

ARCHITECTURE IN SCHOOLS EVALUATION REPORT 2016

This report was written by Phd student Ana Llie following meeting convened of primary teachers from the Architecture in Schools programme. It includes in-person and online interviews with a number of participating teachers. The report looks at the position, effects and potential for expansion Architecture in Schools has in primary education. We draw on first-hand responses from participating teachers, literature analysis and online teachers' surveys analysis to illustrate the types of learning that occur through our programme, its relevance to the curriculum, potential for expansion and the need for further research.

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REPORT OUTLINE

Research problem: Evidence the positive impact of Architecture in Schools.

Research methods used:

- In-person interviews with classroom teachers on their perceived areas of impact on pupils' academic and personal development.
- Qualitative data from evaluation forms completed online by classroom teachers.
- Quantitative and qualitative data from online questionnaires completed by the teachers post-programme.
- Desk research around the impact of architecture in education.

Research aim: Demonstrate that Architecture in Schools can fulfill requirements within the theme of cultural learning.

Priority areas. Show how Architecture in Schools:

- Helps enhance young people's academic achievements/ uses arts-based approach to teach other subjects
- Enhance pupils' achievements and progression within one or more artforms
- Improves pupils' soft-skills or well-being, their social, moral and/or cultural development.
- Enhance young people's access to, and participation in, arts-based learning activities.
- Has positive effects on and is in line with whole school culture, integration, cohesion and/or community relationships.
- Enhance staff knowledge, confidence and skills in delivering arts-based learning activities.

Research objectives: Outline the requirements and demonstrate how the information gathered through primary research answers them.

Specific requirements:

- Show that the programme targets children facing inequality and/or disadvantage while adopting inclusive practices.
- Takes place as part of, or directly supporting, children's formal education and learning.
- Involves an art practice or cross-arts practices.
- Teachers are actively involved in the planning and review of the work and – where possible – in its delivery, so that teachers and their schools gain learning/professional development for the future and have the opportunity to reflect on the effectiveness of the activity
- Children and young people are actively engaged in the process of learning and reflecting, not simply being exposed to artistic experiences

In light of these requirements, the **objectives** are:

- To illustrate how Architecture in Schools is relevant to the school curriculum by showing how educators use the materials in the programme to achieve their teaching goals both during the programme and in the longer term.
- To highlight how Architecture in Schools promotes more active engagement in learning among pupils using observations gathered from teachers and pupils' own accounts as evidence.
- To demonstrate how Architecture in Schools enhances pupils' engagement in artistic practice and makes them more comfortable with expressing themselves creatively through evidence gathered from teachers and architecture professionals.
- To show how Architecture in Schools improves the quality of education through supporting and improving teachers' abilities through evidence gathered from their responses.
- To demonstrate how Architecture in Schools encourages pupils' soft-skills development through teamwork, discussion, and a variety of learning settings different from the traditional classroom environment using data gathered from teachers' and pupils.
- To evidence how Architecture in Schools enhances pupils' social and cultural skills through bringing them to buildings of architectural importance that they may not normally have access to using data gathered from teachers' responses.
- To illustrate how Architecture in Schools promotes pupils' healthy engagement in their communities in the long term, as they learn to engage with it more actively and in a more informed fashion using data gathered from teachers' responses and classroom observations.
- To demonstrate how Architecture in Schools addresses inequality and disadvantage among primary schools children through actively engaging them in architectural theory and practice.

Areas of interest/ Requirements	What we are already doing	How much we are doing/ What we are missing	What we will do in the future	Why
1) Widen access	Work with schools in areas of disadvantage	5 out of the 18 schools we worked with this year were CWG schools, benefiting from free participation. Missing is to make the programme available to more low-income students in areas of disadvantage.	Increase funding to make the programme available to a larger number of low-income schools.	Address inequality better and more proactively- expand the programme to reach a greater number of disadvantaged children.
2) Embed the programme in the schools we work with; In time, teachers will run the programme themselves.	1 training session for teachers and professionals; Offer a teacher's manual, a model-making guide and a design brief resource.	Peer review and more training for the teachers.	Peer review and more training for the teachers.	Ensure that sustainability of the teaching methods and practices.
3) Development of internal evaluation: more precision + more robust evaluation to take the programme to the next level.	Online evaluation forms. A few in-person and on-the-phone interviews with the teachers and the professionals involved.	10 of the 24 teachers involved this year responded to the online survey. Qualitative data from 10 teachers that participated in in-person and phone interviews.	Reach more teachers and engage them in more in-depth interviews to better assess the efficiency of the programme.	Improving the evaluation will help us gain a broader and deeper understanding on the effects of the programme, both the more visible and the ones that may have not been discussed before. It will show if the programme is doing what we think it is doing, and how to improve it based on the experience of

				those benefiting from it.
4) Reach people outside of London	-	-	Establish an online platform for the programme that teachers outside of London can use in their schools.	Make Architecture in Schools a programme that teachers and pupils outside of London can benefit from in equal measure with the ones living in the city.
5) Help enhance young people's academic achievements/ uses arts-based approach to teach other subjects	From the teachers' responses we have to date, the programme has a positive impact on pupils' engagement and interest in learning, owing to the hands-on, learning through doing and being in the space approach to teaching. The experience is also completely novel and different to them, which helps to draw them in and make them push themselves to discover new skills and interests.			

“It was a great opportunity to work with children from other year groups and to be exposed to architecture as a possible future profession. Throughout the project links were made to prior learning, allowing the children to apply this knowledge to a real life context. For example, by year 6, all three of the year groups had learned about the properties of materials in science and this project is a great example of how this learning applies to real life. In addition to this, the problem solving element of the project (again in a practical context) is a great way to encourage teamwork and resilience as a learner - both very important values. With so much to fit into a school year and the structure that comes with teaching many lessons in this time, the chance to work more freely is always enjoyable for both staff and children. Furthermore, each year the profile of architecture is growing in the school which we are pleased about as a school.”(Sarah Smith; Henry Maynard Primary School, 2016)

ABOUT THE CHARITY AND THE PROGRAMME

The Problem/Challenge the Programme Addresses

Architecture in Schools seeks to help bridge the gap between classroom education and children’s everyday experiences through bringing built environment education into schools. We focus our work in areas of unequal access to resources and opportunities to tackle children’s engagement in their own academic development. At the same time, we address the issue of unequal knowledge of and access to the city’s built environment among impoverished and disadvantaged communities.

We hope to promote durable change through providing the teachers with the training and resources so that they can employ an architecture-based approach to teach mathematics, sciences, design and technology and other parts of the curriculum that they may deem compatible.

How we identified it as a priority:

- Participating teachers responded that the programme provided a link between classroom teaching and applied knowledge that they did not otherwise have as part of their curriculum.
- The teachers reported that hands-on learning opportunities are very scarce in the existent curriculum.
- There is research evidence on the benefits of spatial learning in children; Research also suggests that this learning method has been overlooked in traditional classroom teaching.
- Architecture as a subject through which other disciplines and skills can be taught is not part of the mandatory curriculum.
- Our approach consisted of in-person interviews with the teachers+ analysis of current and previous years’ evaluation forms.
- Researchers have identified that today’s society and job-market require a set of skills that is different from what traditional classroom teaching is providing; they argue for a type of learning that is more sensitive to context, that pays attention to how constructing models in the physical world provide strong support for internal model-

making, or in other words, how practical activities teach us new and complex methods for thinking, learning, and problem-solving (Parchter&al; 2001).

Relevance across educational institutions

The built space is ubiquitous in every person's life. Learning about it and looking at it in a broader context can only help build more awareness and responsibility in children, fostering involvement in their community and informed decisions as they become adult citizens. This is a benefit of the programme that should become as widespread as possible to ensure durable and visible change in communities living in the city.

Moreover, the Architecture in Schools learning-in-the-space and model-making approach provides teachers with a structure to achieve their own teaching goals and objectives by adapting, emphasizing and building on specific parts of the programme. Curriculum subjects such as Mathematics, Design and Technology, Sciences and Art are taught through the programme, which make it extremely suitable geographical expansion.

Architecture in Schools also helps teach soft-skills, extensively required but generally hard to teach, in a highly enjoyable setting.

A Brief History of ARCHITECTURE IN SCHOOLS

The concept behind Architecture in Schools debuted as a pilot in 2002, and has been continued as a permanent Open-City programme from 2003. The pilot took place on the 21st 22nd and 23rd May and saw a total of 15 schools participating and 20 visits to a selection of some of London's greatest and most inspiring buildings. For this first edition we restricted entry to 11-14 year olds in order to monitor their knowledge and understanding over the next two years and see how this project informs their GCSE work. Since its inception, first under the name 'Open-Up: Junior Open-House', the programme was laid out as to increase a sense of understanding of the capital's architectural environment among young people - many from socially and economically excluded areas who may not otherwise have the opportunity to access this rich cultural resource. The project was developed to complement the work Open-City was already running, building on the experience and knowledge of previous projects. It targeted an age group who would not normally take part in looking at architecture, in events such as Open-House, for instance. Junior Open House was the first ever architecture initiative for primary and secondary schools.

The programme included from its inception a visit to selected buildings of varied architectural qualities in their city over three days in the summer term under the guidance of an architectural mentor who provided additional information and knowledge to the experience of the building. Logbooks and activity sheets were also provided to enhance the experience and add a more investigative research component to it. These exercises have from the very start of the programme been devised in consultation with the participating teachers and architects in order to ensure that the project complies with the national school curriculum guidelines. The pupils the pupils build their own creative design projects, consolidating and enhancing their knowledge into the subjects of Art & Design and Design & Technology (and more recently Mathematics and Science) in the process.

For the first year, we partnered with local education officers and specific community groups such as Excellence in Cities in order to ensure that the project content and production is delivered to enable maximum access to those groups in socially deprived areas. Consultation

with architects, teachers and educational experts has been undertaken ever since to ensure that the activity sheets meet curriculum requirements, and can provide teachers with templates for adjustments to meet their students' needs if required.

Following the 2002 pilot, the next phases of the project were funded by the Heritage Lottery Fund and reached 4500 schoolchildren between 2004-2005. In 2007 Open House has used core funding from the Arts Council to deliver Junior Open House to 1000 Key Stage 2 pupils and their teachers in state schools across the capital. The programme was renamed to Architecture in Schools in 2012 and became exclusive to primary school participants. It shrank in size seeing 360 pupils in 2013, yet maintained its ethos to help young people experience, explore and understand exemplary architecture in London. Its 2016 edition saw 670 pupils, 24 teachers partnering with over 38 design professionals from 21 practices and visiting 18 London building, culminating in an inter-school competition where we had a total of 140 competition entries from all the schools participating in the programme. Throughout our 14 years of delivering the programme, we have partnered with practices such as Fosters & Partners, Hopkins, Allies & Morrison, Keith Williams, Alsop, Bennetts, Dixon Jones. The buildings visited included The Wellcome Trust, City Gate House: Bloomberg, The Unicorn Theatre, Southwark Cathedral, the Royal Academy of Dramatic Art, the BBC White City Media Village, Bishopsgate Institute, Blizard Building QMUL the Channel 4 Building.

Evidence of promise and positive impact

In terms of benefits on the children involved, as quantitative data suggests, in 2016, 90% of the teachers participating in our online survey reported that the building visit helped enhance children's understanding of architecture. What is more, standing as proof of the suitability of the programme across social, cultural, economic and physical differences that might shape the pupils, backgrounds, 100% of the participating teachers in 2016 found the programme accessible to all students, and 100% believed it engaged both low and high ability learners. All of the responding teachers agreed that Architecture in Schools enhanced learning opportunities in the classroom, making it a strong point for the value of teaching curriculum subjects through architecture.

The teachers seemed to be more involved, knowledgeable and enthusiastic about this year's edition, as 90% of them used the teacher's manual and the model-making guide in preparation for the workshops. We also saw an increase in the use of Maths and Science activities we provide, compared to previous years (89% in 2016 compared to 65% in the previous year). Standing as proof that the programme is well received by teachers and that we should provide more development opportunities for them is that 100% of the survey respondents introduced the project design brief to their students prior to the building visit this year. All of them also ran preparatory events with the classroom.

Returning teachers' responses on the benefits of the programme both short-term and long-term, on their students' engagement and development and on their own professional development:

- The teachers reported that going out of school and visiting a building/site as part of this program helped expose the pupils to greater a depth of architecture knowledge than what they could offer them in school. Additionally, the novelty of the site was seen as a good opportunity for the pupils to experiment things that they would not normally do in a classroom setting.
- They also noted that the building visit is important for the pupils' development, as they get to look at aspects of the building they would not normally look at,

such as shape and materials. The experience inspired the children to look at their built environment differently, to analyze and assess what makes them different and “what makes a building strong”.

“The children learnt a lot about light, materials and structure.”

- The teachers interviewed said that the programme helps increase the pupils’ interest in learning and creativity because it delivers learning experiences that do not feel like work to them. They reported that the pupils took more ownership of their classes and put themselves into it more fully. They seem more self-driven and enthusiastic about their projects, coming up with ideas and initiatives of their own.
- The teachers recognized that the programme improved their own teaching skills and confidence. One of the teachers described how she was very reticent towards Design and Technology in the past, and how her experience with the Architecture in Schools programme gave her the confidence to teach it. She said she would definitely incorporate more Design and Technology in her classes in the future, since she now had the skills and the practice from the programme.
- Professionals noticed significant improvements in teachers’ involvement and contribution among returning teachers.

Data And Resources

The data used in this report comes from:

- In-person interviews with classroom teachers on their perceived areas of impact on pupils’ academic and personal development.
- Qualitative data from evaluation forms completed online by classroom teachers.
- Quantitative and qualitative data from online questionnaires completed by the teachers post-programme.
- Desk research around the impact of architecture in education.

From the hitherto collected evidence we can determine that the teachers who participate in the programme agree that the building visit component of it was useful to introduce the pupils to architectural practices and making children more observant to their built environment. There is also consistency and agreement over the effects of the programme on the pupils’ academic achievements and personal development.

There is academic research to support and inform some of our findings and practices.

A 2007 research paper published by NFER (Kendall, 2007) on the demand and supply of built environment education in schools highlights the following:

- Teachers are enthusiastic about and acknowledge the value of using buildings and local places within teaching. This was linked to:
 - positive social and academic impacts on pupils/students
 - importance of pupils/students learning about their local environment and community, its history and development.
 - cross-curricular opportunities and grounded links to other agendas, such as environmental issues.

A Clausen-May& Smith paper on teaching spatial ability in schools highlights the benefits the approach has on the children’s individual and communal development, both academic and as part of their communities:

- Children learn to understand and how to have a say in decisions that affect their lives as part of the community and inhabitants of the city.
- Built environment education has been recognized as a valuable tool to build pupils' both building skills and spatial thinking skills.
- An increased knowledge and enjoyment of space, shapes, and structure (Clausen-May & Smith, 1998).

As discussed above, the approach Architecture in Schools brings to built environment education focuses on encouraging pupils to become more aware of and involved in their communities and take informed decisions in issues that will impact their future.

Data from a national survey of schools and focus groups of young people suggests that while most schools mention citizenship and community in their mission statements, young people think that there needs to be more co-ordination between curricular and whole-schools approaches to citizenship and community (Davies & al, 2013). The 'Creating Citizenship Communities' project illustrated in its research that young people in England believed that classroom teaching should do more to complement and consolidate the learning done through citizenship building work. Moreover, schools recognized that it was harder to engage pupils from areas of deprivation in community and citizenship building activities, such as volunteering.

We argue that the way Architecture in Schools is structured can help bridge those gaps identified by the researchers and participants in the study ran by University of York. As demonstrated in the above section, by taking the pupils to research a building of architectural relevance, providing classroom workshops and additional learning materials, the programme encourages pupils to look at the built environment more closely and analytically. From the workshop observations and some of the teachers' responses, it transpired that a good number of children took inspiration from buildings in their local communities when making their models. Teachers also reported that the programme helped engage a greater number and diversity of children than the standard curriculum does. We argue that the focused yet explorative and open-ended approach of the programme, together with the multiple sites of learning, how it is delivered to both satisfy curriculum requirements while bringing attention to outside-the-school topics, helps instill community engagement and builds more active and informed citizens.

There is literature supporting the role of spatial thinking in teaching mathematical abilities (Fileker, 1998). Fileker argues that concepts such as 3D forms, space, and shape, are best understood through a mix between theoretical and practical learning. The approach suggested in this paper, that of practical activities interweaved with instances of reflection, asking questions and learning technical terms corresponds to our own observations from the workshops design professionals run with the pupils and the class teachers as part of Architecture in Schools.

Gaps

Albeit we tried to achieve both breadth and depth with our research, we do acknowledge that our samples were limited because of time constraints. Therefore, we are aware that there is potential that these answers do not reflect all the possible responses the participating teachers could give. In the future, we hope to improve our evaluation to include more responses, both in the surveys and in the interviews.

Quantitative data may present biases at the moment, as well, as survey formats changed from one year to another and a statistical analysis over a longer timespan would be less accurate.

How we have used this evidence and learning to shape our approach

The programme aims to develop resources that help build knowledge by developing content in relation to current built environment educational theory as well as drawing on expertise from architects and teachers.

Open-City strives to improve its Architecture in Schools constantly to make it relevant to the curriculum and useful in pupils' development. In this sense, we review each years' teachers' and professionals' feedback. Architecture in Schools was developed in partnership with design professionals and classroom teachers to ensure that the learning experiences provided would be relevant to the school requirements and complement and enhance the knowledge pupils gain from their standard education.

We try to convey in our building visits how the social is intertwined with the physical in the design and building of a space. We strive to encourage the development of multiple forms of knowledge acquisition among the pupils we work with.

Overall, our evidence supports or view that teachers should benefit from more training on how to embed the programme into their class teaching, as the evidence shows they are receptive to the opportunities they are already being offered, the professionals that work with them reported that they were more in control this year and that overall better preparation of the teachers translates into increased engagement among the pupils. One recurring point from the analysis of the online evaluation forms from the last 3 years and the more in-depth interviews with the teachers is that teachers' involvement is crucial to the development and success of the programme. The schools where the teachers engaged the classroom in additional activities to the building visit and the workshop with the professionals had a more consistent representation in the final awards ceremony. Moreover, the interviews with the teachers suggested that the training and the exposure to the different ways in which they can engage the children and achieve their teaching goals using architecture as an overarching theme.

APPROACH

- a) Children and young people: building visit with professionals, followed by classroom discussions and work and a model-making workshop with professionals.*
- b) Teachers: INSET training, to ensure a certain legacy of the programme in schools.*

Why these activities?

We believe that the built environment can be used as a powerful learning tool through combining inspirational experience of contemporary architecture, mentoring and themed workshops to develop academic and personal skills in pupils and their teachers. The programme serves the dual purposes of informing and inspiring young people through exemplary architectural design, and equipping and enabling them to achieve academically by developing design awareness.

The Architecture in Schools approach is built upon partnerships. We believe that only in this way we can ensure the best quality of the education we deliver, as it facilitates a more all-round approach to built environment education. Open House facilitates and supports relationships between teachers, learners and architects to empower each of them to share ideas, skills and perspectives. Throughout the programme teachers and architects support young people through their learning journey, so that they can be active citizens.

Through Architecture in Schools young people become active problem-solvers, who are informed about the impact that design has upon the built environment and who are able to articulate their concerns and wishes for the future.

Pupils are actively engaged in arts-based learning activities

The building visits and workshops that make up the programme are structured to engage the pupils and promote active learning. The building visits feature researching and exploring activities to ensure full engagement with the space and trigger pupils' interest and critical thinking. The workshops are hands-on experiences, as pupils build a model to fit the year's theme together with a team of professionals, either architects or engineers. They are encouraged to ask questions and experience with different building techniques, gaining theoretical and practical knowledge in the process, as well as improving their team working skills.

The activities are inclusive and offer progression for all learners

Taking this year's online survey responses as point of reference, 100% of participating teachers responded that the activities were accessible to all pupils and the same percentage indicated that they were effective in engaging lower ability learners as well as more able learners. In this sense, we hope to continue to help teachers engage a larger number and a greater diversity of pupils in their classrooms. The workshops in particular foster self-motivation in pupils and leave them with a sense of ownership of their models that creates confidence and drive to learn more.

Arts-based learning activities are appropriate, effective and high quality

Each year we select our collaborators very carefully, and run joint training sessions with the design professionals that deliver the building tours and workshops and the teachers from the schools we partner with. In this way, we try to foster fruitful dialogue between the two fields of expertise. This is also how we make sure that the professionals and the teachers are each aware of how the programme will unfold and they can negotiate their roles and know what to expect. Throughout the years, we have established durable relationships with some of our collaborators, both among the professionals and the teachers. Through them, we gain competent and immediate external perspectives on how our programme is evolving and receive pertinent feedback on how to improve it. We try to get the teachers involved in the programme as much as we can, to ensure the appropriateness, effectiveness and the quality of our work. We realize that the teachers are best in position to notice how the learning activities are approached by and incorporated into the classroom, the effects they have and how they are relevant or not.

How we will:

a) involve teachers/staff in the planning, review and (where possible) delivery of the work

A central component in our plans for improvement is achieving more precision and ensuring more robust evaluation to take the programme to the next level. The teachers are already involved in the delivery of the work, as they actively participate in the classroom workshops and oftentimes run their independent preparatory classes with their pupils, to enhance the pupils' knowledge on the year's theme, while using it as a medium to convey information required in the curriculum. We aim to reach more teachers and engage them in more in-depth interviews to better assess the efficiency of the programme in the years to follow.

b) support teacher/staff professional development.

At the moment, Architecture in Schools offers 1 training session for teachers and professionals, a teacher's manual, a model-making guide and a design brief resource. In the future, we aim to provide more training for the teachers and to encourage peer review between them as they start to embed it in their teaching and adapt the material to suit their teaching objectives more closely.

Possible Problems or Challenges

One constant issue we have been faced with throughout years is the short time-span over which the programme is ran; there is not enough time for us to collect enough relevant data from the teachers before the end of the school year, as teachers tend to be busy and hard to reach. The result is partial pieces of data that, although relevant, might not speak for the whole group of participants. Qualitative data in our case is hard to obtain and requires specialized personnel.

We desire to have more people involved in the research process, to reach a higher number of teachers and engage them in more in-depth data collection. Additionally, we hope to extend the time-span of the research, to go beyond just the weeks when the program is run to allow us more time to reach all the people involved, as well as to analyze the legacy of the programme and what its long-term effects look like.

OUTCOMES AND CHANGE

Children and young people

We try to encourage the children in our program to look at architecture differently, become more analytical and critical of the built space that surrounds them. In this fashion, we aim to help them become more active citizens, willing and able to get involved in conversations that shape their future and that of their communities. Moreover, we believe that teaching through architecture makes standard curriculum information more appealing, as its application is made more visible in the immediate reality. In this way, children who regularly may engage less in classroom discussion can be motivated to approach learning from a different, more hands-on minds-on perspective.

Teaching staff and schools

We hope that the teachers we work with gain more confidence to use architecture as a medium to teach subjects like Mathematics, Science, Design and Technology and Arts. Overall, we hope for them to be able to take the training and experience we provide them with throughout the programme and embed it in their teaching. In this way, they can use the teaching methods practiced in the programme independently, build on them and adapt them to their classroom needs as well as disseminate it to other teachers.

Potential for wider impact

The overall outcome we are hoping to achieve is a more robust evaluation of the impact and ramifications built environment education has on KS2 pupils. We hope to generate

a comprehensive evidence and research on the immediate, easily noticeable as well as the long-term, subtler effects our approach has among primary school pupils.

In this fashion, we hope to indicate that built environment education should be connected to education research, rather than the architectural world. In this sense, we hope to inspire more research in the field of built environment education in schools coming from education research institutions, yielding more substantial data on the learning process observed in children throughout these activities.

AIMS FOR FUTURE RESEARCH

Research personnel would run more extensive quantitative and qualitative research on the impacts of the programme all throughout its length and possibly outside of it. In this sense, we would partner with an educational research institution to create a solid body of research around our programme.

We will maintain our end-of-programme online evaluation forms and our presence in the delivery of the workshops. In addition to that, we aim to make use of a partnership with a research institution, preferably in the education sector, to run more extensive and in-depth research with our participants. We plan to use interviews, observation, and observation groups to achieve the depth of data that we desire, while reaching a larger number of teachers to ensure breadth across the data that we collect. In this sense, we hope to be able to research the programme with returning teachers over multiple years, so we can gather better insight and statistical data over how they start to incorporate the programme into their teaching.

This comprehensive and robust research we hope to obtain will help us understand the efficiency and the legacy our programme has produced throughout the years. In this respect, we will use the findings to evaluate if and how our aims and outcomes match, and what other effects we have not foreseen the programme might have; we can eventually tap into some unexplored learning opportunities and develop new and improved ways to teach curriculum subjects through the built environment.

The body of research generated will be made available as for guidance and reference to anyone running or just starting to engage in any similar work. We aim to inspire more research on the benefits and learning outcomes of built environment education in primary schools.

We hope to have demonstrated herein the benefits Architecture in Schools brings to primary school pupils and teachers. We hope to be able to take this programme even further, by generating a reliable and robust body of research to illustrate its effects and inspire further teacher initiatives to teach curriculum subjects through architecture and connect it with educational research.

TEACHERS' RESPONSES TO THE PROGRAMME AND WAYS OF LEARNING

-Themes Found In Teachers' Answers

Importance of building visit/ different area exploration:

The teachers reported that going out of school and visiting a building/site as part of this program helped expose the pupils to greater a depth of architecture knowledge than what

they could offer them in school. Additionally, the novelty of the site was seen as a good opportunity for the pupils to experiment things that they would not normally do in a classroom setting.

They also noted that the building visit is important for the pupils' development, as they get to look at aspects of the building they would not normally look at, such as shape and materials. The experience inspired the children to look at their built environment differently, to analyze and assess what makes them different and "*what makes a building strong*".

"The children learnt a lot about light, materials and structure."

Increased interest in learning:

"The pupils had been introduced to the project prior to meeting the professionals and visiting the building, so as each section of the programme unfolded they became more and more engaged in architecture and design."

The teachers interviewed said that the programme helps increase the pupils' interest in learning and creativity because it delivers learning experiences that do not feel like work to them. They reported that the pupils took more ownership of their classes and put themselves into it more fully. They seem more self-driven and enthusiastic about their projects, coming up with ideas and initiatives of their own. One teacher compared this attitude to regular Mathematics, Science, or Design Technology classes and noticed that the pupils were not checking the clock anymore, showed more engagement, and in higher numbers, and were looking forward to their model-making classes.

In light of this evidence, we can conclude that the programme has a positive impact on pupils' engagement and interest in learning, owing to the hands-on, learning through doing and being in the space approach to teaching. The experience is also completely novel and different to them, which helps to draw them in and make them push themselves to discover new skills and interests.

Long-term benefits of the programme in classroom teaching:

The teachers involved in the programme recognized that the skills the pupils developed in the programme will help improve their classroom experience and achieve their learning outcomes more efficiently. The teachers listed visible improvements in collaboration skills, and in planning stages for an end product.

Some teachers practiced persuasive writing with their class in preparation for the model-making workshops. They looked at the advantages and disadvantages of inhabited bridges, while enhancing their English and writing skills and broadening their general knowledge.

Moreover, the teachers recognized that the programme improved their own teaching skills and confidence. One of the teachers described how she was very reticent towards Design and Technology in the past, and how her experience with the Architecture in Schools programme gave her the confidence to teach it. She said she will definitely incorporate more Design and Technology in her classes in the future, since she now had the skills and the practice from the programme.

Teamwork was a skill all teachers agreed their pupils had acquired. Speaking and listening skills were also mentioned as soft skills that are essential to the class learning dynamics that were fostered throughout the programme.

Skills useful for pupils' academic development:

The teachers listed planning, designing, strategic thinking and selecting appropriate tools and techniques among the skills that the pupils' gained from the programme that will help them boost their academic achievements.

Mathematics was most commonly mentioned, as the pupils had to use or acquire multiple skills in this field, such as scale, measuring etc.

The feeling of achievement and pride in the work produced was also mentioned as a catalyst for further class engagement, especially among those that would normally be more reserved during classes.

Some of the pupils said they thought the most important and challenging thing they learnt was “how to make the buildings stay strong and what materials to use”

In terms of pupils’ social and cultural development, the teachers noticed that the pupils benefited from working with experts in their fields and exposure to subject-specific terminology.

Integration and community relationships benefits:

For some pupils, the programme came as an opportunity to learn more about design that is all around them and to question the function and features of architecture. The teachers mentioned how the programme left their pupils with - A better understanding of the work that goes into building the city around them and what is involved, including the thought put into materials and structure and how this links in with wider social and aesthetic concerns.

This years’ theme incited discussions and research on sustainability, as one of the teachers responded, which was a relatively new concept to many students.

The experience also made the children more aware of where they live, which was reflected in how they brought elements from their boroughs into their designs, for instance.

The programme also helped highlight different opportunities that they may not had been aware of. As one of the teachers put it, “[the programme] *definitely made them explore something they did not know was there and it made them see it from many perspectives.*”

“It is very important for the children to explore their city and to understand their role in a wider community. They enjoyed working alongside the architects

APPENDIX

Interviews

1) Lucy Hall

□ ***How important do you think it is for the pupils to go out of school and visit a building/site as part of this programme? (e.g investigating a building, activities outside the classroom, meeting architects who designed the building, learning outside the classroom, obtaining a wider view of their city, rather than just their local area, extending their view of their city)***

□

It was an enjoyable part of the whole process and the booklet was an excellent way to structure the visit. The children learnt a lot about light, materials and structure. It would have been more relevant for them to have visited a bridge though as I don’t really think they fully understood the connection. We did our own walk along the river and studied various bridges and this was very useful.

It is very important for the children to explore their city and to understand their role in a wider community. They enjoyed working alongside the architects.

□ ***Did you notice an increased interest in learning about what they were doing among your pupils?***

The children thoroughly enjoyed participating in the project and their interest in architecture and their surroundings in general greatly increased.

Through the project they learnt a great deal, with links to maths, art and DT, science etc. as well as how to work effectively as a team. I'm not sure they would see it as learning though as they were having so much fun!

What do you think the benefits of the programme for you will be over longer term? Can you give a few examples?

- *A feeling of achievement and pride in work produced.*
- *An increased knowledge of their city and of London landmarks.*
- *A better understanding of the work that goes into building the city around them and what is involved, including the thought put into materials and structure and how this links in with wider social and aesthetic concerns.*
- *Team work/leadership skills.*

Are there particular skills the pupils acquired from this programme that are useful in their academic development?

- *Science: habitats*
- *Maths: drawing to scale*
- *Working effectively in a group*
- *Art and design skills*
- *DT skills*
- *Speaking and listening skills*

Do you think the programme prepares the pupils to be more observant citizens in their communities and take more informed decisions?

Very much so, for the reasons I have mentioned above

2) Taw Stagg

How important do you think it is for the pupils to go out of school and visit a building/site as part of this programme? (e.g investigating a building, activities outside the classroom, meeting architects who designed the building, learning outside the classroom, obtaining a wider view of their city, rather than just their local area, extending their view of their city)

It was an important part of the project because working with design professionals exposed the pupils to greater depth of subject knowledge than just the teacher's own. Learning outside the classroom is always a valuable educational experience and pupils enjoy a variety of learning environments.

Did you notice an increased interest in learning about what they were doing among your pupils?

The pupils had been introduced to the project prior to meeting the professionals and visiting the building, so as each section of the programme unfolded they became more and more engaged in architecture and design.

What do you think the benefits of the programme for you will be over longer term? Can you give a few examples?

- 1) Collaboration skills
- 2) Planning stages for an end product
- 3) Experience of working with experts in their fields.
- 4) Exposure to subject specific terminology

□ Are there particular skills the pupils acquired from this programme that are useful in their academic development?

Planning, designing, collaborating, strategic thinking and selecting appropriate tools and techniques.

□ Do you think the programme prepares the pupils to be more observant citizens in their communities and take more informed decisions?

For some, this has been an opportunity to learn more about design that is all around them and to question the function and features of architecture.

Interviews From the Awards Ceremony

□ How important do you think it is for the pupils to go out of school and visit a building/site as part of this programme? (e.g. investigating a building, activities outside the classroom, meeting architects who designed the building, learning outside the classroom, obtaining a wider view of their city, rather than just their local area, extending their view of their city)?

Jack Merrick: *“The focus during the visit was placed on the building rather than just its function. So pupils learnt how appreciate different architectural features and understand how buildings are put together.”*

Fatima Mirza: *“It was an opportunity for them to experiment things they would normally not come in contact with in a classroom setting.”*

Kathleen Tekiner: *“The building visit helped inspire the children with for the model making session. Good design ideas presented there.”*

Emma Chan: *“It made the pupils think about buildings in a different way.”*

□ Did you notice an increased interest in learning about what they were doing among your pupils?

Fatima Mirza: *“The pupils showed and increased sense of ownership during these workshops. The workshops did not feel like hard work to them, as they were all very motivated and enjoying themselves. It inspired her to use DT more often in the classroom, as she was very much scared to do so before that.”*

Kathleen Tekiner: *“They learnt to look at buildings more differently. Pupils now notice shape and materials and realize what makes a building stand strong or not.”*

□ **What do you think the benefits of the programme for you will be over longer term? Can you give a few examples?**

Fatima Mirza: “The programme has given me more confidence to teach Design Technology. I will certainly go deeper into it in my classes in the future. Let the children lead. It was surprising what they came up with.”

Jack Merrick and James Ellis: “Stronger DT abilities -the idea that the designing process is something that evolves, rather than being pre-established. The activities also helped bring math and science to life. I makes these subjects feel more real, makes their applicability in our lives more tangible and obvious.”

□ **Are there particular skills the pupils acquired from this programme that are useful in their academic development?**

Fatima Mirza:
Mathematics (scale)
Science
Design

Pupils from the Lancasterian: “How to make buildings stay strong and what materials to use.”

Jack Merrick and James Ellis: “Definitely teamwork.”

Amanda Benson: “The pupils in that class already had strong artistic skills. The work they were doing throughout the programme gave them more confidence to express that.”

□ **Do you think the programme prepares the pupils to be more observant citizens in their communities and take more informed decisions?**

Fatima Mirza: “Talked about sustainability a lot as part of the workshop preparation, which was a new concept to many of the pupils. Additionally, they did persuasive writing, looking at the advantages and the disadvantages of an inhabited bridge. The experience also made the children more aware of where they live, which was reflected in how they brought elements from their boroughs into their designs, for instance. The programme also helped highlight different opportunities that they may not have been aware of.”

Amanda Benson: “Definitely! It made them explore something they did not know was there and made them see it differently.”

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