




## Do the arts perform at school?


The economic case for delivering a curriculum-based performing arts programme in primary schools

A report for Artis Foundation in association with  
Amit Kara & Sadia Sheikh

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Pro Bono Economics uses economics to empower the social sector and to increase wellbeing across the UK. We combine project work for individual charities and social enterprises with policy research that can drive systemic change. Working with 400 volunteer economists, we have supported over 500 charities since our inception in 2009.



Artis transforms education through the arts by creating magical, high-quality learning experiences that help children flourish. Artis recruits and develops professional performing artists to work with primary schools in areas of deprivation across England. Since 2004 over 600 Artis Specialists have inspired 388,000 children to sing about punctuation, act out fractions and dance the solar system.



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## Summary

Exposure to a quality arts programme in early life is linked to better pupil outcomes not just in creativity but also in areas such as academic attainment, social skills, and the overcoming of early-life disadvantages. Yet squeezed school budgets and heightened testing-driven emphasis on pupil achievement in core subjects have led to underinvestment in arts education, with the delivery of an arts-rich curriculum deprioritised in many primary schools. It is against this backdrop that Artis Foundation helps primary schools fill the gap in arts provision by providing primary school pupils with a weekly curriculum-linked programme.

We have assessed the long-term economic impacts of the Artis 36-week programme by linking data on socio-emotional outcomes to evidence on long-term benefits. We find that:

- The children who demonstrated elevated levels of initial difficulties saw a clear improvement in their socio-emotional outcomes between the beginning and end of the Artis programme, even after accounting for possible natural improvements over time.
- If these improvements in outcomes do not fade out over time, then we estimate the long-term economic benefit per child is around £2,300 from improvements in truancy, exclusion, crime, smoking, adult mental health and earnings over their lifetime.
- Artis estimates that it spends £72 to put a child through one academic year of its weekly sessions. This suggests that for every £1 invested in Artis' programme, there could be as much as a £32 return in long-term economic benefits.
- Our sensitivity analysis suggests that more than 97% of these benefits would need to fade out over time before the benefits of the Artis programme are outweighed by its costs.
- We estimate that if the Artis programme were rolled out across all primary schools in the top 20% of most deprived areas in England, there would be a potential lifetime benefit of up to £3.3 billion for all children in any one academic year.

Overall, our analysis suggests that there are likely to be substantial long-term benefits from the Artis programme. It is particularly pertinent that our study was carried out in the backdrop of Covid-19. Over this period anxiety was reported to be heightened amongst many children who saw their school and social lives disrupted as many classes were moved online, including a number of Artis sessions. These factors may have reduced some of the full positive impact that we would have expected from Artis in-person sessions but demonstrates that the programme can still deliver improvements in socio-emotional outcomes even during the most challenging of times.

To estimate the long-term economic benefits of a programme targeted at primary school children we need to make a number of important assumptions. Whilst our sensitivity analysis highlights that varying these assumptions is not likely to change the core conclusion that the Artis programme is likely to deliver long-term economic benefits, it does create some uncertainty about the exact range. Artis should consider how they can further develop the evidence for their impact by:

- Gathering more follow-up data on pupils they work with so that they can see if the improvements in socio-emotional outcomes are maintained over time.
- Explore the feasibility of gathering data from a group of children that do not receive the intervention. This would enable them to compare the outcomes of their beneficiaries against a control group, providing stronger evidence that the Artis programme is what has driven the improvement in socio-emotional outcomes seen.

Despite these limitations, our study adds to wider evidence demonstrating a positive relationship between high-quality arts education and a wide range of children's outcomes such as: cognitive skills, creativity, IQ, self-esteem, reading, language, writing, subject learning outcomes, child behaviour, aesthetic appreciation, truancy and income in later life.

This range of benefits linked to programmes such as the one offered by Artis suggests that the arts should be seen as an

essential part of the curriculum and not a competitor for space in the school day. Finding ways to integrate arts throughout children's education to support, embed and enrich learning from other parts of the curriculum could prove to be a powerful tool to support our children to thrive and succeed.

**£2,300**

is the estimated average  
lifetime benefit per child  
on the Artis programme

For each £1 of cost, the  
Artis programme  
could generate up to

**£32**

in lifetime benefits

**388,000**

children have accessed  
Artis classes since its  
inception in 2004

If the Artis programme was rolled out  
across all schools in the top 20% of  
most deprived areas in England, the  
lifetime benefits generated would  
amount to up to

**£3.3 billion**

each year

## Introduction

Squeezed school budgets and heightened emphasis on pupil achievement in reading, writing and maths over the last decade has meant that there is decreased emphasis on the delivery of an arts curriculum in many schools, including at primary level. A recent study on the quantity and quality of an arts education in English primary schools shows that of 350 primary school teachers surveyed, two-thirds felt there was now less arts provision than there had been in 2010 and half felt that the quality of the remaining offer had worsened.<sup>1</sup> A July 2021 report by the schools watchdog, Ofsted, concluded that the study of music was in decline not only at GCSE and A-level, but also earlier in a child's education with trainee primary teachers offered shrinking amounts of musical training and provision reduced at primary level.<sup>2</sup>

This decline in provision means pupils miss out on the benefits of an arts education that has been linked to improved outcomes including academic attainment, wellbeing and creativity as explored later in this report. The issue has also featured in national political debate with analysis of government data showing the number of music and drama students down by a fifth and government funding for music, arts and cultural programmes at only £9.40 per pupil in 2021.<sup>3</sup> While, in response, the Department for Education points to the £79 million it has committed for 'Music Education Hubs' in 2021/22 and the new music curriculum for Key Stages 1, 2 and 3 it published in March 2021, campaigners have argued that far more substantial support is needed to offset the effects of a decade-long underinvestment in creative arts education.<sup>4 5</sup>

It is against this backdrop that Artis partners with schools to create cross-curricular learning experiences to inspire children's creativity, attainment and wellbeing. Focusing on schools in the most disadvantaged areas, the Artis programme matches performing arts education specialists (Artis Specialists) with schools, one day a week for an entire academic year. It also supports class teachers to develop their practice through training across a whole academic year, upskilling them so that creative techniques and approaches to learning can be embedded throughout the school. Artis Specialists are at the heart of the programme and Artis invests in their

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<sup>1</sup> Cooper, B. (2019), Primary Colours: The decline of arts education in primary schools and how it can be reversed; Fabian Policy Report, Fabian Society.

<sup>2</sup> [Simply 'doing' music is not enough - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/simply-doing-music-is-not-enough)

<sup>3</sup> ['Creativity crisis' looms for English schools due to arts cuts, says Labour | Arts in schools | The Guardian](https://www.theguardian.com/education/2021/jul/21/creativity-crisis-looks-for-english-schools-due-to-arts-cuts-says-labour)

<sup>4</sup> [Ibid.](#)

<sup>5</sup> [New music curriculum to help schools deliver world-class teaching - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/new-music-curriculum-to-help-schools-deliver-world-class-teaching)



professional and artistic development, ensuring that their learning programme is consistently high in quality.

Artis is also amongst those charities that have worked with Pro Bono Economics (PBE) since August 2020 to understand how it could collect suitable quantitative metrics to objectively assess its impact. Following attendance at PBE's Unlocking Impact workshop, Artis undertook a data collection exercise over the academic year 2020/21 to understand how its programme influences the learning and wellbeing of participating children over the course of the year.

The data collection exercise focused on capturing Strengths and Difficulties Questionnaire (SDQ) scores - a well-established behavioural screening questionnaire used to evaluate specific interventions with children and adolescents - at the start and end of its programme (run over the academic year 2020/21) for a random sample of 128 children.<sup>6</sup> This study examines whether there is an improvement in the teacher-assessed SDQ scores for the selected group of children between the start and end of one academic year of the Artis programme.

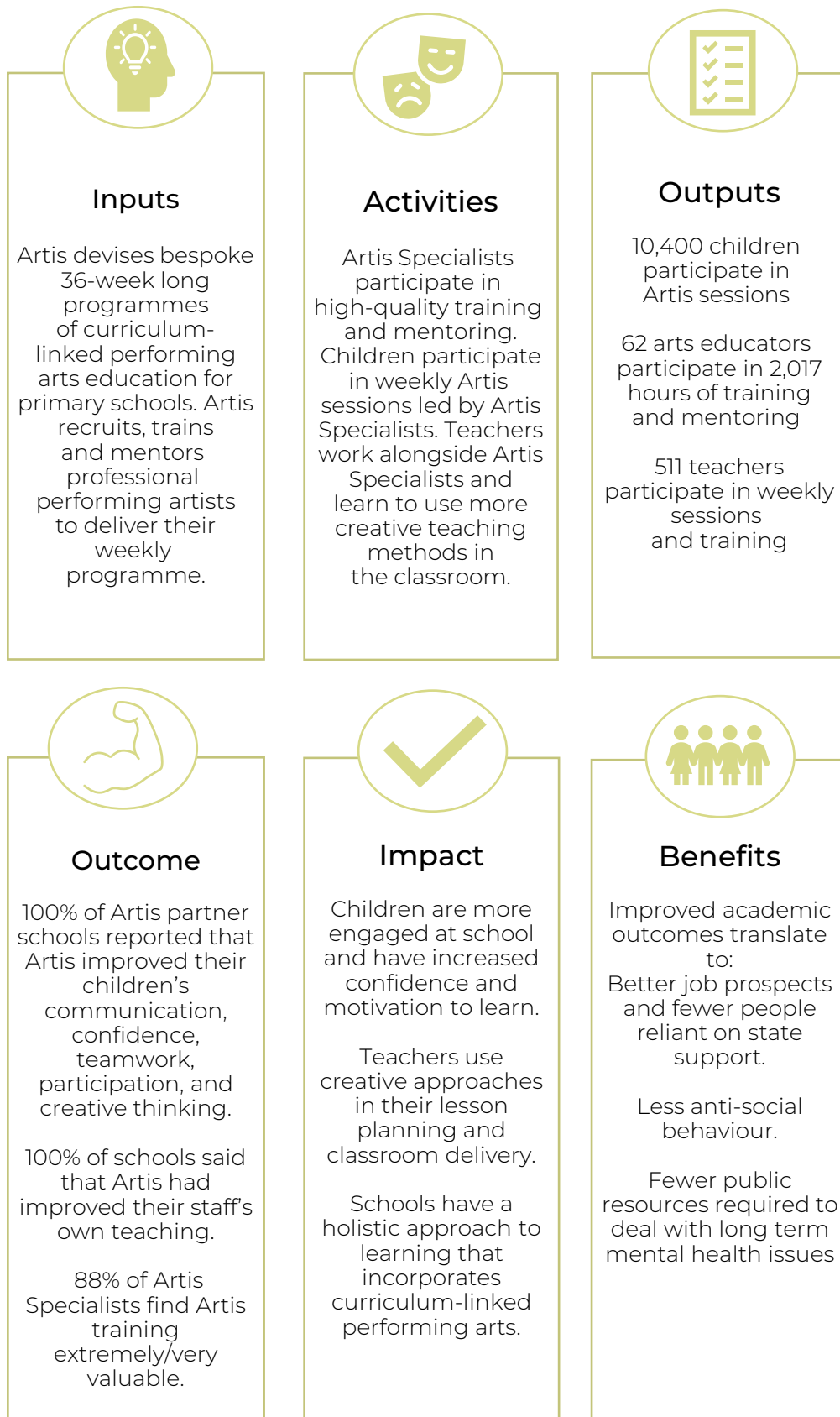
The study also seeks to establish whether any improvements are linked to better lifetime outcomes by linking improved SDQ scores early in life to better outcomes in later life e.g. truancy, exclusion, youth crime, smoking, crime, depression, future employment and earnings.<sup>7</sup> Finally, the long-term economic benefit of the initiative to individuals and to society is calculated and compared with the cost of its delivery to establish whether Artis provides 'value for money' in the delivery of its arts programme.

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<sup>6</sup> [Study of Early Education and Development \(SEED\): The potential value for money of early education \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

<sup>7</sup> Paull and Xu (2017), Study of Early Education and Development (SEED): The potential value for money of early education, Department for Education.

Figure 1. Interventions and expected outcomes of the Artis programme



Arts interventions are associated with improved learning and social outcomes

The literature on the impact of arts-based intervention on child wellbeing, education and learning is vast and helps set out a framework to understand how an inadequate arts education might adversely impact pupil outcomes (see Annex B). The key channels through which arts programmes seem to support pupil outcomes are:

**Academic attainment:** Arts-based interventions are correlated with improved academic outcomes in the majority of studies on this subject. Creative classroom drama is shown to improve verbal skills, understanding and recall of oral and written stories, reading achievement on standardised tests, oral language development, better understanding of scientific concepts, writing skills and the enjoyment of the writing process.<sup>8 9 10</sup> The rationale is that arts intervention drives 'thinking and cognitive development through speculation, reflection, explanation and evaluation' and encourages an elevated level of engagement driven by the novelty of the approach and because the activity is perceived as 'fun' by pupils.<sup>11</sup>

**Developing a creative and open mind and stimulating the imagination:** Academic gains aside, there is a compelling argument for studying the arts for their own sake to develop a creative and open mind. A 2016 study by Deloitte highlights the importance of the education system in cultivating creativity to shape a more productive UK workforce.<sup>12</sup> According to 2020 estimates by the Department of Digital, Culture, Media and Sport (DCMS) the booming creative sector contributed £111.7 billion to the UK economy in 2018, the equivalent of almost £13 million every hour.<sup>13</sup> As the first place where many children access arts education, primary schools can provide the inspiration and nurturing of talent that will supply the industry with the creative skills it needs to thrive in the future.

**Empathy and social skills:** Experiences that involve cooperating, collaborating, following directions, demonstrating self-control, and paying attention - skills enhanced by performing arts activities - all help encourage

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<sup>8</sup> Podiozny, A. (2000) Strengthening verbal skills through the use of classroom drama: A clear link, *Journal of Aesthetic Education*, 34(3-4): 239-276.

<sup>9</sup> Cormack, R. (2004) Creative drama in the writing process: The impact on elementary students' short stories. Ann Arbor, University of Northern British Columbia (Canada). MR04673:180

<sup>10</sup> Arieli, B. (2007) The integration of creative drama into science teaching. Ann Arbor, Kansas State University. 3291364: 183.

<sup>11</sup> Schaffner et al. (1984) *Nadie Papers No.1, Drama, language and learning: Reports of the drama and language research project, speech, drama centre, Education Department of Tasmania.*

<sup>12</sup> Talent for survival: essential skills for humans working in the machine age. Deloitte, 2016

<sup>13</sup> [UK's Creative Industries contributes almost £13 million to the UK economy every hour - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

the growth of social and pro-social skills. Music-based and dance-based activities in particular are linked to better 'pro-social' behaviour in young children, such as helping, sharing, co-operation, caring and empathising with others. Participating children also showed strong reductions in internalising (shyness and anxiety) and externalizing (aggression) problems when compared with non-participating children. This contributes to the improved emotional wellbeing and social functioning of a child not just at school but also later in life.<sup>14</sup>

### Overcoming inequalities and accommodating disadvantages:

Inequalities can manifest in several forms. Whatever the basis of disadvantage, be it income inequality, learning disability or physical disability, in some cases participation in the arts can be the 'great equaliser', helping disadvantaged children narrow the gap with their peers.<sup>15 16 17</sup> Children with autism, attention deficit hyperactivity disorder, reading disabilities generally seem to enjoy better learning outcomes and prefer using the arts to study academic subjects.<sup>18 19</sup> Creative drama and musical training are also shown to positively impact reading ability and to encourage the development of language, thereby offsetting some of the negative impacts of lower social-economic status.<sup>20</sup>

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<sup>14</sup> Deloitte (2016), Ibid

<sup>15</sup> Kim J et al (2008); The effects of improvisational music therapy on joint attention behaviors in autistic children: a randomized controlled study. *J Autism Dev Disord.* 2008 Oct;38(9):1758-66. doi: 10.1007/s10803-008-0566-6. Epub 2008 Jul 1. PMID: 18592368.

<sup>16</sup> Low income and early cognitive development in the UK: a report for the Sutton Trust. Jane Waldfogel & Elizabeth Washbrook, 2010.

<sup>17</sup> Early language development and children's primary school attainment in English and maths: new research findings. Save the Children, 2015.

<sup>18</sup> Fountain, H.L.R. (2007) Using art to differentiate instruction: An analysis of its effect on creativity and the learning environment. Ann Arbor, Purdue University. 3278670: 307.

<sup>19</sup> Register, D., Darrow, A.-A., & Standley, J. (2007) The use of music to enhance reading skills of second grade students and students with reading disabilities. *Journal of Music Therapy*, 44(1), 23-37.

<sup>20</sup> Tierney A. & Kraus N (2013), Music training for the development of reading skills. *Prog Brain Res.* 2013;207:209-41. doi: 10.1016/B978-0-444-63327-9.00008-4. PMID: 24309256..

## Case Study A

Child K has been with us for the past 2 years. She has been diagnosed with autism and has a difficult family life. When she arrived, she struggled to focus in class and would often wander around the school. She actively sought out adult attention and struggled to interact with and make friends with her peers. She disliked going out into the playground, preferring to stay in to draw and colour.

However, Child K loves Artis sessions. She becomes quite animated and listens to and follows instructions. She not only interacts with and works positively with others but is able to wait for her turn. She often gets lost in the movement, actions and characterisation.

We have seen a marked difference in Child K. Her social skills have improved significantly, she has much more positive interactions with her peers and she has made some good friends. She is happier, more focused and no longer wanders around the school. She loves playtimes now but will still often choose to take part in more artistic activities outside. Even though her family circumstances are still difficult, Artis is supporting her in coping with these difficulties. It has been amazing to watch Child K come into her own - developing a greater sense of self and a growing confidence.

### Partner School Feedback (Headteacher)

## A quantitative approach to assessing the effectiveness of the Artis programme

This section undertakes a quantitative analysis of the data collected by Artis over the 2020/21 academic year to help understand how its programme influences the wellbeing of participating children. Data was collected on Strengths and Difficulties Questionnaire (SDQ) scores - a well-established behavioural screening questionnaire used to evaluate specific interventions with children and adolescents - at the start and end of the programme for a random anonymised sample of 128 children from across eight schools with assessments completed by teachers.<sup>21</sup>

We examine whether there is an improvement in SDQ scores for the selected random group of children between the start and end of the Artis programme. We then draw on a study by Paull & Xu (2017) linking SDQ scores early in life to several key outcomes in later life to assess the longer term benefits of the Artis programme.<sup>22</sup> Next, the long-term economic benefits of the service to individuals and to society is calculated and compared with its delivery costs.

It should be noted that SDQ scores focus solely on the socio-emotional outcomes of children. As highlighted in the previous section, outcomes such as better academic attainment, heightened emphasis on creativity, improved social skills, and the overcoming of early disadvantages are also linked to early life arts interventions. As such, this quantitative analysis zooms into single aspect of the benefits of exposure to the arts rather than a comprehensive assessment of all possible benefits which is a task outside the scope of this study.

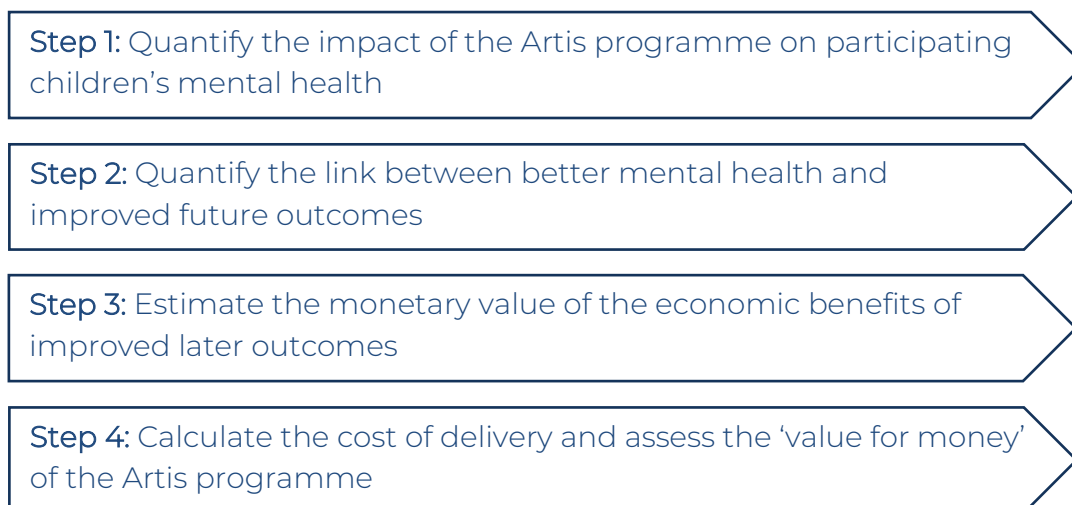
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<sup>21</sup> Data was initially collected for 134 pupils across nine schools but data for one school was excluded as it did not meet the quality assurance standard required.

<sup>22</sup> Paull and Xu, (2017), Ibid

We achieve the study objectives in the following four steps:

Figure 2: Four key steps in our analysis:



### Step 1: Quantifying the impact of the Artis programme on the mental health of participating children

Data was collected on SDQ scores for the 128 participating children (aged 4-11) at the start and end of the academic year to assess how this score had changed. The Strengths and Difficulties Questionnaire (SDQ) is a behavioural screening questionnaire that captures emotional difficulties, conduct, hyperactivity, peer relationships and pro-social behaviour of a child.<sup>23</sup> The higher the score, the more difficulties a child is believed to have. The aim of the study is to determine whether the Artis programme succeeds in lowering these scores. For the purposes of the study, assessments were completed by teachers only (rather than involving parents as is sometimes additionally done).

It should be noted that the study was done in the backdrop of the Covid-19 pandemic. As a result of lockdown, some Artis sessions had to be moved online for one term. The pandemic also led to heightened anxiety amongst children who saw their school lives disrupted for two years with limited opportunities to see friends and wider family.<sup>24</sup> An NHS study, undertaken in July 2020, found that clinically significant mental health conditions amongst children had risen by 50% compared to three years earlier.<sup>25</sup> All these factors are likely to have offset at least some of the full positive

<sup>23</sup> <https://www.sdqinfo.org/a0.html>

<sup>24</sup> Lennon M (2021), The state of children's mental health services 2019/20; Children's Commissioner's Report, [www.childrenscommissioner.gov.uk](http://www.childrenscommissioner.gov.uk).

<sup>25</sup> Lennon N (2021), Ibid

impact the Artis programme otherwise might have had on pupils' wellbeing. These caveats should be kept in mind as we explore the data.

A first comparison of before and after SDQ scores for all 128 pupils in the study showed a small fall in SDQ scores (improvement in difficulties) from 7.8 to 7.3 although this difference was not statistically significant.<sup>26</sup>

However, children whose initial scores were low or who were deemed to be in the categorisation band 'Close to Average' (which reflects the average score of 80% of the population) and who constituted 73% of the sample (94 children of 128) demonstrated a small *rise* in scores (or a worsening in difficulties). This finding supports the views reflected in the Children's Commissioner's Report 2021 cited above that Covid-19 has had an adverse impact on children's mental health as they navigate an unprecedented pandemic which severely curbed their learning and socialisation opportunities. Nonetheless, it should be stated that this finding was not statistically significant.

If we exclude children who started off with already low scores acknowledging that perhaps there exists little scope for these scores to fall and focus only on those pupils who fall in the categorisation band 'elevated needs' (which reflects the top 20% highest scores in the population), the results are strikingly different. The average SDQ score for the 34 children who presented with higher difficulties at the start of the programme fell sharply from 14.4 to 10.9. This result was also highly significant suggesting that this group saw a meaningful improvement in their wellbeing between the beginning and end of the academic year during which they were enrolled on Artis' programme.<sup>27</sup> Of course, there are other influences too. It is possible that children with elevated anxieties found being at home during lockdown away from the everyday stresses of school improved their mental wellbeing (although it should be noted that the end of year survey was taken after the summer term when all pupils had already been back at school for more than a full term).

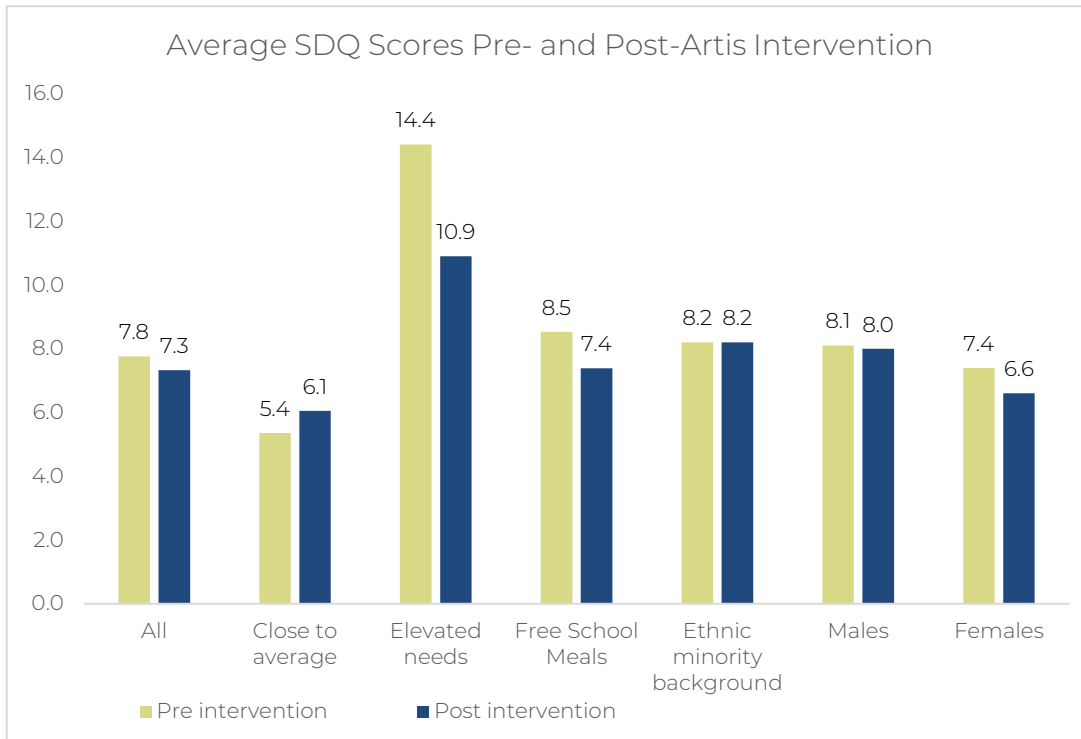
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<sup>26</sup> Statistical significance is a determination that the results are not explainable by chance alone.

<sup>27</sup> The improvement is big enough that it is unlikely to have been caused by random noise in the data.



Figure 3. Pupils with elevated needs and pupils on free school meals showed a clear improvement in wellbeing after participating in the Artis programme



### Segmenting the data by income, ethnicity and gender

More than half of the pupils in the sample (68 pupils) were from lower-income families on free school meals. For this group, the SDQ scores showed a clear (and statistically significant) improvement from 8.5 to 7.4. This is particularly relevant as children from lower income households are less likely than their middle-class counterparts to have access to an arts education outside of school.

SDQ scores for children with an ethnic minority background showed no change over the course of the academic year for the 47 pupils who fell in this category.

Females showed better outcomes compared to their male counterparts although the change was not statistically significant.

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**Step 2:** Quantification of the link between better mental health in early years and improved later outcomes between the ages of 11 and 60.

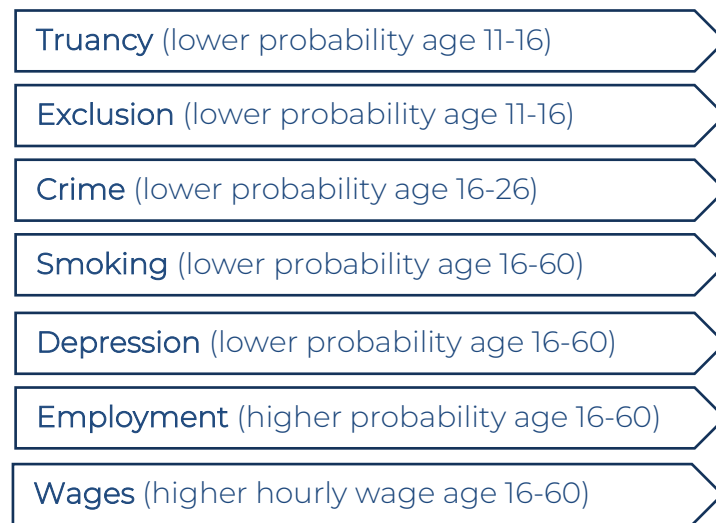
To establish a link between improved mental health and better life outcomes, we focus on the subset of 34 children with elevated needs as they have greater scope to demonstrate improvements from their initial evaluation. The benefits of the Artis programme are estimated using a framework set out in a peer-reviewed paper by Paull and Xu (2017) which contributes to the value for money component of the Department for Education's (DFE) Study of Early Education and Development (SEED).<sup>28</sup> Retrospective evidence from previous studies reviewed in Paull and Xu's work is used to understand links between better socio-emotional health in childhood and a range of outcomes later in life. A crucial assumption is that a similar relationship will hold for pupils currently undergoing the intervention as observed later outcomes for these children will not be available for many years.

Paull and Xu's approach is seminal as it not only establishes a link between improved childhood mental health and better lifetime outcomes, but it also provides a monetary estimate of these lifetime benefits. We bring together the results of the Artis evaluation and estimates in the Paull and Xu study to quantify the potential economic benefit of its performing arts programme.

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<sup>28</sup> The SEED study is based on longitudinal study following the progress of a cohort of 8,000 children in England from age 2 through to the end of Key Stage 1. The SEED study was carried out by NatCen Social Research, working with Frontier Economics, the University of Oxford and Action for Children.

Figure 4: Seven key long-term outcomes included in the analysis



There are seven key outcomes that are included in the analysis: truancy, exclusion, crime, smoking, depression, employment and wages, that accrue to the children receiving the intervention (increased lifetime earnings), the government (reduced public spending on crime, truancy, exclusion, depression) and other citizens (reduction in crime and smoking). These outcomes have been selected as they can be reliably quantified in monetary terms. We acknowledge that there may be other unquantifiable benefits generated by the Artis programme that was not possible to quantify for our analysis. As such, our estimate of benefits is likely to be conservative.<sup>29</sup>

### We convert SDQ scores to Value Added scores to allow for natural recovery

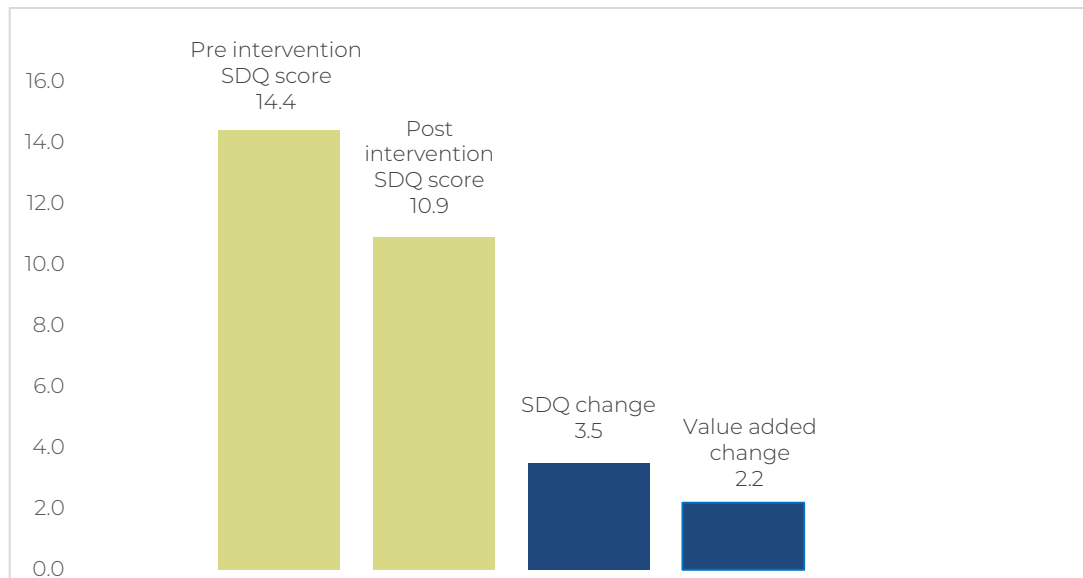
When estimating the benefit of an intervention, it is vital to make some allowance for the proportion of improvement that may have naturally occurred anyway over time even in the absence of the intervention to avoid overstating its impact. While the best way to account for this is to use a control sample of children who did not take the arts programme, it is difficult to collect data on this as Artis sessions are for the whole class rather than for selected children. In the absence of a control group, an alternative is to use impact scores from the extended version of the Strengths and Difficulties Questionnaire to calculate a 'value added score' that deducts the natural rate of improvement and allows us to identify what proportion of improvement can be attributed to the intervention.<sup>30</sup> Since Artis

<sup>29</sup> Economic Evaluation of Place2Be's counselling Service in Primary Schools (2019), Pro Bono Economics report.

<sup>30</sup> See more detail at <https://sdqinfo.org/c5.html>

collected data for the extended version of the questionnaire, it was possible to compute the value added score for pupils with elevated needs for a true assessment of the efficacy of the arts programme.

Figure 5. Value added scores account for the natural rate of improvement that might be seen in children with elevated levels of difficulty



The results show that for pupils with initial higher levels of difficulty, scores improved by 3.5 points on the SDQ measure while on the value added basis the improvement was a more muted but still significant 2.2 points. Since pupils that were 'close to average' showed no significant change in SDQ scores, these children were assumed to enjoy no benefit of the arts programme *on the specific indicators picked up by SDQ scores*.

The value added score for children with elevated levels of difficulty is linked to changes in the likelihood of the selected outcomes – truancy, exclusion, crime, smoking, depression, employment and wages – using the evidence reported in Paull and Xu (2017). This evidence links a one standard deviation change in SDQ scores at age 7 with a change in the probability of the later outcomes occurring. The methodology of this is discussed in the Annex of ProBono Economics' Place2Be report and the findings for this study are presented in Annex A.<sup>31</sup>

<sup>31</sup> [Place2Be | Pro Bono Economics](#)

### Step 3: Estimation of the monetary value of the economic benefits of improved later outcomes for participants in the programme

The Paull and Xu (2017) study also provides a monetary estimate of lifetime benefits associated with a one standard deviation reduction in SDQ scores at ages 3 and 7. We convert these estimates to 2020 prices and use these to derive a figure for the total monetary value per child of all seven outcomes included in our analysis.<sup>32 33</sup> These benefits are expressed in present value terms to account for the fact that different benefits may emerge at different points in a child's life.<sup>34</sup> A crucial assumption for this analysis is that these benefits persist across a child's life and do not fade away.

Our results show that for children with elevated difficulties the present value of lifetime benefits add up to £8,654 as shown in Annex A. However, of 128 children, only 34 (27%) were deemed to have elevated difficulties. For the remaining 73%, there was no observable improvement in SDQ scores suggesting the monetary benefits to these children was zero. (Note this only relates to the five areas covered in SDQ score calculations). On the assumption that the current sample for the academic year 2020/21 reflects the typical composition of the population, we calculate expected lifetime benefits for the full sample (i.e. all 128 children) as:

*Expected average benefit per children = (Proportion of children with elevated difficulties X lifetime benefits for children with elevated difficulties) + (Proportion of children 'close to average' X lifetime benefits for children 'close to average')*

$$£2,337 = (0.27 \times £8,654) + (0.73 \times £0)$$

The monetary average lifetime benefit for each child in the 128 sample is calculated as £2,337. If we assume that this sample is representative of the full population of students who take part in Artis sessions each year, we can calculate the total benefit of the Artis programme for all children in 2020/21 by multiplying the total number of children who received the arts intervention in the year (10,400) by the average benefit per child (£2,337). The full lifetime benefit of the Artis performing arts programme in 2020/21 is estimated as £24.3 million.<sup>35</sup>

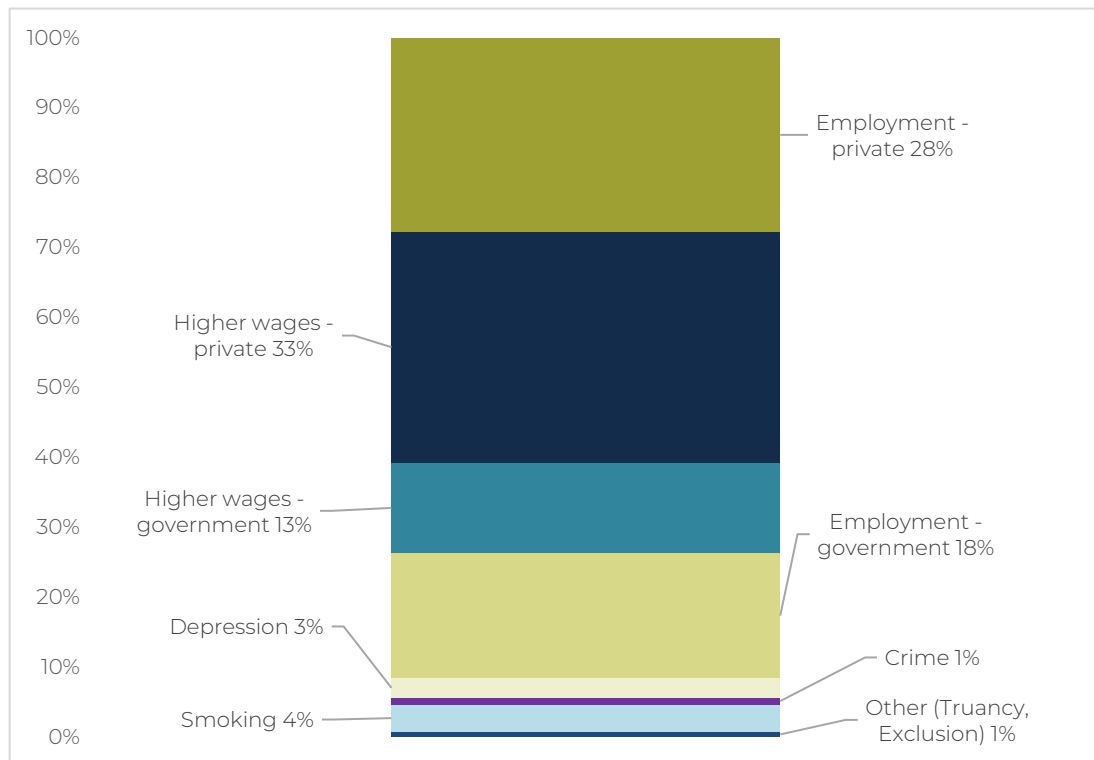
<sup>32</sup> This is done using the GDP deflator.

<sup>33</sup> All monetary values are the same as used in the Paull and Xu (2017) report except for crime that has been treated differently as discussed in the Place2Be report.

<sup>34</sup> Benefits are discounted using a discount rate of 3.5% as recommended in the Green Book.

<sup>35</sup>  $10,400 \times £2,337 = £24.3$  million.

Figure 6. Employment and higher wages have the highest share of the estimated benefits across the seven outcomes analysed



About 60% of the total benefit from the arts programme accrues to the children enrolled on it. This benefit is primarily due to higher lifetime earnings from increased employment and higher wages, with a much weaker contribution from the health benefits of reduced smoking. Savings to government account for about 36% of benefits arising from increased tax revenue and lower spending on public services related to crime, depression, truancy and exclusion. There is also a marginal gain to society due to reduced smoking. Labour market impacts by far dominate the benefits due to the strong link between mental health improvements in early life and improved employment outcomes later in life compared to the impact of other outcomes. In addition, labour market benefits are assumed to last far longer i.e. 44 years between the ages of 16 and 60 relative to some other outcomes.

#### Step 4: Calculating the cost of delivery of the Artis programme and assessing the value for money of the programme

We compare our estimate of the total benefit of the Artis programme in 2020/21 with the delivery cost of the provision.

Artis estimates that it costs £13,000 per annum for one Artis Specialist in a primary school for one day a week across 36 weeks. The specialist reaches 6 classes of 30 children (180 children) per day. The £13,000 includes all costs linked to providing the programme - from the recruitment, training and mentoring of the arts educator, their fee, their travel and any sick cover as well as content development, costs of engaging and supporting the school and an overhead fixed cost contribution.

To calculate the cost of putting a child through one academic year of weekly Artis sessions, we divide the total annual cost by the number of children in the programme. The annual cost of Artis' programme per child is therefore £72 (or £2 per session per child given a 36-week programme). These figures, supplied to us directly by Artis, are consistent with their annual accounts that are publicly available.

### Key assumptions behind the analysis

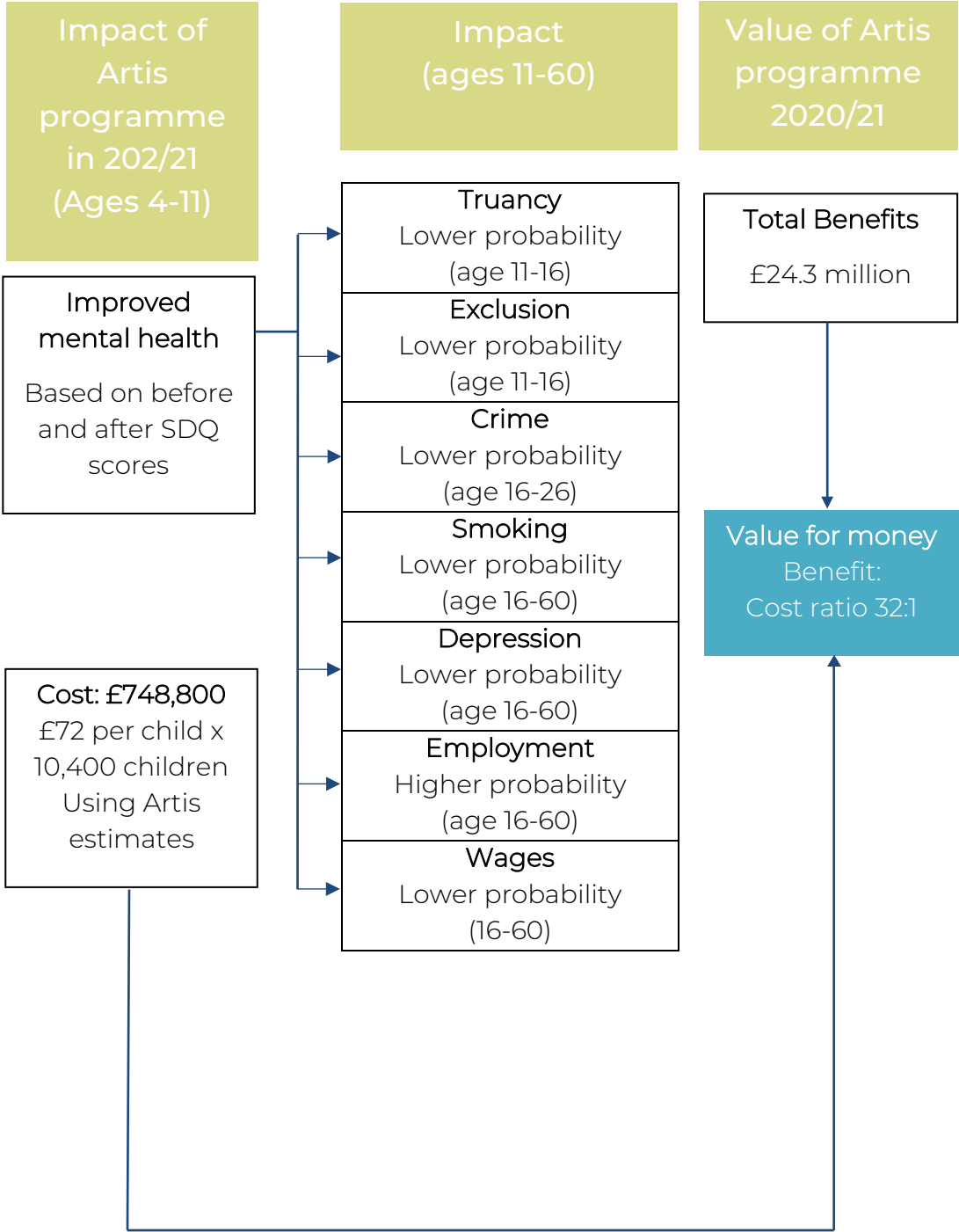
There are three assumptions central to our analysis:

First, we assume the *linkages between improved mental health in early years and later outcomes reported in Paull and Xu (2017) remain relevant* to the children who benefited from the Artis programme in 2020/21 as our analysis calculates benefits based on these estimates rather than using actual observed outcomes for these children (which will not happen for many years yet from the time of writing).

Second, in the absence of a control group, *we can only claim correlation rather than causality* between improved mental health and arts intervention. In future studies it would be useful to identify a control or comparison group (i.e., monitoring SDQ scores for children not enrolled on the Artis programme) to provide more definitive evidence on the causal impact of the Artis intervention. The challenge would be to identify children with similar enough attributes to pupils in the Artis programme to constitute a robust control group.

Third, the analysis assumes that the *improvements in mental health are sustained and there is no fading out of initial improvements*. We acknowledge that this is a strong assumption which may not be accurate, and the true estimate of benefits may be lower if the impact fades over time. Collecting SDQ data in one-year follow-up assessments for children who completed the Artis programme but are no longer on it might provide information on how well improvements are sustained over time and is something Artis might consider in future data collection exercises.

Figure 7. Summary of approach and key outcomes





Finally, it is worth reiterating that the qualitative analysis has been done on the basis of SDQ scores which focuses entirely on the emotional wellbeing of children. This is because a clear pathway exists between linking improved SDQ scores with quantified monetary benefits as detailed in peer-reviewed papers.<sup>36</sup> However, what this means is that the 73% of children who did not show an elevated level of difficulty in the initial assessment (i.e. were deemed to be reasonably 'well adjusted' at the start of the programme) are assumed to see no benefit in terms of this study (monetary or otherwise) of the arts intervention. Even if that is true specifically within the important but narrow context of emotional wellbeing, the literature review clearly highlights there are many other channels through which arts interventions can benefit children e.g. improving academic attainment, developing their creativity, improving social skills and helping overcome any early disadvantages. These improvements are extremely likely to be associated with economic benefits, particularly in terms of advancing employment and wage prospects. Estimating these other economic benefits is outside the scope of this study but, if taken into account, would inflate the estimate of benefits of the Artis programme.

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<sup>36</sup> Paull and Xu (2017), Ibid

## Key findings

We assess the value for money of the arts programme by calculating two standard measures used in economic evaluations:

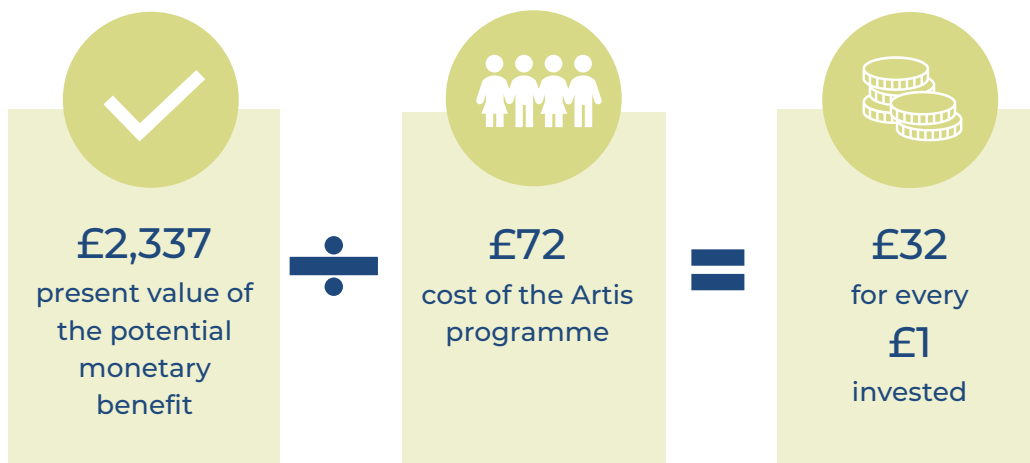
**Net benefit of the programme:** calculated by subtracting the cost of the Artis programme from the present value of the monetary benefits attributed to it. This measures the extent to which lifetime benefits exceed delivery costs.

$$£2,337 - £72 = £2,265$$

**Benefit to cost ratio of the programme:** calculated by dividing the present value of the monetary benefit by the cost of the Artis programme. This ratio shows the value of benefits derived for every £1 of cost incurred in delivering the programme.

$$£2,337/£72 = £32$$

This suggests that for every £1 invested in the Artis programme, there is a collective gain of up to £32 for the child, government, and society, assuming the benefits persist and do not fade over time.



As a thought experiment, we estimate the potential benefit of the Artis programme if it were to be rolled out more widely. Since Artis chooses to partner with schools in deprived areas, we calculate the lifetime benefits if the programme were rolled out across all schools in the top 20% of most deprived areas in England.<sup>37</sup> Primary school pupil roll data shows that 1.4 million pupils are enrolled in the top 20% (49) most deprived local authorities.<sup>38</sup> If the Artis programme was rolled out across all schools in these 49 districts, there would be a potential lifetime benefit of £2,337 X 1.4m = £3.3 billion for all children in any one academic year.

This highlights the potential scale of benefits that Artis could deliver to society if rolled out more widely.

### Sensitivity of results to key assumptions

Finally, we test the sensitivity of our results to changes in the assumptions made. A key assumption is that any improvements seen in the SDQ scores for children with elevated needs are all due to the Artis programme. However, as pointed out above in Step 1, it is possible that children with elevated anxieties found being at home during lockdown away from the everyday stresses of school improved their mental wellbeing (although it should be noted that the end of year survey was taken after the summer term when all pupils had already been back at school for more than a full term). If we exclude the top 25% of cases (9 pupils with elevated needs) that saw the biggest improvements in SDQ scores to account for the fact that this may simply have been due to being away from a stressful school environment and repeat the above analysis on the remainder of pupils, effectively taking away the impact of those ostensibly most helped by the Artis programme, the total lifetime benefit per child drops to £940 and the benefit to cost ratio drops to £4. This shows that even when the programme is evaluated after excluding those pupils with elevated needs who benefitted the most, the programme still yields positive benefits overall.

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<sup>37</sup> The 'most deprived areas' are the top 20% local authorities with the greatest number of Lower Super Output Areas with indices of multiple deprivation, as defined in the 2014 to 2020 European Regional Development Fund Operational Programme, Community-Led Local Development Annex – pgs 10-14 <https://www.gov.uk/government/publications/draft-european-regional-development-fund-operational-programme-2014-to-2020#full-publication-update-history>

<sup>38</sup> Pupil premium allocations 2021 to 2022: national, local authority, parliamentary constituency level <https://www.gov.uk/government/publications/pupil-premium-allocations-and-conditions-of-grant-2021-to-2022>

In addition, our core scenario assumes that the improvements in SDQ seen persist over time. We can also explore by how much benefits would need to fade over time before the benefits no longer outweigh the costs, known as a breakeven analysis. We estimate that more than 97% of the benefits would need to fade out over time before the benefits of the programme outweigh the costs. Overall, this suggests that even after relaxing some crucial assumptions of the study, the Artis programme is likely to provide significant benefits to society.

## Case Study B

Child M joined the school in September. On arrival, he was unsure of himself and was quite reserved. He lives with his mum and sister in temporary accommodation – some distance from the school. His mum was very anxious about the move to a new school. She has mental health issues and this has impacted significantly on the family.

We noticed early on that in Artis sessions, he was more confident. He seemed to come out of his shell, was happy moving around the hall, transforming into new characters, participating in the role play and interacting with others. He seemed both “lost” and “found” in the movement and the drama.

This has translated to other areas of school life. He is focused in class and is now showing great potential in his learning. He has a wide circle of friends and is happy to come into school. His mum mentioned his love of drama early on and having conversations with her about his enjoyment of the sessions has provided a route for us to build a strong relationship with her – so we are now able to talk to her about other issues, such as how we can help to support her mental health.

I feel that Artis has provided Child M with a safe space to release his emotions and find his voice. I feel incredibly proud of him.

### Partner School Feedback (Headteacher)

## Conclusion

Against the backdrop of a decade-long underinvestment in arts education, Artis Foundation partners with primary schools to deliver a high-quality curriculum-linked performing arts programme to its pupils. This study aims to objectively assess the impact of the Artis performing arts programme and examine whether it influences the learning and wellbeing of participating children over the course of the academic year.

Data collected by Artis over the academic year 2020/21 is used to examine whether there is an improvement in teacher-assessed Strengths and Difficulties Questionnaire (SDQ) scores for a random sample of 128 children between the start and end of its arts programme. We link improvements in these scores to better outcomes in later life, specifically around truancy, exclusion, youth crime, smoking, crime, depression, future employment and earnings, and calculate a monetary value associated with these outcomes. This is compared with the cost of its delivery to determine the cost effectiveness of the Artis programme and to understand the full extent of its social contribution.

Our key findings are as follows:

- When the full sample of children was considered, pupils showed a very small (but statistically insignificant) improvement in wellbeing. However, when the sample was segmented on the basis of initial level of difficulties, children who demonstrated elevated levels of initial difficulties showed a clear improvement in their wellbeing between the beginning and end of the Artis programme, even after accounting for possible natural recovery rates.
- The monetary average lifetime benefit per child of the Artis programme is estimated to be up to £2,300. This benefit accrues to individuals from higher lifetime earnings, and to the government from increased tax revenue and lower spending on public services related to crime, depression, truancy and exclusion. There is also a marginal gain to society due to reduced smoking.
- The cost of putting a child through one academic year of the weekly Artis programme is calculated as £72. This suggests that for every £1 invested in the Artis programme, there is a collective £32 gain to the child, government, and society.
- A sensitivity analysis allowing for the fact that some improvement in socio-economic outcomes in some children with elevated needs could simply be due to being away from a stressful school

environment yields a smaller but still positive result. In this case (i.e. excluding pupils who benefited the most), every £1 invested in the Artis programme still yields a £4 gain in long-term economic benefits.

- We estimate that if the Artis programme were rolled out across all primary schools in the top 20% of most deprived areas in England, there would be a potential lifetime benefit of up to £3.3 billion for all children in any one academic year.

While the results of our study are encouraging and supportive of the efficacy and cost-effectiveness of the Artis programme, the findings need to be understood within the context of its assumptions, limitations of the methodology and backdrop of the study. A critical assumption made is that improved outcomes driven by the intervention do not fade out over time. If they do, then clearly the amount derived for total benefits will be reduced. Second, due to lack of a control group, statistically we can only correlate the arts intervention with improved wellbeing rather than attribute causality to it. We recommend additional data collection in the future to address these issues.

It is relevant that the study was carried out in the backdrop of Covid-19 due to which some Artis sessions were moved online and anxiety was reported to be heightened amongst many children who saw their school and social lives disrupted. These factors are likely to have offset at least some of the full positive impact that in-person Artis sessions otherwise might have had on pupils' wellbeing. It is reasonable to postulate that had the data been collected in a year not disrupted by a pandemic, estimates of improved wellbeing might have been higher in the general population.

Finally, we note that improved wellbeing is only one of many beneficial outcomes of exposure to a high-quality arts education. Improved academic attainment, developing creativity, better social skills, and the overcoming of early disadvantages are other outcomes that several studies link to early years arts multi-art integrated interventions similar to the Artis offer. Correctly valuing these additional benefits - a task outside the scope of this study - would almost certainly flatter the estimates of monetary benefits of the Artis performing arts programme even further.

## Annex A: Calculating the monetary value of the benefits of the Artis programme

The relevant estimates from Paull and Xu (2017) used in the study are shown in Table A1 below.<sup>39</sup> These show the change in the probability of each outcome associated with a one standard deviation improvement in the SDQ score for children aged 4-11.

Table A1: Impact of a one standard deviation improvement in mental health (ages 4-11) on future outcomes

| Outcome    | Age   | Change in probability |
|------------|-------|-----------------------|
| Truancy    | 11-16 | -2.2%                 |
| Exclusion  | 11-16 | -0.2%                 |
| Crime      | 16-26 | -1.6%                 |
| Smoking    | 16-60 | -1.3%                 |
| Depression | 16-60 | -1.9%                 |
| Employment | 16-60 | +2.1%                 |
| Wages      | 16-60 | +2.5%                 |

The impact of the Artis programme on the likelihood of each outcome for is obtained by multiplying these probabilities by the *standardised* estimated improvement in the Value Added score for children with elevated needs.<sup>40</sup>

Table A2 shows the monetary values for children of age 3 and 7 based on the values reported in Table 7 of Paull and Xu (2017) for a one standard deviation reduction in SDQ score at age 3, and estimates from the Place2Be report for a one standard deviation reduction in SDQ score at age 7. Both columns are expressed in 2015 prices. We create an age-weighted average benefit per child for the Artis programme after converting these benefits into 2020 prices using the GDP deflator and discounting lifetime benefits for children of different ages by 3.5% (the discount rate recommended in the government's Green book).

<sup>39</sup> All adjustments to these estimates made in the Place2Be report hold.

<sup>40</sup> The average value added score for this group of children was 2.2 with a standard deviation of 6.0 yielding a standardised score of 0.36

Table A2 Gross monetary values per child for one standard deviation improvement in SDQ score at age 4-11

| Outcome            | Beneficiary | Age 3<br>(2015<br>prices) | Age 7<br>(2015<br>prices) | Artis age-<br>weighted<br>average<br>(2020 prices) |
|--------------------|-------------|---------------------------|---------------------------|--|
| Reduced truancy    | Government  | £31                       | £79                       | £106   |
| Reduced exclusion  | Government  | £22                       | £56                       | £75  |
| Reduced smoking    | Private     | £248                      | £636                      | £856   |
| Reduced smoking*   | Government  | -£91                      | -£233                     | -£314  |
| Reduced smoking    | Society     | £108                      | £277                      | £373   |
| Reduced crime      | Government  | £66                       | £169                      | £228   |
| Reduced depression | Government  | £191                      | £490                      | £660   |
| Higher employment  | Private     | £ 1,887                   | £4,838                    | £6,513   |
| Higher employment  | Government  | £ 1,215                   | £3,115                    | £4,194   |
| Higher wages       | Private     | £2,246                    | £5,759                    | £7,753   |
| Higher wages       | Government  | £882                      | £2,262                    | £3,045   |

\*reduced tax revenue on tobacco products

We multiply the weighted average monetary values by the estimated improvement in the SDQ scores of children with elevated needs seen after participation in the Artis programme. This gives the estimated monetary values per child with elevated needs for the intervention as shown in Table A3. These are expressed in present values in 2020 prices and represent a weighted average benefit per child based on the specific age profile in the sample.

Table A3 Total monetary values of benefits of the Artis' programme per child with elevated needs for an average change in SDQ

| Outcome      | Ages  | Private        | Government    | Society     | Total         |
|--------------|-------|----------------|---------------|-------------|---------------|
| Truancy      | 11-16 |                | £39           |             | £39           |
| Exclusion    | 11-16 |                | £28           |             | £28           |
| Smoking      | 16-60 | £315           | -£116         | £137        | £337          |
| Crime        | 16-26 |                | £84           |             | £84           |
| Depression   | 16-60 |                | £243          |             | £243          |
| Employment   | 16-60 | £2,399         | £1,545        |             | £3,944        |
| Wages        | 16-60 | £2,856         | £1,122        |             | £3,978        |
| <b>Total</b> |       | <b>£ 5,571</b> | <b>£2,945</b> | <b>£137</b> | <b>£8,654</b> |



## Annex B: A review of the literature

This Annex reviews the mechanisms through which arts programmes can impact pupil outcomes. The literature on the impact of arts-based intervention on child wellbeing, education and learning is vast. Many studies examine the effectiveness of fine arts, music, drama, dance and visual arts interventions and match these with specific end goals such as cognitive skills, IQ, self-esteem, reading, language, writing, subject learning outcomes, child behaviour, aesthetic appreciation, truancy and income in later life. A comprehensive review of nearly 200 such studies (mostly for children of primary school age) is provided in a Durham University report commissioned by the Education Endowment Foundation (EEF) to assess the evidence of impact of arts education on cognitive and non-cognitive outcomes of children from pre-school to compulsory school age.<sup>41</sup>

The objective of the Durham report was to critically assesses the quality and limitations of these studies and highlight methodological weaknesses such as small sample size, biased reporting, and an inability to control for external influences to identify areas of improvement in future studies. Despite the technical limitations, the report acknowledges that the overwhelming evidence of the collection of studies shows a positive relationship between arts-based interventions and pupil outcomes. It recommends that more research be done to identify the causal relationship between arts education and young people's academic and other wider outcomes to improve the existing evidence base. While an independent analysis of the statistical techniques used is beyond the scope of this report, the studies reviewed provide useful insight into the channels through which arts programmes seem to support pupil learning and wellbeing.

**Academic attainment:** First and foremost, a large number of studies look at the impact of various forms of arts interventions (e.g. visual arts, drama-based intervention, dance, music, multi-art integrated intervention) on general academic skills such as reading comprehension, writing skills, numeracy and vocabulary as well on as specific subjects such as maths and physics. The majority of studies points to a generally beneficial link between the intervention and child learning although it must be acknowledged that this finding is not universal and not all studies establish a positive statistical relationship between the arts and improved academic outcomes.

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<sup>41</sup> B. H. and Kokotsaki, D. (2015), Impact of arts education on the cognitive and non-cognitive outcomes of school-aged children. A review of evidence, Project Report. Education Endowment Foundation, Durham.

Areas where multi-art integrated interventions, such as the Artis programme, show the most positive impact are maths achievement, better attendance and reduced discipline referrals.<sup>42 43</sup> Creative classroom drama is shown to improve verbal skills, understanding and recall of oral and written stories, reading achievement on standardised tests, oral language development, writing skills and the enjoyment of the writing process.<sup>44 45</sup> It also correlates with better knowledge and understanding of science concepts taught using such methods.<sup>46</sup> Pupils found that using drama in the classroom facilitated understanding and contextualisation of concepts and problems and reported enjoying the lessons more.<sup>47</sup> A similarly beneficial link between a music-based intervention and child learning has been observed with improvements in reading, comprehension and speech segmentation correlating with various forms of music intervention.<sup>48</sup> Including music in mathematical content also seems to improve pupil disposition to mathematics as well as mathematical achievement.<sup>49</sup>

While, as stated above, some of these studies suffer from statistical weaknesses related to sample size and control of the external environment, the generally positive results indicate that arts-based interventions are correlated with improved academic outcomes. The most common rationale given is that arts intervention drives 'thinking and cognitive development through speculation, reflection, explanation and evaluation' and encourages an elevated level of engagement driven by the novelty of the approach and because the activity is perceived as 'fun' by pupils.<sup>50</sup>

**Developing a creative and open mind and stimulating the imagination:** Academic gains aside, there is a compelling argument for studying the arts for their own sake to foster broader goals such as developing a creative and open mind. After all, a successful economy requires openness, creativity, a broad skill set and imagination across the entire spectrum of professions.

<sup>42</sup> Phillips, P., & Bickley-Green, C. (1998), Integrating art and mathematics, *Principal*, 77: 46-49.

<sup>43</sup> Venzen, C. (2011) Effects of an integrated arts curriculum on fifth grade students' mathematics test scores. Ann Arbor, Capella University. 3487283: 118.

<sup>44</sup> Podiozny, A. (2000) Strengthening verbal skills through the use of classroom drama: A clear link, *Journal of Aesthetic Education*, 34(3-4): 239-276.

<sup>45</sup> Cormack, R. (2004) Creative drama in the writing process: The impact on elementary students' short stories. Ann Arbor, University of Northern British Columbia (Canada). MR04673:180

<sup>46</sup> Arieli, B. (2007) The integration of creative drama into science teaching. Ann Arbor, Kansas State University. 3291364: 183.

<sup>47</sup> Duatepe-Paksu, A., and B. Ubuz (2009) Effects of drama-based geometry instruction on student achievement, attitudes, and thinking levels. *Journal of Educational Research*, 102(4): 272-286.

<sup>48</sup> Lyons, L.M. (2009) The integration of music with reading concepts to improve academic scores of elementary students. Unpublished PhD thesis. Colorado: Colorado State University.

<sup>49</sup> An, S. (2013) The effects of music-mathematics integrated curriculum and instruction on elementary students' mathematics achievement and dispositions. 73, ProQuest Information & Learning.

<sup>50</sup> Schaffner et al. (1984) Nadie Papers No.1, Drama, language and learning: Reports of the drama and language research project, speech, drama centre, Education Department of Tasmania.

According to 2020 estimates by the Department of Digital, Culture, Media and Sport (DCMS) the booming creative sector contributed £111.7 billion to the UK economy in 2018, the equivalent of almost £13 million every hour.<sup>51</sup> As the first place where many children access arts education, primary schools can provide the inspiration and nurturing of talent that will supply the industry with the creative skills it needs to thrive in the future.

It is not just the creative sector that benefits from a talent pipeline of creative young individuals. The creativity nurtured by the arts contributes to the personal development of young people and instils confidence in their 'own ideas and opinions', skills that underpin success in a variety of professions.<sup>52</sup> A 2016 study by Deloitte concluded the UK workforce would benefit from a workforce with its technical skills balanced by more skills such as creativity, social skills, problem-solving and emotional intelligence.<sup>53</sup> As part of its recommendations on skills policy, it highlights the importance of the education system in cultivating creativity. Exposure to a high-quality arts programme at primary school can help children develop these creative skills early on in their education.

**Empathy and social skills:** Several studies establish a positive link between participation in music, theatre, drama and movement and improved social functioning and behaviour, suggesting that arts intervention may be beneficial for young pupils' social and emotional development, helping them learn about cooperation, collaboration, empathy, and emotional regulation.<sup>54 55 56 57</sup>

The National Endowment for the Arts (NEA) published the findings of 18 peer-reviewed studies that investigated the effects of art-related activities during early childhood, primarily music and dance, but also theatre or visual arts and crafts. Music-based and dance-based activities in particular were linked with better 'pro-social' behaviour in young children, such as helping, sharing, co-operation, caring and empathizing with others. Participating children also showed strong reductions in internalizing

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<sup>51</sup> [UK's Creative Industries contributes almost £13 million to the UK economy every hour - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

<sup>52</sup> Cooper B (2019), Ibid.

<sup>53</sup> Talent for survival: essential skills for humans working in the machine age. Deloitte, 2016

<sup>54</sup> Lobo, Y. B., and A. Winsler (2006), The effects of a creative dance and movement program on the social competence of head start pre-schoolers. *Social Development*, 15(3): 501-519.

<sup>55</sup> Goldstein, T. R. (2010) The effects of acting training on theory of mind, empathy, and emotion regulation. *US, ProQuest Information & Learning*. 71: 2721-2721.

<sup>56</sup> Arieli, B. (2007) The integration of creative drama into science teaching. Unpublished PhD thesis. Manhattan: Kansas State University 3291364: 183. s

<sup>57</sup> Menzer M (2015), The arts in early childhood: social and emotional benefits of arts participation: a literature review and gap-analysis (2000-2015); National Endowment for the Arts ; In partnership with the NEA's Interagency Task Force on the Arts & Human Development.

(shyness and anxiety) and externalizing (aggression) problems when compared with non-participating children.

While these studies do not explicitly examine the mechanism through which these improvements happen, researchers believe that experiences that involve cooperating, collaborating, following directions, demonstrating self-control, and paying attention all help encourage the growth of social and pro-social skills, and art activities often incorporate many of those aspects. In particular, creative drama permits children to act out stories and role-play in a way that allows them to practice skills that relate to communication, social interactions, and emotional regulation.<sup>58</sup> Classroom creative drama has also been shown to correlate with improvements in confidence levels and self-esteem.<sup>59</sup>

While the ability to manage feelings, demonstrate appropriate behaviours, develop relationships with peers and adults, and understand emotions of people around them are skills that contribute to improved emotional wellbeing and social functioning of a child not just at school but also later in life, there may also be associated economic benefits. The Deloitte study cited above states that social skills are now recognised as being equally important in the modern economy as cognitive abilities. While a 10% increase in measures of cognitive abilities contributes to a 12% increase in median hourly earnings, a similar increase in measures of social skills also contributes to a 10% rise in median hourly earnings.<sup>60</sup>

**Overcoming inequalities and accommodating disadvantages:** Inequalities can manifest in several forms. Whatever the basis of disadvantage, be it income inequality, learning disability or physical disability, in some cases participation in the arts could be the 'great equaliser', helping disadvantaged children narrow the gap with their peers.

Studies have linked drama-based instruction with improved affective attunement (i.e. the ability to understanding others emotions) in children with learning difficulties.<sup>61</sup> Music therapy has been demonstrated to lead to better outcomes for children with autism spectrum disorder (ASD).<sup>62</sup> Children with Attention Deficit Hyperactivity Disorder (ADHD) also seem to enjoy better learnings outcomes and prefer using art to study academic

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<sup>58</sup> Menzer M (2015), Ibid

<sup>59</sup> Arieli, B. (2007), Ibid

<sup>60</sup> Deloitte (2016), Ibid

<sup>61</sup> Poulsen, J. C. S. (1998)

<sup>62</sup> Kim J et al (2008); The effects of improvisational music therapy on joint attention behaviors in autistic children: a randomized controlled study. *J Autism Dev Disord.* 2008 Oct;38(9):1758-66. doi: 10.1007/s10803-008-0566-6. Epub 2008 Jul 1. PMID: 18592368.

subjects.<sup>63</sup> Pupils with specific reading disabilities have been observed to have seen a significant improvement after musical intervention was deployed as a remedial strategy to enhance reading ability.<sup>64</sup>

Arts education can also bridge close educational inequalities. Children from lower-income background in the UK lag their middle-income peers by one year in vocabulary with nearly a third of most disadvantaged children starting primary school in England without the necessary language skills.<sup>65</sup> <sup>66</sup> Arts activities such as creative drama and musical training are shown to positively impact reading ability and to encourage the development of language, thereby offsetting some of the negative impacts of lower social-economic status.<sup>67</sup>

Thus, the literature highlights a variety of mechanisms through which exposure to the arts can enrich a child's life and improve learning and wellbeing. While the qualitative analysis in this report is based on SDQ scores which focuses solely on the emotional wellbeing of children, this is simply a single piece of the puzzle. As such, the quantitative assessment should be viewed as a focused study of a single aspect of the benefits of exposure to the arts rather than a comprehensive assessment of all possible benefits which is a task outside the scope of this report's remit.

Measuring the impacts of these additional outcomes for a fuller estimate of benefits is something future studies might wish to consider. Not least because there are clearly many other positive outcomes such as better academic attainment, heightened emphasis on creativity, improved social skills, and the overcoming of early disadvantages, to name a few, that the literature links to early life arts interventions in programmes similar to the provision Artis strives to deliver.

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<sup>63</sup> Fountain, H.L.R. (2007) Using art to differentiate instruction: An analysis of its effect on creativity and the learning environment. Ann Arbor, Purdue University. 3278670: 307.

<sup>64</sup> Register, D., Darrow, A.-A., & Standley, J. (2007) The use of music to enhance reading skills of second grade students and students with reading disabilities. *Journal of Music Therapy*, 44(1), 23-37.

<sup>65</sup> Low income and early cognitive development in the UK: a report for the Sutton Trust. Jane Waldfogel & Elizabeth Washbrook, 2010.

<sup>66</sup> Early language development and children's primary school attainment in English and maths: new research findings. Save the Children, 2015.

<sup>67</sup> Tierney A. & Kraus N (2013), Music training for the development of reading skills. *Prog Brain Res*. 2013;207:209-41. doi: 10.1016/B978-0-444-63327-9.00008-4. PMID: 24309256..



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