

# The impact of group singing on children's subjective well-being: Mixed methods research

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## Abstract

Improving the well-being of children has been widely discussed, yet research-exploring strategies aimed at improving this in school-based settings is still an emerging field of research. This mixed methods study investigated the impact of a singing intervention on the subjective well-being of a class of 27 children aged 8–9. Over the course of 2 weeks, the class took part in 20 minutes of daily group singing with a focus on learning popular music that they chose. The sessions were delivered by a generalist primary teacher who had previously worked as a music specialist. In measuring children's subjective well-being with emphasis on life satisfaction, the 'Student's Life Satisfaction Scale' was administered to the children pre- and post-intervention. Of the 27 children, four (identified as disadvantaged) were interviewed as part of a focus group at the end of the intervention and questions centred around the children's opinions and enjoyment of the intervention. Results indicated that there was a much lower proportion of children with low subjective well-being scores after the intervention than before the intervention (as measured by the SLSS questionnaire). Analysis of the Likert scale data showed a 'medium' ( $d = 0.5$ ) effect size. Thematic analysis of the focus group revealed that singing had a broadly positive effect on the well-being of

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those children, which is consistent with findings found in similar trials involving adults. Links to the theoretical framework of 'flow' by Csikszentmihalyi (1975) are drawn, alongside the PERMA well-being framework model (Seligman, 2012) to help explain the effects of being engrossed in an enjoyable activity such as group singing and how this in turn can impact subjective well-being.

#### KEYWORDS

group singing, primary school children, well-being

## INTRODUCTION

The mental health of children has been deteriorating for over a decade (The Children's Society, 2022). Children's enjoyment of school in the UK has been falling, and these trends have a strong inverse relationship with the number of children self-harming and rates of depression in young people (The Children's Society, 2022). Research evidence (Bailey & Davidson, 2002, 2005; Clift et al., 2010; Clift & Hancox, 2010; Palmer, 2008; Rickson et al., 2018; Silber, 2005) suggests that group singing has the potential to improve a person's psychological well-being. Singing can help people improve their self-confidence and sense of achievement (Bailey & Davidson, 2002, 2005; Silber, 2005). Group singing also supports friendships, group identity, social connectedness and social cohesion (Bungay et al., 2010; Latimer, 2008). Singing can also be both relaxing and energising while helping to relieve stress and tension (Bailey & Davidson, 2003; Boyce-Tillman, 2021; Jacob et al., 2009). The benefits of group singing can further be exemplified in the research of Mullen (2016) who found music interventions to affect personal and social change in children.

## Well-being and happiness

Defining well-being has proven to be problematic across a variety of research fields due to the complex and regularly contested multidimensional concepts that the term tries to capture (Svane, Evans and Carter (2019)). Well-being can be described as having the presence of positive emotions (e.g. happiness and fulfilment) and an absence of negative emotions (e.g. anxiety and depression) (Andrews & Withey, 1976; Diener, 2000; Frey & Stutzer, 2002; Ryff & Keyes, 1995). This definition is agreed upon across the literature and can be further explained as having a satisfaction of life, positive functioning and judging life positively (Diener, 2000; Veenhoven, 2008). Seligman (2012) in discussing the building blocks of well-being proposed the PERMA model, which conceptualised well-being as the combination of elements to include, Positive Emotion, Engagement, Relationships, Meaning and Accomplishment.

In education settings, the conceptualisation of well-being draws on disciplines such as medicine and psychology, and well-being is encouraged through health promotion (Svane et al., 2019). Since the 2000s, well-being in UK schools has been promoted through various interventions including counselling, social work and psychological interventions such as MindMatters (Wyn

et al., 2000) and KidsMatter (Graetz et al., 2008). In their investigation into well-being interventions in schools, Svane et al. (2019) found that ‘the most numerous [interventions] were social emotional learning interventions’ (p.8) followed by interventions focussed on improving subjective well-being and life satisfaction. They do, however, draw attention to the fact that many of the interventions they observed define well-being differently, ranging from definitions involving individuals and their environments to well-being purely being the absence of mental health symptoms.

Rickson et al. (2018) summarise the indicators of well-being as shown in Table 1.

Although Rickson et al.’s (2018) study focussed on the well-being of children in a school, which was affected by a series of earthquakes, it could be argued that these indicators equally could apply to school children in a range of circumstances.

Table 1 shows different constructs for measuring well-being. Some measures focus on more external influences such as physical health and the quality of education the child receives, whereas others ‘collect people’s views about how their life is going’ (known as ‘subjective well-being’) (The Children’s Society, 2022, p.9). The Children’s Society (2022) suggests that well-being is a stable concept that can be measured due to the reliability and consistency of responses to survey questions over time. In contrast to well-being, children’s feelings of happiness and sadness vary greatly and are not a very stable measure of well-being over time (The Children’s Society, 2013). Ryan and Deci’s (2001) study also describes an immediate state of happiness as ‘hedonic well-being’ and the ability to fulfil one’s potential on a broader sense as ‘eudaimonic well-being’.

TABLE 1 Indicators of well-being (Rickson et al., 2018).

Well-being indicators	
Positivity	Experiencing positive emotions Feeling safe and cared for Having a sense of belonging Experiencing fun and amusement Feeling appreciative and grateful Feeling optimistic
Relationships	Having positive relationships
Achievement-related outcomes	Feeling capable Experiencing progress, achievement, mastery Working hard and persisting Feeling satisfied
Strengths	Having self-knowledge Understanding and applying strengths
Purpose	Feeling connected to something greater than oneself Believing school activity is valuable
Engagement	Feeling connected to, absorbed in and interested in activities
Resilience	Having courage in challenging situations Bouncing back after setbacks and mistakes
Identity	Having positive identity
Physical	Being active Feeling healthy

In the light of the foregoing arguments, our study focussed on measuring children's subjective well-being with particular emphasis on life satisfaction. (The Children's Society, 2022).

## The relationship between music and well-being

The relationship between well-being and music is well-researched and documented (MacDonald et al., 2012; Spintge & Droh, 1992; Zoe et al., 2015). This relationship has attracted research from multiple academic spectrums, including engineers trying to help individuals with physical disabilities explore their creativity, arts organisations looking to use music in community contexts to help with social cohesion and surgeons playing music to patients during surgery to alleviate stress and anxiety (Pothoulaki et al., 2012). More current research in music therapy as a multidisciplinary field has resulted in an influx of new academic research and public interest (Cassidy & MacDonald, 2010). The challenge across the literature is the establishment of 'causal links between musical activities on the one hand and specific individual health and well-being benefits on the other' (MacDonald et al., 2012, p.1).

When researching the links between music making and well-being, Boyce-Tillman (2021) discusses the term 'eudaimonia' and describes it as a concept that began with Aristotle and Plato and focusses on human flourishing through the combination of elements from the previously discussed PERMA model (Boyce-Tillman, 2021; Seligman, 2012; Smith et al., 2021). Verneert et al. (2021) examined the eudaimonic potential of informal community singing with homeless people and found that a sense of belonging, 'flow', meaningfulness and satisfaction were all present in their analysis of the open interviews. Furthermore, in her review of eudaimonia and music making in educational contexts, Boyce-Tillman (2021) asserts that music education has too often focussed on academic outcomes and should consider the importance of using music education as a vehicle for living an eudaimonic life.

There has been a growth in the number of community singing groups with health benefits being the primary reason for participation (MacDonald et al., 2012). The growing recognition that music interventions positively impact on a person's health is driven by the increasing number of studies and meta-analyses specifically looking at this relationship (Clift et al., 2010; Dileo, 2006; Jang & Park, 2018; Welch, 2012; Whipple, 2004). This research aimed at contributing to the research on the relationship between well-being and music for children in a primary school setting.

## Group singing with children

There is a small yet growing field of research examining the impact of singing on the well-being of children (Hampshire & Matthijsse, 2010; Hinshaw et al., 2015; Irons et al., 2012; Rickson et al., 2018; Welch, 2012). However, in respect to the national curriculum in the UK (and external pressures on schools to achieve good exam results), evidence from Ofsted's review of the breadth of education offered to children has shown that music education is regularly reduced (Spielman, 2017).

In a review of a popular UK youth singing programme called 'Sing Up', Welch et al. (2010) reported participants to have had a variety of physical, health and psychological benefits when compared with those who did not participate in the programme. These findings are echoed in research by Irons et al. (2012) who reported an improvement in physical health and quality of

life for children with cystic fibrosis. Furthermore, Wills (2011) found singing to positively impact children's spiritual well-being when observed in a school setting. Another factor impacting the effectiveness of the delivery of singing interventions in schools (unsurprisingly) depends on the qualifications of the teacher with advantages of music specialists leading the interventions (Welch et al., 2020).

We found Rickson et al.'s (2018) study relevant to our study. They investigated whether participation in singing had an impact on students' well-being following a series of earthquakes that hit the community between 2010 and 2011 (Rickson et al., 2018). They used a variety of measures over multiple cycles of action research including teacher's journals, children's artwork, well-being surveys and focus groups and identified four key themes that are consistent with themes identified in other studies examining singing and well-being. Table 2 illustrates how the themes in Rickson et al.'s (2018) study align with themes found in a study by Bailey and Davidson (2002) exploring the effects of setting up a choir for homeless men, and a 2010 study by Clift and Hancox observing the effects of singing on psychological well-being of choristers.

Another innovative intervention in the field involved Mullen's (2016) work with children excluded from school. His research into the elements at play in group music making identified six dynamically interacting elements that were present in all of his sessions with the children (see Table 3 for a list of these elements). Mullen's (2016) research found that the six elements needed to be optimised and understood in order for the sessions to be perceived positively by the participants but that the factors resulting in what was seen as a positive experience were constantly shifting. Mullen (2016) summarised that for children to gain the most benefit from these sessions, the facilitator needed to be cognisant to these elements and adapt accordingly. Of course, this reflexivity demands a high degree of knowledge and skill from the practitioner.

Three themes appear consistently throughout the literature: improved well-being, social connectedness and a sense of cognitive stimulation and concentration. Hampshire and Matthijsse (2010) argue that although there is a growing number of studies reporting the positive benefits of singing on the well-being of children, the evidence is heavily inconclusive and inconsistent. Clift et al. (2010) echo this point in their meta-analysis of singing-based well-being interventions and assert that research to date is inconclusive due to small samples, lack of randomised control conditions and inferential statistics that includes the effect size of the intervention. As such, additional statistical data are not only needed but an in-depth understanding of the processes (e.g. improving health, physical activity, learning and social inclusion) that explain the results is required. Further studies on well-being need to ascertain not only what is the impact of the intervention but why; thereby arguing for a mixed methods approach utilising both quantitative and qualitative data analysis.

**TABLE 2** A comparison of themes identified in three studies examining the relationship between group singing and well-being.

<b>Bailey and Davidson (2002)</b>	<b>Rickson et al. (2018)</b>	<b>Clift and Hancox (2010)</b>
Enhancing well-being and reducing depression and sense of self-worth	Improved well-being Motivating and equalising	Positive effect
Social skills	Sense of connection and belonging	Social support, Regular commitment
Concentration	Focus on success and achievement	Focussed attention, Controlled deep breathing, Cognitive stimulation

**TABLE 3** A comparison of elements identified by Mullen (2016) with elements seen in the current study.

Mullen's identified elements (2016)	Current study
<i>Organising structures:</i> use of the space, seating, resources and time of the day	Children were allowed to choose where they sit within the room and the intervention happened after lunchtime, which the first author knew was a particularly low-energy part of the school day for many of the children
<i>Focus/Energy:</i> adapting to the focus and energy of the group	The first author adapted the types of vocal warmups, exercises and intensity of the singing depending on the responses of the children that session
<i>Material/ideas:</i> using a range of genres, working on student engagement and sharing ownership of the session and pieces	Children had an input about what songs were chosen to learn and democratically voted which ones were selected. Children also were able to choose which order we worked on the songs during the intervention
<i>Intention of the leader:</i> e.g., musical-artistic, personal and/or social-cultural outcomes	The intentions of the first author were clear as to observe any impact of regular group singing on the subjective well-being of the participants
<i>Reflection and reflexivity:</i> the ability of the leader to reflect and react to what happens before, during and after the sessions	As this was part of a research study, the first author used informal feedback from the children to ensure the intervention remained engaging and enjoyable throughout by adapting the focus/energy element accordingly
<i>What the children bring:</i> the needs of the group, their likes and interests and how they feel about the adults in the room	The children chose the songs to focus on based on their interests, they also had a good working relationship with the first author and with each other in the class

## Flow

In the previous section, studies demonstrated that music may aid emotional regulation, social connectedness and cognitive simulation (Dingle et al., 2017; Keeler et al., 2015). Keeler et al. (2015) align these effects with Csikszentmihalyi's theoretical construct of flow (Csikszentmihalyi, 1975) that can be defined as 'an optimal psychological state in which a person is completely absorbed in the task at hand' (Keeler et al., 2015, p.1). Csikszentmihalyi (1990) defines flow as:

a state of concentration or complete absorption with the activity at hand and the situation. It is a state in which people are so involved in an activity that nothing else seems to matter (p.6).

For a 'flow-state' (Csikszentmihalyi, 1975) to be induced, there needs to be a balance between the level of challenge of a task and the skills of the participant. The conditions are optimal when there is a high-challenge and high-skill balance; otherwise, the participant has a risk of being apathetic (Csikszentmihalyi, 1975). This relationship between skill and challenge is shown in Figure 1.

The Rickson et al.'s (2018) study commented on this relationship between skill and challenge when discussing their findings. They identified a code in their thematic analysis labelled 'we practised and achieved success (p.9)'. Similar codes have also been identified in other studies as previously illustrated in Table 2. Feelings of success and achievement were observed in the Rickson

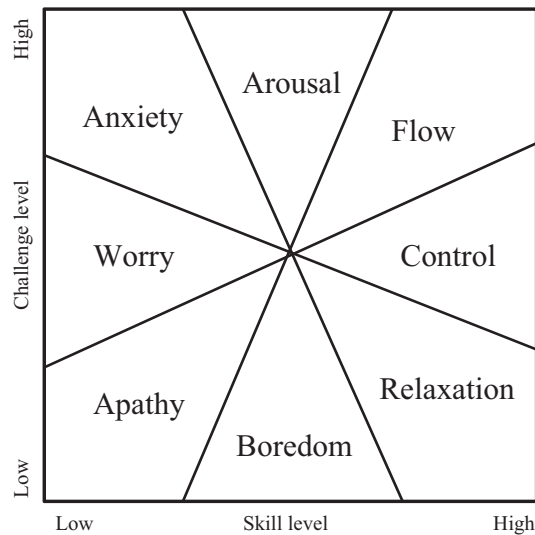


FIGURE 1 Relationship between skills and challenge (Csikszentmihalyi, 1997, p.13).

et al.'s (2018) study, and they attribute these observations to the children working hard and practising during the singing intervention. One of the teachers who took part in the trial commented that it 'gets you focused on what you need to do (Rickson et al., 2018, p.9)', which is aligned closely to the conditions that must be met to enter a 'flow state': to be involved in an activity with clear goals and progress; the task must have clear and immediate feedback; and there must be a good balance between perceived challenge and perceived skill (Csikszentmihályi et al., 2005).

When examining 'flow' from a clinical perspective, there is a small, yet growing corpus of research (Csikszentmihalyi & LeFevre, 1989; Engeser, 2012; Salanova et al., 2014) trying to measure and identify 'flow' through the presence of certain chemicals in the human body. Keeler et al. (2015) studied the levels of plasma oxytocin and adrenocorticotrophic hormone in a group of jazz singers before and after singing. They theorise that these chemicals could be the underlying neurochemical signifiers of a 'flow state' (Keeler et al., 2015). They found that singing had a significant impact on the data gathered in a pretest, post-test trial design and recommend further investigation into using neurochemical signifiers to identify the presence of 'flow' and improving well-being (Keeler et al., 2015).

Indeed, positive consequences of flow have been observed in multiple studies (Csikszentmihalyi & LeFevre, 1989; Engeser, 2012; Salanova et al., 2014), across a variety of disciplines, reporting increases in creativity, motivation and well-being. If singing can invoke a state of flow, and flow can help improve our well-being, then these links are worthy of further investigation to help advance this emerging field of research.

## Disadvantaged children

Research from the Organisation for Economic Co-operation and Development (OECD) found that deprived pupils in the UK are amongst the unhappiest in the world (OECD, 2018). The life satisfaction of 15-year-olds has declined in the UK at a faster rate than anywhere else, with a 13-percentage point drop since 2015 (OECD, 2018). Moreover, economically disadvantaged pupils have poor academic outcomes at every stage of their education (Long & Bolton, 2015). Within England, disad-

vantaged pupils can be identified as ‘children who have been eligible for free school meals during the past six years, or who have been in care’ (Long & Bolton, 2015, p.4). This is a widely accepted measure of deprivation across English local educational authorities, although it should be noted that it has been criticised for being a too ‘black and white’ measure of deprivation due to it not capturing families and children that exist just above the measure of deprivation, and giving no indication of how badly deprived a family might be (Long & Bolton, 2015).

Data, as reported in The Children’s Society latest report (2022), in relation to vulnerable and disadvantaged pupils form the impetus for this research. As an educator, the first author sees first-hand the impact that low subjective well-being has on a child’s happiness and learning, and he is interested in researching ways that are effective in tackling this. This is particularly relevant to those children identified as ‘disadvantaged’, due to the relenting statistical reports of how disadvantaged children typically do worse in life than their nondisadvantaged counterparts (OECD, 2018; The Children’s Society, 2022).

## Research questions and objectives

Our literature review showed that group singing seems to have an impact on the well-being of adults. However, our review also showed that there is a growing amount of research that focus on children as participants (see for example, Hampshire & Matthijsse, 2010; Hinshaw et al., 2015; Irons et al., 2012; Mullen, 2016; Rickson et al., 2018; Welch, 2012). The few studies that have been conducted with children as participants often have small sample sizes and according to Clift et al.’s (2010) unreliable methodologies. With this in mind, this study aimed at answering the following research question:

- What effect does regular group singing practice have on the subjective well-being of a class of children?

The objectives of this research were to:

- Identify whether group singing can impact children’s subjective well-being.
- Examine why singing affects children’s well-being with a focus on those identified as ‘disadvantaged’.
- Contribute to the literature in this field of research.

## METHOD

This study employed a mixed methods approach to research design. The quantitative research of this study was quasi-experimental (where one group experience the intervention, and pre- and post-test data were collected (Cohen et al., 2007)). The qualitative research drew on the constructivist paradigm utilising a focus group with a small number of children.

## Participants

Twenty-seven children in a Year 4 class (aged 8–9) took part in the study as research participants. Within the class, there were five disadvantaged children (as defined as those eligible for free school meals (Long & Bolton, 2015)). The whole class took part in the intervention, with all filling in pre- and post-tests of the Student Life Satisfaction Scale (SLSS) yielding quantitative data and qualitative data collection (pupil focus group) only including the disadvantaged children.



## Ethical considerations

Appropriate ethical procedures were followed according to the University of Chichester guidelines. In addition, we adhered to the ethical guidelines outlined by the British Education Research Association (BERA) (2019). As part of the English National Curriculum (Department for Education, 2014), primary school children take part in music and singing. Therefore, this research did not require the children to do anything outside of what they would typically be expected to do at school. Permission was gained from the head teacher, and a letter was sent to parents and carers outlining the intervention and its intentions. All data, including the school and children's names, were anonymised. We made provisions to signpost any child that presented anxiety or distress as a result of their participation in the intervention. This was in line with the school's policy, procedures and guidance.

## Intervention

The class of twenty-seven children took part in group singing every day (Monday–Friday) for 20 min. They stayed in their classroom to do this and were given the individual choice to stay in their seat, stand or come and sit on the carpet in front of the interactive whiteboard. In this way, they participated in the session in a way they felt most comfortable with. The sessions took part after the children's lunch break, and they focussed on learning three songs that, before the intervention, they had the option of choosing from (through a class vote). Sessions were led by the first author, and the structure of each session consisted of: a short vocal warmup, review of previous music learned and learning of new material. It is important to this study to state that although the first author was acting as a generalist teacher at the time of the intervention, they had previously worked as a specialist music teacher and had the knowledge and experience to run a group singing session confidently. The songs chosen by the children were:

- Shotgun—George Ezra
- High Hopes—Panic at the Disco
- Don't Give up on Me—Andy Grammar

The rationale for structuring the intervention in this way was to try and mimic the weekly rehearsals of the adult choirs discussed in Clift et al.'s (2010) study, and Rickson et al.'s (2018) study, which had a similar setting to the current research.

Additionally, this study can be compared with elements of a model outlined by Mullen (2016). Indeed, this study shared a close alignment to many of Mullen's (2016) identified elements. Table 3 illustrates these relationships and how they are present in the design of this study (Table 3).

## Data collection and analysis

### Quantitative

Several quantitative measures of well-being were considered including the Warwick–Edinburgh Mental Well-being Scale (WEMWBS) (Warwick.ac.uk, 2019) and Student's Life Satisfaction Scale (SLSS) (Huebner, 1991). The WEMWBS has only been approved for use with children aged 13 and above (Warwick.ac.uk, 2019), whereas the SLSS has previously been validated for use with young children. Consequently, we selected the SLSS over the WEMWBS as our research participants were

under 13 years old. The SLSS questionnaire is a 7-item self-reported Likert scale that measures a child's global life satisfaction over and above that of specific domains (Saklofske et al., 2013). Consequently, we viewed children's global life satisfaction as a proxy for subjective well-being. The SLSS has a reported unidimensional factor structure, and it has a high index of reliability over a two-week test-retest cycle ( $r = .74$ ). Also, it has been shown to have a strong internal consistency ( $\alpha = .82$ ) and has been shown to be a good measure of life satisfaction of children aged 8–18 (Huebner, 1991; Jiang & Huebner, 2017). We obtained data about children's well-being at two time points, and investigated whether the SLSS would be a reliable instrument when used to measure well-being in a different cultural context, that being, England given that the SLSS was developed in the US context.

First, using the SLSS instrument, we surveyed 100 children in an English primary school before the intervention (group singing) and analysed their responses by carrying out reliability and factor analyses. A reliability analysis was carried out on the 7 items of the SLSS questionnaire. We also computed the composite score of the instrument and used it as a measure of well-being. Thus, the higher the composite score on the scale, the higher the perceived subjective well-being of the research participants. We obtained descriptive statistics of the composite scores.

Second, of the 100 children who completed the survey at Time 1, 27 completed the SLSS questionnaire again after participating in group singing. Thus, we obtained pre- and postintervention data on the SLSS questionnaire. We carried out a paired samples *t*-test to ascertain whether there was a statistically significant difference between the pre- and postintervention composite scores. We assumed the composite scores to be continuous data and carried out a normality test on the differences between the pre- and post-intervention composite scores in order to determine whether the differences were normally distributed.

## Qualitative—Thematic analysis

The focus group with the four children identified as disadvantaged took place on the final day of the intervention to gain an insight into their views about how the group singing made them feel. The rationale for choosing the disadvantaged children for the focus group was due to the literature review revealing that this subgroup typically have a lower sense of subjective well-being when compared to nondisadvantaged children and that this has a negative impact on their academic performance (The Children's Society, 2022).

Braun and Clarke (2006) set out a detailed checklist (see Table 3) for consideration when designing and conducting thematic analysis that was followed in respect of our study. We thematically analysed the focus group transcripts and followed the guidance advocated by Braun and Clarke (2006) (Table 4).

## RESULTS

### Quantitative data

The data was screened for outliers. The responses of three participants were disregarded because they had missing answers. The minimum amount of data for the exploratory factor analysis (EFA) was satisfied, with a final sample size of 100 responses providing a ratio of over 14 responses per question (Field, 2009).

TABLE 4 Thematic analysis phases as advised by Braun and Clarke (2006, p.87).

Phase	Examples of procedure for each step
1. Familiarising oneself with the data	Transcribing data; reading and rereading; noting down initial codes
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the data set, collating data relevant to each code
3. Searching for the themes	Collating codes into potential themes, gathering all data relevant to each potential theme
4. Involved reviewing the themes	Checking whether the themes work in relation to the coded extracts and the entire data set; generate a thematic 'map'
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme; generation of clear names for each theme
6. Producing the report	Final opportunity for analysis selecting appropriate extracts; discussion of the analysis; relate back to the research question of literature; produce report

All seven questions in the Likert scale were subjected to the EFA with an oblique rotation (obli-min). The Kaiser–Meyer–Olkin measure,  $KMO = 0.857$ , showed that the sample size was adequate for the EFA because it exceeded the recommended value of 0.600 (Field, 2009). Furthermore, Bartlett's test of sphericity, which tests the overall significance of all the correlations within the correlation matrix, was significant ( $\chi^2(21) = 465.257, p < .001$ ), indicating that it was appropriate to proceed with the factor analysis.

One factor, namely well-being, with an eigenvalue greater than 1 was extracted with a value of 4.64 accounting for 66.29% variance in the data. The next largest factor had an eigenvalue of 0.791 (less than 1) and was therefore rejected (Field, 2009). Factor loadings ranged from 0.437 to 0.768. This supports a previous analysis of the factor structure of the SLSS (Jiang & Huebner, 2017), its unidimensional factor structure, and is represented by the scree plot shown in Figure 2.

The reliability analysis showed that SLSS was reliable at pre-intervention ( $\alpha = .89$ ) and post-intervention ( $\alpha = .91$ ), respectively. Most items, when deleted, resulted in a decrease in the Cronbach alpha. On the basis of these results, we decided to retain all items in our statistical analysis, and this approach was consistent with previous research (Jiang & Huebner, 2017).

The results of the reliability analysis showed that the instrument had a Cronbach alpha of 0.9 and therefore is reliable as a measure of well-being in the England context. Moreover, the results of the factor analysis showed the items on the SLSS were highly correlated meaning that they all measured the same construct that is, well-being. In addition, the factor analysis showed that the SLSS had a unidimensional structure. These results are consistent with those reported by Weber and Ruch (2012).

The maximum possible total SLSS score is 42. We assumed any score below 21 to be a low well-being score. We analysed and compared the pre- and post-intervention well-being scores of the 27 children who completed the SLSS at both times. Figure 3 shows the proportion of children with low (41%) and high (59%) well-being scores before the intervention.

Figure 4 also shows the proportion of children with low (11%) and high (89%) well-being scores after the intervention. The results in Figures 3 and 4 indicate that there was a much lower proportion of children with low well-being scores after the intervention than before the intervention.

The paired samples *t*-test showed a statistically significant difference in the means of the composite score of the subjective well-being pre- ( $M = 26.07, SD = 9.7$ ) and post-intervention

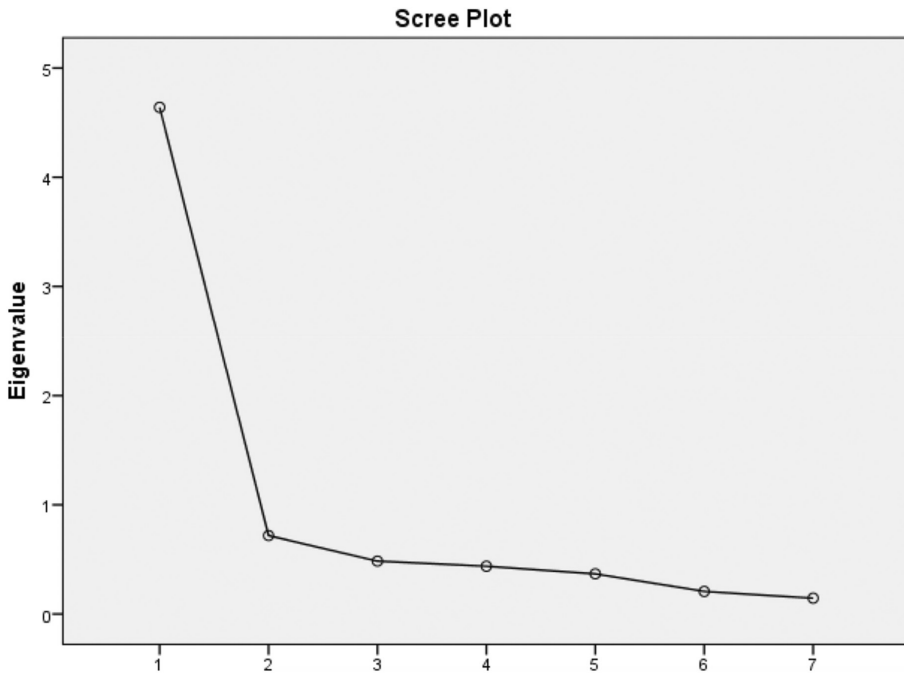


FIGURE 2 Scree plot of the factor analysis of the SLSS.

**Proportions with low and high well-being scores before the intervention**

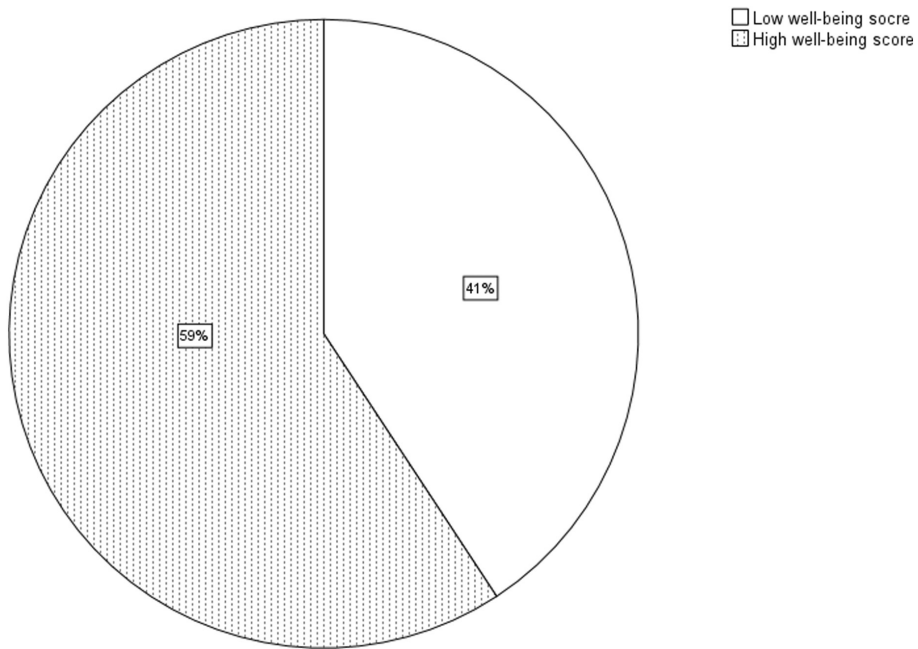
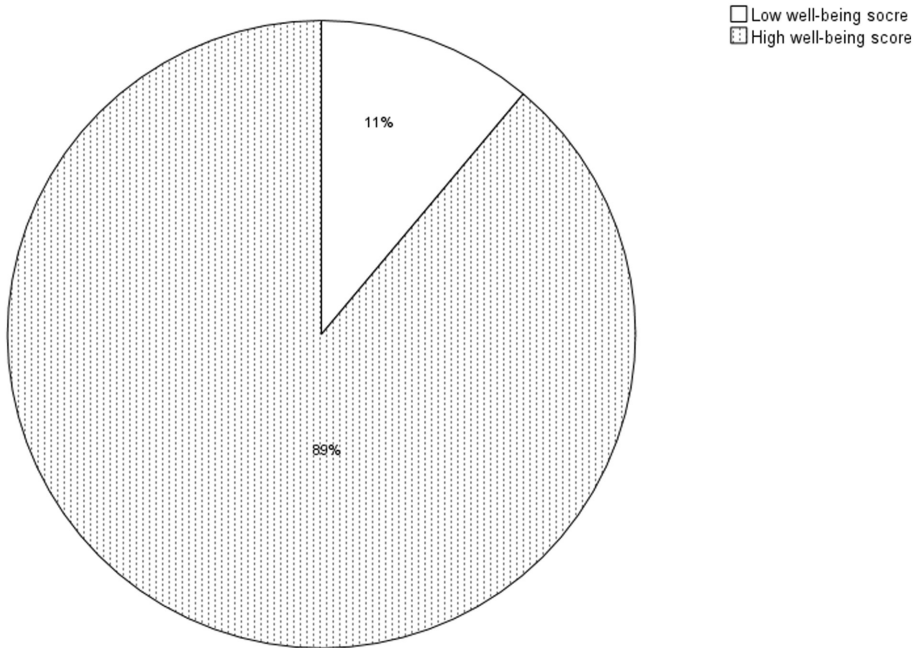


FIGURE 3 Pie chart showing the proportion of students who had low scores of well-being compared those with high scores of well-being before the intervention.

### Proportions with low and high well-being scores after the intervention



**FIGURE 4** Pie chart showing the proportion of students who had low scores of well-being compared those with high scores of well-being before the intervention.

( $M = 30.85$ ,  $SD = 9.39$ );  $t(26) = 2.64$ ,  $p = .014$ . We found an effect size of  $d = 0.5$  and this, according to Cohen (1998) is a 'medium' effect size. This suggests that the intervention had a significant impact on the subjective well-being of the children.

## Qualitative analysis

The focus group was conducted with the four disadvantaged students. The thematic analysis of the focus group transcripts resulted in an initial set of eight codes identified in Table 5. These eight codes were finally categorised and named into the three broader themes.

A priori themes (themes based on previous research) (Miles & Huberman, 1994) were not used as a basis for this analysis. However, awareness of these themes was acknowledged in the interests of reflexivity on our part. Based on the analysis of the focus group data, following main themes emerged:

- singing in a group is an enjoyable experience;
- singing is a social activity; and
- singing is soothing.

These themes, and their subcategories, with examples of the children's statements, are presented in Table 6.

TABLE 5 Themes and codes from the thematic analysis.

	Themes		
	Enjoyment	Social activity	Soothing
Codes	1. Feeling joyful 2. Feeling happy 3. Sounding good	1. Everyone sings 2. Teamwork 3. Singing with friends	1. Distracting 2. Calming

TABLE 6 Themes and codes from the thematic analysis.

Theme	Description	
<b>Enjoyment</b>	<b>Singing is an enjoyable experience that makes you feel happy and joyful</b>	
Codes	Description	Significant Statement Examples
Feeling joyful	Singing makes you feel joyful	<i>'I feel so joyful when I'm singing in class'</i>
Feeling happy	Singing makes you feel happy	<i>'Singing makes me feel really happy and it's one of my favourite parts of the day'</i>
Sounding good	Singing sounds good to participants	<i>'When everyone knows the song really well we sound really good'</i>
<b>Social activity</b>	<b>Singing in a group is a social activity which brings people together</b>	
Everyone sings together	Everyone in the class sings the same music which brings them together	<i>'I really like hearing everyone around me singing what I'm singing'</i>
Teamwork	Singing is something that promotes teamwork and a sense of togetherness	<i>'If I forget the words I know that the other children have got my back and I don't have to worry'</i>
Singing with friends	Singing together affirms friendships	<i>'I like hearing my friends singing around me it's really funny when we look at each other'</i>
<b>Soothing</b>	<b>Singing requires concentration that can help calm our thoughts and distract us from other external worries</b>	
Distracting	Singing requires a lot of focus which helps to take the participant's minds off external pressures	<i>'I've been moving house recently and that's been really stressful but when we've been doing the singing it takes my mind off it and helps me relax'</i>
Calming	Singing can help to reduce stress and have a calming effect on the participants	<i>'I like it because there's people all around dying and it makes me forget all of the stuff that's going on around me'</i>

## DISCUSSION

The current study set out to assess the impact of regular group singing on the well-being of a class of children aged 8–9. The outcome of this two-week intervention of group singing on subjective well-being was very positive in that analysis of the SLSS Likert scale data showed 'medium' ( $d=0.5$ ) effect size. Furthermore, there was a much lower proportion of children with low well-being scores after the intervention than before the intervention. As previously mentioned, it was important for us not only to ascertain whether this intervention works through the quantitative data analysis, but also to explore the reasons behind the effects we observed, which is where the qualitative data can help yield answers to this important question.

Through the qualitative data analysis, the first author identified a variety of positive codes relating to the benefits of group singing. Codes capturing the *enjoyment of singing*, ‘the joy it brings’, and the fact that it made the children “feel happy” through “sounding good” were the overwhelming comments noted during the focus group interview. This theme is consistent with other studies examining the effects of singing on adults (Bailey & Davidson, 2002; Bailey & Davidson, 2005; Dingle et al., 2012; Verneert et al., 2021). This theme is also identified in the ‘Positive Emotion’ element in the PERMA (Seligman, 2012) well-being framework. In a thematic analysis by Dingle et al. (2012), respondents commented on how singing ‘makes [them] feel really good inside’ and that ‘it’s like a release of anxiety and pressure’ (Dingle et al., 2012 p.413). The comments made by the participants of the current research reflect those of Dingle et al. (2012) albeit expressed in the language of 8- to 9-year-olds.

Difficulties arose when trying to capture the essence of the codes relating to singing being distracting and calming. ‘Soothing’ was chosen due to its semantic links with having calming effects and reducing stress through concentration as discussed in Mok and Wong (2003). In Williams et al.’s (2018) meta-analysis of six qualitative studies examining the effects of singing on well-being in adults, they identify a theme called ‘occupational well-being’ (p.1040). In this theme are codes such as: ‘learning/improved ability’, ‘accomplishment’ and ‘cognitive benefits’. It appears that concentrating and improving at something can help a person’s well-being. This is echoed in research by Brooks (2013) that examines how a child’s attainment can help improve their well-being. Her research, which was published by ‘Public Health England’ (Brooks, 2013), details the many facets (including: bullying, quality of teaching and health) that impact on a child’s well-being and how closely this links with attainment. Csikszentmihalyi (1975, 1990) set out to label the relationship between the first two themes (enjoyment and soothing) as ‘flow’. He describes it being a ‘state in which people are so involved in an activity that nothing else seems to matter; the experience is so enjoyable that people will continue to do it even at great cost, for the sheer sake of doing it’. (p.4). The concept of ‘flow’ has been regularly used to explain the benefits of music making (see Bernard, 2009 for discussion). It is apparent that by putting people in situations where they experience a balance of challenge and skill level that they enter this ‘flow’ state and an improvement in their well-being can be a beneficial side effect. Similarly, the ‘Engagement’ element of the PERMA model (Seligman, 2012) closely captures the essence of this identified code and is frequently cited in research alongside the concept of ‘flow’ (Petersen et al., 2021; Seligman, 2012).

Social elements of singing emerged from the analysis of the children’s responses, with strong opinions on togetherness and teamwork being seen as benefits of group singing. The children appeared to enjoy singing together as a group and used the structure of the ‘choir’ to affirm friendships. Williams et al. (2018) also document this theme as ‘social well-being’, commenting that all the qualitative studies that they examined found ‘social well-being’, ‘social connectedness’ and ‘social activity’ to be a common factor across all studies. The term ‘social flow’ is derived from Csikszentmihályi’s original ‘flow’ concept with the additional benefits of a sense of belonging and social connectedness (Dingle et al., 2012; Judd & Pooley, 2014), and can be achieved when the group is collectively working towards a unified goal (Walker, 2010). The task of singing the same music together mimics the conditions required to create this sense of ‘social flow’ and is exemplified in a study by Walker (2010) that ‘flow’ experienced as part of a group is more enjoyable than ‘solitary flow’ due to the added social benefits. The PERMA model (Seligman, 2012) once again aligns closely to this code in its ‘Relationships’ element and research into the power of social relationships has found benefits that include: improved physical health, preventing cognitive decline and stronger social bonds and relationships with others (Siedlecki et al., 2014).

Social benefits of grouping singing can be explained by social capital theory. This theory strongly links with the main themes outlined in this study that were outlined as social activity and social connectedness. This is similar to the results of previous studies (see for example, Williams et al., 2018). This finding is due to the fact that social capital theory recognises the benefits of social groups such as shared identity, shared norms, shared values cooperation and the emotional benefits that come with this (Putnam, 2002). For such a strong theme to emerge from this study, it was interesting to note that none of the main social capital's theorists such as Bourdieu, Coleman and Putnam (Field, 2005) considered the role of children in generating and negotiating social capital themselves. Many social studies bypass children's views and rely on parents and other adult perceptions for commentary (Schaefer-McDaniel, 2004). This current study highlights that social capital is just as evident in children's relationships as with adults and that it plays a significant role in supporting the well-being of those individuals. This is particularly insightful in relation to disadvantaged children who are consistently seen to be doing worse than their nondisadvantaged peers when considering well-being and academic performance (OECD, 2012; The Good Childhood Report, 2022). It could be argued that by actively working on the relationship element of the PERMA model (Seligman, 2012) and linking this to what we know about social capital, the current study most likely increased social capital within the group, despite this not being directly measured. Evidence of this can be seen, however, through the decrease in low well-being scores post intervention (Figure 4) and the codes we found from the thematic analysis that describe teamwork and singing with friends.

## LIMITATIONS

This mixed methods study adopted a quasi-experimental design as opposed to a randomised control trial (RCT), which is widely regarded as the 'gold standard' in research trial design (Hariton & Locascio, 2018). The lack of a control group was mitigated through the methodological triangulation of multiple types of data collection. The findings of two very different methods of observing the same phenomenon of improvements in subjective well-being further validate the reliability of this research (Noble & Heale, 2019). Another limitation of this study was that the first author was acting as a complete participant involved in every stage of the research. They were the class teacher of the children who received the intervention and, having established relationships with the children months before the trial began, there were strong possibilities of the Hawthorne effect (respondents changing their behaviour in response to being observed (Monahan & Fisher, 2010)) and social desirability bias (respondents behaving in a way that they think will be favourable by the researcher (Krumpal, 2013)) coming into play. Similar limitations are observed by Williams et al. (2018) and would require larger, more thorough trials to mitigate the identified limitations of this study.

## Future research

Future research into children's well-being as influenced by group singing would benefit from randomised control trials with larger sample sizes from a diverse socioeconomical selection of children. From a qualitative perspective, future studies could benefit from further input from the children. One possible way forward would be to ask children to write solicited diaries, a process in which individuals are asked to record their experiences, including their actions, thoughts and



behaviours (Bartlett & Milligan, 2015), of their experience of group singing that could be shared with the researcher. Additionally, future trials may benefit from engaging more closely with the elements identified by Mullen (2016) (Table 1) during the planning phase and proactively aim to mitigate against disengagement by purposefully planning in alternative activities and seating arrangements depending on how the children are presenting that day. Perhaps a closer engagement with these elements would have increased the impact of the current study for all pupils within the group. Further insight into the perceived benefits of 'social flow' in the context of group singing needs to be explored, as this was a theme identified from the qualitative data analysis. Qualitative studies are recommended to gain insight into 'why' and not just 'if' group singing has such a profound impact on children's well-being. Positive findings from the small focus group with the disadvantaged children are also worthy of further investigation to explore whether their feedback can be generalised across the diverse subgroups found within a classroom. Equally, it would be worthy to explore whether group singing interventions like the current study have a positive impact on bridging social capital (the connections that link people across elements that would typically divide groups of people e.g. race, gender, and class (Claridge, 2021)).

The design of the study allowed the children to choose what songs they wanted to sing, and this raises questions as to whether this level of autonomy and choice positively impacted their willingness to engage. Freiberg and Lamb (2009) discuss the idea of 'person-centered' classroom management and reference extensive interviews (conducted by Rogers & Freiberg, 1994). They found that 'freedom and choice' to be one of the four key understandings of their research. These findings are reflected in more recent research using Ryan and Deci's framework 'Self Determination Theory' (SDT) that posits autonomy, competence and relatedness are all needed for optimal functioning (Ryan & Deci, 2020; Vasconcellos et al., 2020). Future research into whether the element of choice played a significant part in the results of this study would further contribute to understanding and improving the effectiveness of this current study.

## CONCLUSION

The findings across all measures in this study are consistent with previous research on group singing that showed positive impacts on the well-being of children (Hampshire & Matthijsse, 2010; Hinshaw et al., 2015; Irons et al., 2012; Mullen 2016; Rickson et al., 2018; Welch, 2012). The current study has shown that the intervention of group singing can be carried out by one teacher with few resources, and yet have a high impact. Kidger et al. (2009) assert that 'by focussing on the needs of teachers as well [as the children] they will be equipped to play their part in supporting the EHWP (emotional health well-being) agenda' (p.930). Whole-class interventions typically encompass a consideration of the curriculum, ethos of the school and an awareness of child-teacher relationships. These benefits should be taken into account when considering individual vs whole-class well-being interventions and their intended impact on the children involved. This is particularly relevant for the group of disadvantaged children that were involved in the current study's focus group and their positive comments and improved well-being scores from the intervention.

Of the 27 children, only three children did not show an improvement in SLSS scores. Adi et al. (2007) reviewed the effectiveness of well-being interventions in UK schools and concluded that there will always be some children that need a personalised approach to helping them with their well-being. Whole-class interventions may not always be specific enough to tailor to their current mental health needs and that a careful awareness and consideration of how to help these children must always be present in school settings. This is echoed in Mullen's (2016) findings

from his work with children excluded from school. There are many factors at play when running interventions with groups of children and an awareness of how to be flexible, adaptable and mindful of the interests and needs of the specific pupils within the group are paramount to achieving success for all participants. This proactive intervention was free and easy to implement, did not interfere with the implementation of planned learning activities and was perceived to be a welcome activity by both the first author and 24 of the 27 participants as measured by the SLSS. Nevertheless, it is important to restate that the first author was an experienced music specialist and that research has shown that generalist teachers often lack the confidence and skills to effectively deliver these types of music activities effectively (Welch et al., 2020). Interventions such as the current study can help promote positive mental health in children and help prevent children falling into poor mental health (thus requiring more individualised intervention). This whole school approach to well-being was shared with other generalist teachers in the school, including some ongoing professional development to support the delivery of this intervention, such that it is now part of the daily curriculum delivery across many of the classrooms involved in the study under discussion.

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### CONFLICT OF INTEREST STATEMENT

No conflict of interest.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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