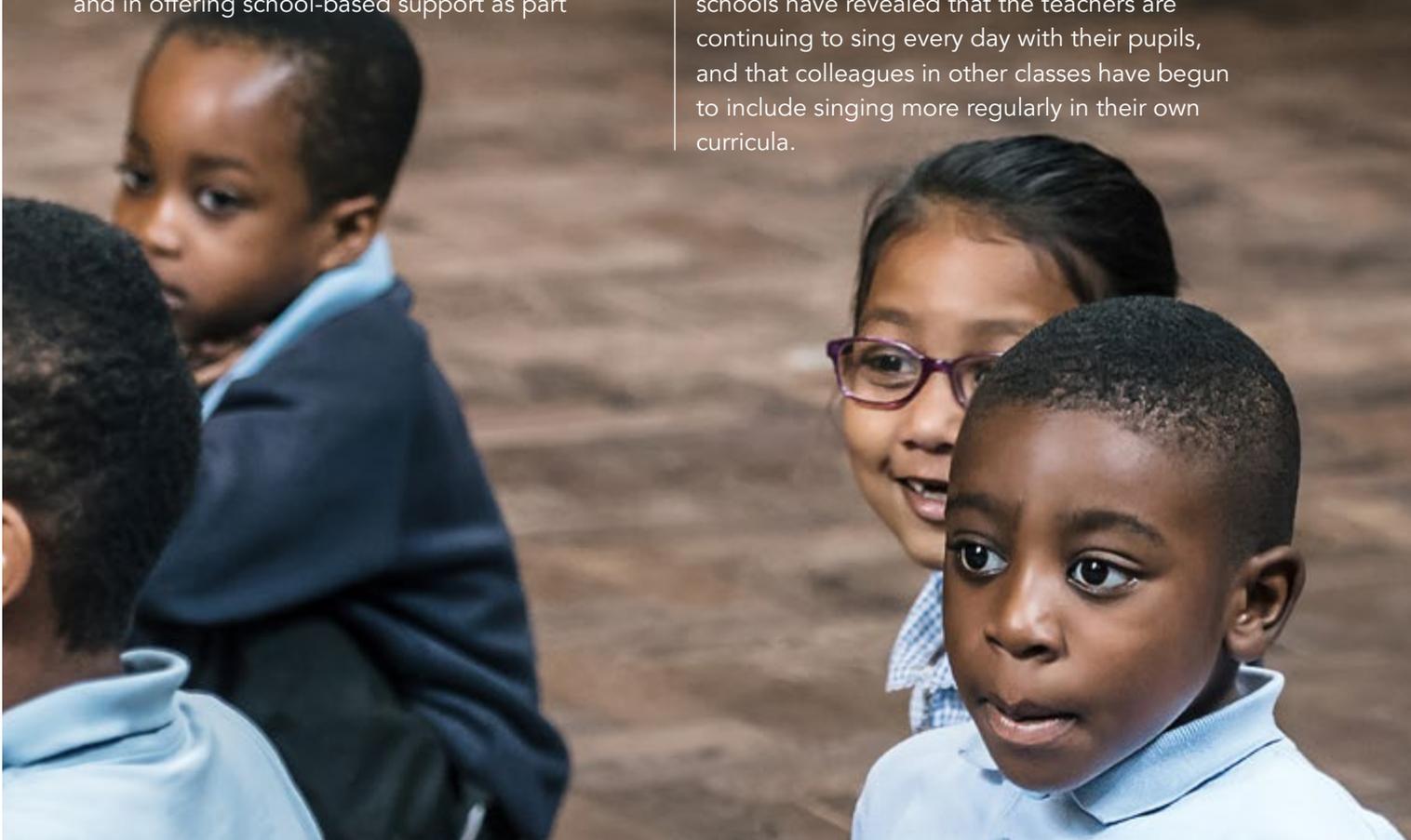
Although this could be considered to be a relatively small-scale research evaluation in terms of the numbers of participants for whom complete data sets are available, nevertheless the results are encouraging, both for the VOCES8 Foundation in their broader community-based work in schools, and also for the wider academic community who are engaged in similar evaluative research on the potential wider benefits of music participation.

Overall, the implications from the data are that the mentored classroom-based singing activities across two school terms (approximately six months) resulted in improvements in children's singing (on average), as well as possible benefits in reading and aspects of Executive Function – the latter being closely correlated to changes in the same children's reading scores. Although the underlying bases for such a potential combination of relationships needs more detailed exploration, the findings are in line with those reported elsewhere in the literature for pairs of elements (singing and reading, singing and Executive Functions).

In addition, separate qualitative research data analyses suggest that the participant generalist teachers collectively benefited from being mentored by professional singers who drew on an experienced background in working with children and in offering school-based support as part

of their portfolio careers (cf Barrett et al, 2019; Saunders et al, 2011). This was evidenced in our observations of the teachers' own singing leading class teaching in the absence of their mentors and also in teaching staff comments about their positive experiences on the project. Even though they might still feel nervous and apprehensive about singing with their classes at times, each reported a greater willingness to undertake such activity having had this professionally structured experience, not least because the 'Sing Every Day' project culminated in a morning workshop and lunchtime public performance in the VOCES8 Centre, based in a City of London church next to St Paul's Cathedral in front of an invited audience of parents, staff and friends.

Furthermore, the Foundation report that, five months after the final mentored workshops, subsequent school visits to the two intervention schools have revealed that the teachers are continuing to sing every day with their pupils, and that colleagues in other classes have begun to include singing more regularly in their own curricula.





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ANNEX 1

The VOCES8 Foundation is a music charity that has vocal performance as a central strand of its work.

Education is another core activity, including singing and voice work with schools and music hubs in England, and with other communities in the UK and overseas. Hackney Music Service Network (HMS) is the major music education provider for schools in the London Borough of Hackney. Areas of work include instrumental and singing lessons

in schools and in the wider community, as well as performance, music curriculum support, advice and Continuing Professional Development (CPD).

The International Music Education Research Centre (iMerc) at the UCL Institute of Education in London has an established track record of evaluative research for major charities and government agencies, alongside its externally funded research for UK and EC research councils.

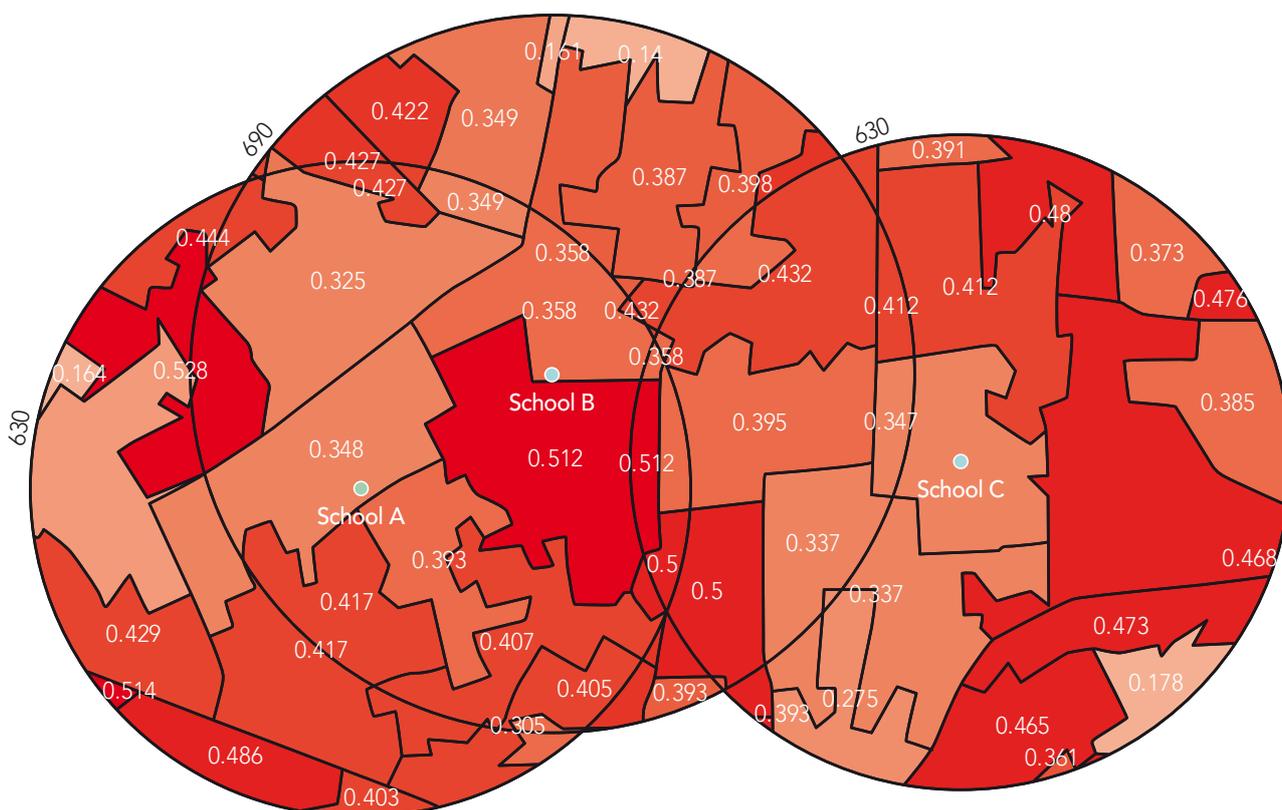
ANNEX 2

IDACI Profiles

'The Income Deprivation Affecting Children Index (IDACI) measures the proportion of all children aged 0 to 15 living in income deprived families.

This is one of two supplementary indices [included in the Indices of Multiple Deprivation 2015] and is a sub-set of the Income Deprivation Domain' (DCLG, 2015: 27).

'The larger the score, the more deprived the area... The scores are meaningful and relate to a proportion of the [0-15 child] population experiencing that type of deprivation. So, for example, if a Lower-layer Super Output Area has a score of 0.38 in the Income Deprivation Domain, this means that 38 per cent of the population is income deprived in that area' (GLA, 2019).

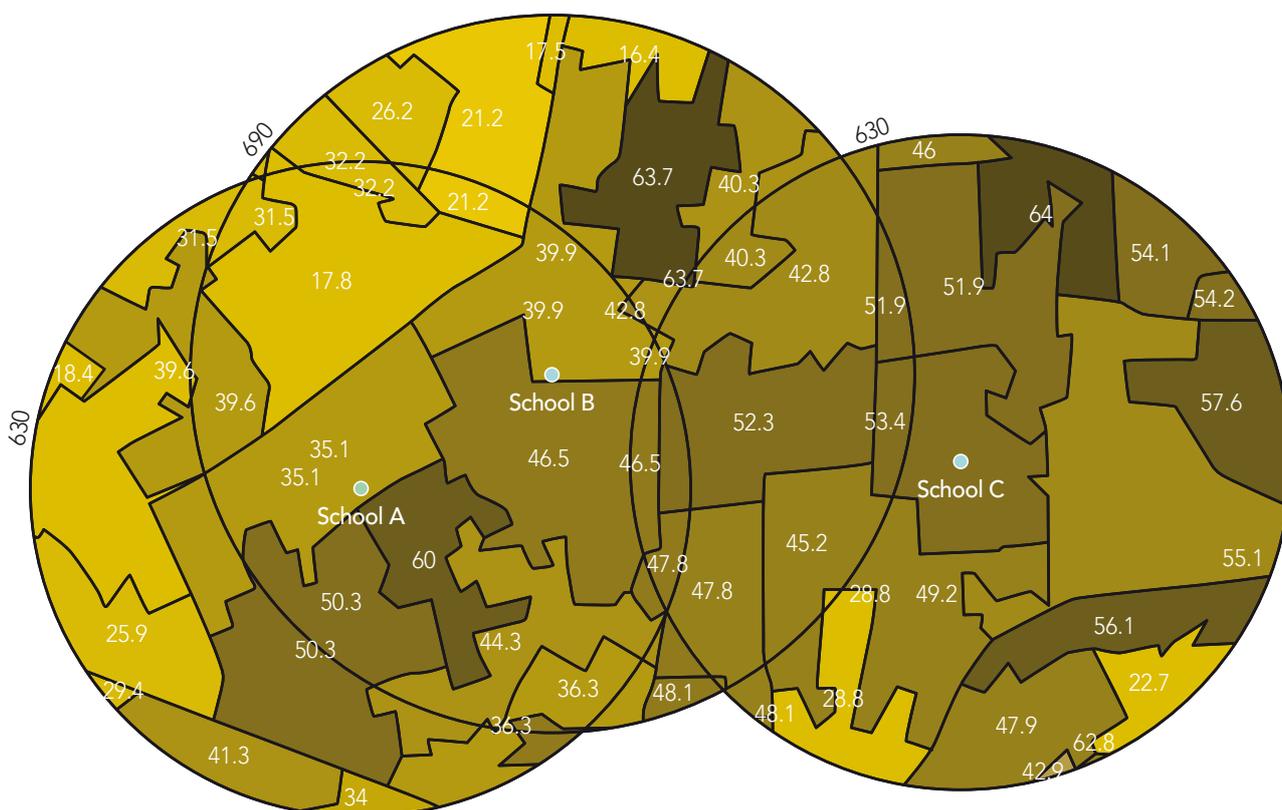


This table (taken from [Leeser, 2016: 20](#)) provides context for the scores given in the map.

Rank	IDACI Average Score		IDACI Average Rank	% of LSOAs in 10% most deprived on IDACI
1	Tower Hamlets	39.3	Tower Hamlets	Tower Hamlets
2	Middlesbrough	35.7	Islington	Middlesbrough
3	Islington	35.3	Barking & Dagenham	Liverpool
4	Nottingham	34.5	Nottingham	Islington
5	Manchester	34.3	Manchester	Knowsley
6	Kingston upon Hull	34.0	Hackney	Kingston upon Hull
7	Knowsley	33.7	Newham	Nottingham
8	Liverpool	33.4	Lambeth	Hackney
9	Blackpool	32.9	Southwark	Manchester
10	Hackney	32.2	Lewisham	Hartlepool

Source: English Indices of Deprivation 2015, Department for Communities and Local Government

BAME% Profiles by LSOA



»

Annex 2

- » The preceding map shows the percentage of the population of each LSOA's population from a Black, Asian and Minority Ethnic (BAME) background. The data are originally from the 2011 census, but have been obtained in this case from the Diversity Map hosted on Greater London Authority's London Demographics Map Portal.

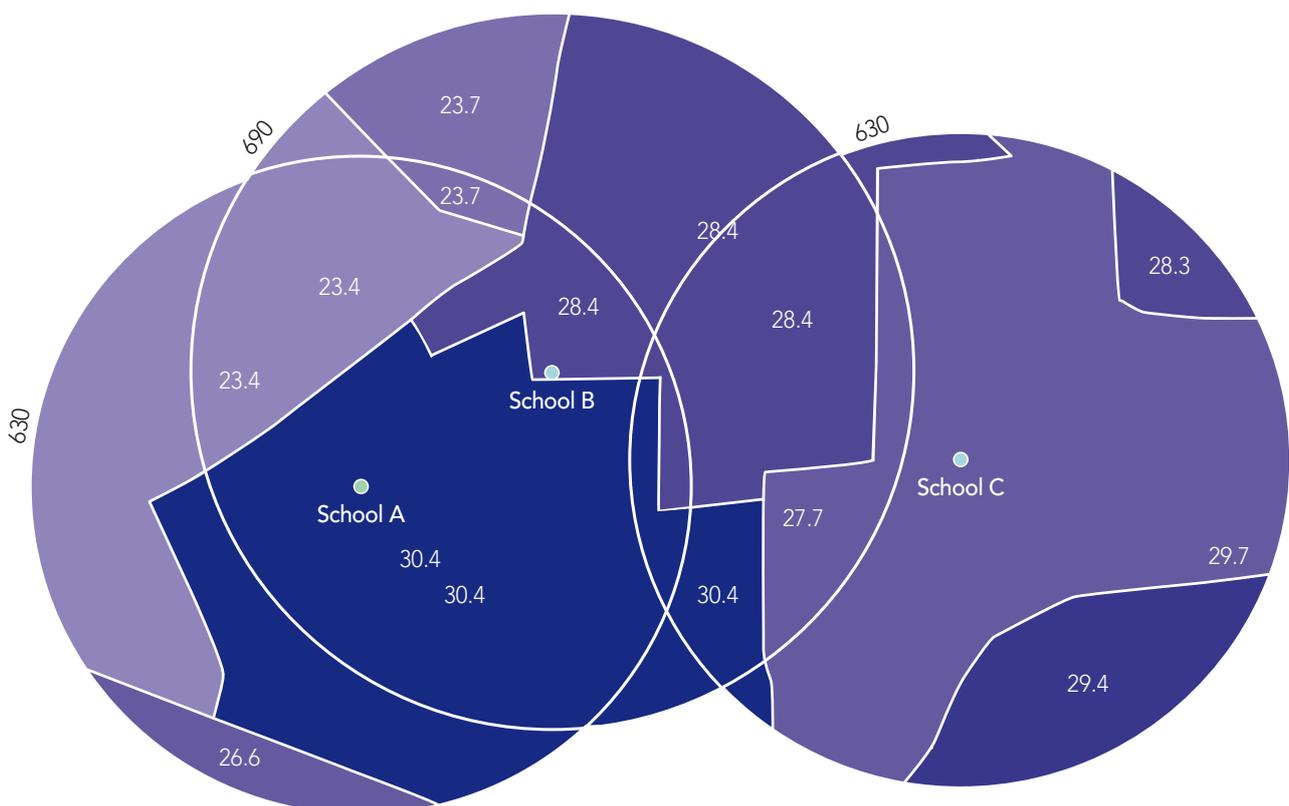
Arts Council England 'Taking Part' Estimated Segmentations (2005-06) by Electoral Ward

Arts Council England produces regular segmentation research that breaks down the English adult population in terms of their engagement with the arts. In 2008, 'CACI Ltd developed a postcode analysis model of Arts Council's 13 arts consumer segments'. The model is based on the probabilities of people living in different English postcodes to belong to the 13 segments.

It asks: Given what we know about the demographic and lifestyle characteristics of the people living in that postcode, what segment are they likely to belong to? A segment profile for a particular area is calculated by aggregating the probabilities calculated for each constituent postcode...

Please note that since the data is modelled, it may not reflect true local patterns due to various possible sources of error in the modelling. It is intended to be a source of broad insight into likely arts consumption patterns across different areas, not of precise local levels statistics.

In general, when reading this data, it should be kept in mind that the purpose of the segmentation is not so much to provide detailed statistics on any given segment, but to act as a tool for understanding broad trends and the complex interaction of various socio-demographic, behavioural and attitudinal patterns among the English adult population' (ACE, 2012).



In the preceding map, the figures given for each electoral ward relate to the percentage of local residents estimated not to be participating in arts or cultural activities as of 2005-06 (i.e., the sum of the percentages for each of the following segments: 'Time-poor dreamers', 'A quiet pint with the match', 'Older and home-bound', 'Limited means, nothing fancy'). 2005-06 is unfortunately the most recent period for which this data is available.

i. Example publications that relate to the measures of impact in and through music for national and international charities include funded reports:

1. Barrett, M., Welch, G., Zhukov, K., & Brown, J. (2016). *Evaluation of the National Music Teacher Mentoring Program pilot in NSW and Victoria. Progress Report, April 2016*. Brisbane: University of Queensland School of Music. [pp 59]
2. Creech, A., Saunders, J., & Welch, G.F. (2016). *Musical Pride: Music education in plural communities*. UCL Institute of Education, April 2016. [pp95]
3. Laurence, K., Purves, R., & Welch, G.F. (2012). *The Sage Gateshead Young Musicians Programme: A research-based overview*. London: International Music Education Research Centre, Institute of Education. [pp41] [ISBN13: 978-1-905351-23-7]
4. Purves, R., Long, M., Castell-Evans, J., & Welch, G.F. (2006). *The New London Orchestra Music and Literacy Project: A Research Evaluation*. London: Institute of Education. [pp49] [ISBN 1-905351-05-4]
5. Saunders, J., Welch, G.F., & Himonides, E. (2013). *Literacy through Music: A Research Evaluation of Teacher Inset provision*. London: International Music Education Research Centre, Institute of Education. [pp55] [ISBN10: 1-905351-25-9/ISBN13: 978-1-905351-25-1]
6. Welch, G.F., Himonides, E., Saunders, J., Papageorgi, I., Preti, C., Rinta, T., Vraka, M., Stephens Himonides, C., Stewart, C., Lanipekun, J., & Hill, J. (2010). *Researching the impact of the National Singing Programme 'Sing Up' in England: Main findings from the first three years (2007-2010). Children's singing development, self-concept and sense of social inclusion*. London: International Music Education Research Centre, Institute of Education. [pp41]. [ISBN13: 978-1-905351-13-8]
7. Welch, G.F., & Preti, C. (2007). *Soundabout: A Research Evaluation*. London: Institute of Education. [pp44] [ISBN 9781-905351-07-7]
8. Welch, G.F., Saunders, J., Hobsbaum, A., & Himonides, E. (2012). *Literacy through music: A research evaluation*. London: International Music Education Research Centre, Institute of Education [pp77]. [ISBN10: 1-905351-21-6/ISBN13: 978-1-905351-21-3]
9. Welch, G.F., Saunders, J., & Himonides, E. (2012). *European Concert Hall Organisation (ECHO): An initial benchmarking study of Education, Learning and Participation*. London: International Music Education Research Centre, Institute of Education. [pp51] [ISBN 1-905351-19-4]

- » 10. Welch, G.F. Saunders, J., Himonides, E., Purves, R., & Sarazin, M. (2014). *Every Child a Musician: Project Evaluation 2012-2013*. A review of the second full year of Every Child a Musician (ECaM), London: London Borough of Newham/International Music Education Research Centre, IoE [pp73] »
11. Welch, G.F., & Bowmer, A. (2018). *'Music for Change' An action-research, two-year, multidisciplinary collaboration between musicians and Speech and Language Therapists*. London: Creative Futures. [pp.19]

ii. Example articles in scholarly and learned international journals that relate to the measurable wider benefits of music include:

1. Barrett, M., Zhukov, K., & Brown, J.E., & Welch, G.F. (2018). Evaluating the impact of a generalist teacher-led music program on early childhood school children's singing skills and attitudes to music. *Psychology of Music*, Online 16 August 2018. DOI: 10.1177/0305735618790355
2. Barrett, M.S., Flynn, L. M., Brown, J.E., & Welch, G.F. (2019). Beliefs and Values About Music in Early Childhood Education and Care: Perspectives from Practitioners. *Frontiers in Psychology*. 10/724. doi: 10.3389/fpsyg.2019.00724
3. Barrett, M.S., Zhukov, K., Welch, G.F. (2019): Strengthening music provision in early childhood education: a collaborative self-development approach to music mentoring for generalist teachers. *Music Education Research*. <https://doi.org/10.1080/14613808.2019.1647154> Published online 12 August 2019.
4. Bowmer, A., Mason, K., Knight, J., & Welch, G. (2018). Investigating the impact of a musical intervention on preschool children's executive function. *Frontiers in Psychology*. (in press)
5. Henriksson-Macaulay, L., & Welch, G.F. (2015). The musical key to babies' cognitive and social development. *International Journal of Birth and Parent Education*. 2(2), 21-25. <http://www.ijbpe.co.uk/index.php/87-issue-6/165-the-musical-key-to-babies-cognitive-and-social-development>
6. Howard, D.M., Welch, G.F., Himonides, E., & Owens, M. (2018/2019). The developing female chorister voice: case-study evidence of musical development. *Journal of Voice*. Originally published online, 21 May 2018; (2019) 33(4), 516-525; DOI: 10.1016/j.jvoice.2018.01.014
7. Preti, C., & Welch, G.F. (2012). The inherent challenges in creative musical performance in a paediatric hospital setting. *Psychology of Music*. Published online 11 June 2012, DOI: 10.1177/0305735612442976. <http://pom.sagepub.com/content/early/2012/06/11/0305735612442976>
8. Viladot, L., Hilton, C., Casals, A., Saunders, J., Carrillo, C., Henley, J., González-Martín, C., Prat, M., & Welch, G. (2017). The integration of music and mathematics education in Catalonia and England: Perspectives on theory and practice. *Music Education Research*, <http://dx.doi.org/10.1080/14613808.2017.1290595>
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10. Welch, G.F., Saunders, J., Edwards, S., Palmer, Z., Himonides, E., Knight, J., Mahon, M., Griffin, S., & Vickers, D.A. (2015). Using singing to nurture children's hearing? A pilot study. *Cochlear Implants International*, 16 (S3), S63-70. DOI 10.1179/1467010015Z.000000000276

11. Williams, K.E., Barrett, M.S., Welch, G.F., Abad, V., & Broughton, M. (2015). Associations between early shared music activities in the home and later child outcomes: Findings from the Longitudinal Study of Australian Children. *Early Childhood Research Quarterly*, 31, 113-124.
<http://dx.doi.org/10.1016/j.ecresq.2015.01.004>

See also related overview texts on singing and/or music education in general:

1. Welch, G.F., Howard, D.M., & Nix, J. (Eds) (2019). *The Oxford Handbook of Singing*. New York: Oxford University Press.
2. McPherson, G., & Welch, G.F. (Eds). (2018). *The Oxford Handbook of Music Education*. New York: Oxford University Press. [2nd Edition, 5 volumes]
 1. *Music and Music Education in People's Lives, An Oxford Handbook of Music Education, Volume 1*
 2. *Music Learning and Teaching in Infancy, Childhood and Adolescence, An Oxford Handbook of Music Education, Volume 2*
 3. *Vocal, Instrumental and Ensemble Learning and Teaching, An Oxford Handbook of Music Education, Volume 3*
 4. *Special Needs, Community Music and Adult Learning, An Oxford Handbook of Music Education, Volume 4*
 5. *Creativities, Technologies, and Media in Music Learning and Teaching, An Oxford Handbook of Music Education, Volume 5*
3. Welch, G.F., & Preti, C. (2019). Singing as inter- and intra-personal communication. In: G. Welch, D.M. Howard, & J. Nix (Eds). *The Oxford Handbook of Singing*. 10.1093/oxfordhb/9780199660773.013.73
4. Howard, D.M., Welch, G.F., & Himonides, E. (2019). The female choir voice: Important considerations. In F. La (Ed). *The Female Singing Voice*. London: Compton Publishing. ISBN: 978-1-909082-19-9
5. Lu, C., Saunders, J., & Welch, G.F. (2017). A pilot study of seven-year-old children's singing behaviour, development and engagement in China. *The Changing Face of Music and Art Education (CFMAE)* [special issue on singing and voice] 9, 23-49.
<https://cfmaejournal.wordpress.com/2019/01/29/cfmae-vol-9-2017-singing-voice-special-issue/>
6. Nair, G., Howard, D.M., & Welch (2019). Practical Voice Analyses and their Application in the Studio. In: G. Welch, D.M. Howard, & J. Nix (Eds). *The Oxford Handbook of Singing*. 10.1093/oxfordhb/9780199660773.013.56
7. Warran, K., & Welch, G.F. (2019). Research evidence: Supporting older people through orchestral music. In S. Derbyshire and M. Swann (Eds). "From Bingo to Bartok" *Creative and Innovative Approaches to Involving Older People with Orchestras*, (pp. 40-44). London: Orchestras Live.
<http://www.orchestraslive.org.uk/news/bingo-to-bartok/>



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