

John Laing Charitable Trust Awards

This Place is like a Building Site

2018-19 Final Report, May 2019



"They don't want to go for break, they want to keep working... that's never happened before!" Surprised and delighted Y6 Teacher

"It was fun building the chair and was amazing to see it finished and to see how much hard work we put into it." Y4 Pupil

"The children thoroughly enjoyed every moment and are incredibly proud of their achievements; seeing the storytelling throne out in the orchard is a physical landmark of their teamwork and cooperation." Y6 Teacher

Project summary

All state primary schools in Swindon (including Academy chains) were invited to apply for a John Laing Charitable Trust Award in the academic year 2018-19. Successful schools were offered an intensive two-day guided workshop led by a skilled Network Delivery Officer supporting a group of children to construct a large outdoor wooden structure using a range of hand tools.

Interested schools were required to complete an application form explaining how the project would benefit their pupils and staff development, and complement their broader curriculum and school development priorities. This year, they were also asked how they would disseminate and spread learning outcomes from the project both within and beyond their school.

As part of the application process, schools were required to include the number of pupils eligible for free school meals (a recognised measure of disadvantage). The applications were carefully considered and ranked by a team from Learning through Landscapes (LtL) to determine the eight schools that would participate in the project.

Successful schools were presented with a menu of the two-day workshop options, each leading to the successful completion of a hand-built outdoor wooden structure worth £1250. This year's choices were:

- Storytelling Throne
- Large Planter (with soil)
- Solitary Bee Hotel
- Large Bench

These structures were carefully developed over the last six years with LtL staff working in close conjunction with project supplier: TouchWood (www.touchwoodplay.co.uk). TouchWood is a specialist design and build natural playground company with over fifteen years' experience creating innovative, highly engineered playgrounds and adventure play areas. Each structure kit provides opportunities for pupils to develop the maximum range of skills whilst guaranteeing a high quality completed product that is both safe to use and will be a valuable school resource for many years to come.

We purposely chose to develop physically large structures as it is rare for children in schools to get the opportunity to work on a large scale. It has been a striking and recurring theme of this project that many schools have admitted to leading little or no practical design and technology learning. Where practical work is undertaken in schools it is invariably on a small scale, hence some children may have used hacksaws to cut small sections of timber but will not have had the opportunity to cut larger timber with handsaws before.

Cover image: Bridlewood Primary School, project structure: Solitary Bee Hotel



Red Oaks Primary School, project structure: Solitary Bee Hotel

The increasing need for this project (and others like it...)

In a notable change to previous years, for the first time several school applications mentioned children's mental health and how teachers felt that this project could have a positive impact on wellbeing. LtL has long championed the health and wellbeing benefits of outdoor learning and play so we were pleased to read teachers reference these.

Whilst the reasons for the acknowledged decline in mental health amongst children are complex, there is mounting evidence for the positive impact of spending time outdoors engaging in practical projects. Research from our Outdoor Classroom Day 2018 campaign revealed that:

- 72% of participating teachers believe that pupils' ability to concentrate improves after taking part in lessons outdoors,
- 90% of participating teachers believe that pupils' engagement in learning increased after taking part in lessons outdoors,
- 94% of participating teachers believe that pupils' social skills, imagination and creativity all improved after playing outdoors, and
- 91% of participating teachers believe that children are happier after taking part in lessons outdoors.

In addition to a higher profile for child mental health and wellbeing, the importance of practical craft experience has also recently been raised. In an article published in the New York Times in May 2019, Professor Kneebone, who runs surgical education at Imperial College, London, said that young people have so little experience of craft skills that they struggle with anything practical. He warned that medical students might have high academic grades but cannot cut or sew, saying:

"It is a concern of mine and my scientific colleagues that whereas in the past you could make the assumption that students would leave school able to do certain practical things - cutting things out, making things - that is no longer the case."

Finally, there has been a palpable growth amongst young people in awareness of environmental issues including climate change, plastic waste, species extinction and loss of biodiversity. One clear manifestation of this has been the recent youth-led climate strikes that have become a global phenomenon. Through using locally grown timber that is sustainably produced, this project has the opportunity to introduce children to the principles of ethical construction. The Bee Hotel workshop additionally enables schools and children to make a practical contribution to supporting their local pollinators and environmental biodiversity.

The importance of the construction industry to the UK economy

The Office for National Statistics, in a 2017 report, put the value of the construction industry to the UK economy at £99,266 million (approximately 7% of the total economy). In the same report they noted that:

"The number of jobs provided by construction firms has been increasing since 2011; this has continued in 2016, with construction employment increasing by 4.6%

compared with 2015. This makes construction the fastest growing sector when compared with agriculture, services and production.”

It is estimated that 2.9 million people are currently employed in the UK construction sector. By any measure, construction, and the related Science, Technology, Engineering and Mathematics (STEM) sectors, are vital to the UK economy and provide a livelihood for many people.

And yet...an emphasis on the academic curriculum at the expense of practical crafts, coupled with a lack of teachers' practical skills, means that most children have very few opportunities to engage in creative activities. Time and again whilst delivering this project we have come across children who by the end of their primary education have never had the opportunity to construct anything beyond a LEGO house! Sadly, this situation is also increasingly the case for the teachers that are responsible for their education.

We are aware that the UK is facing a serious and potentially economically crippling skills shortage in STEM and related subjects. At the heart of this issue is education. From early years through to secondary school, university and workplace training, we need to instil in our children a passion for STEM subjects. Early exposure to practical opportunities (such as those provided through this project) helps children to appreciate the creative nature of STEM and sparks future interests and career choices. Even those children that take different paths later in life will benefit from an exposure to practical activities by learning to better recognise and manage risk, work as a team, and build personal resilience and self-esteem.

The under-representation of women in UK STEM related employment is also a well-documented issue. While STEM Learning and other organisations are working hard to tackle the barriers to engagement facing girls and women and reduce the numbers of women opting to pursue non-STEM careers after studying STEM subjects at university, there is still much to be achieved. There is a very real danger that we are compounding the STEM skills shortage through a lack of confidence and skills in our teachers.

A vitally important aspect of this project has been to work with teachers alongside children, to give both groups the confidence and necessary skills to continue working practically after the completion of the project. The 'impact' section of the feedback below shows that for some teachers this has worked, and they are changing their practice as a result.

This report concludes with three development opportunities which we invite the Trust to consider supporting.



Eldene Primary School, project structure: Large Bench

Workshop delivery

Workshops at all eight participating schools were delivered between November 2018 and February 2019. Each school received two consecutive full-day workshops in which our Network Delivery Officer worked alongside pupils and staff. This model provides an immersive experience for both children and staff and is also financially efficient.

To overcome practical barriers to participation, we provided every child with waterproof over-trousers, a fleece lined waterproof jacket, woolly hat and work gloves. We also provided wellington boots for those children without suitable footwear. This year we also took a large flask of hot chocolate and a plentiful supply of chocolate biscuits to each workshop, and these proved to be a real hit with both children and staff alike during the cold weather!

Some of the workshops needed to be rescheduled due to adverse weather conditions in November and others were delivered during very cold weather. For these reasons, and following feedback, we propose shifting future project delivery to the warmer spring/summer months.

This year we managed to give each school its first choice of physical structure and completed:

- Storytelling Throne x4
- Large Bench x2
- Solitary Bee Hotel x2

Each of the above construction projects provided a wealth of learning opportunities and skills development including measuring, marking, cutting, drilling, fixing, assembly, following plans and team working. The emphasis was firmly on 'doing' but our Network Delivery Officer also highlighted links to curricular learning for the teaching staff and pupils, and health and safety around construction sites (including this one).

The construction work was undertaken with groups of up to ten children working at any one time. The group size was limited to 10 pupils to both ensure safe working practices and maintain a high-quality learning experience for every child.

Schools were asked to choose the ten children they felt would most benefit from participation over two days – an invaluable experience in making, resilience building and a boost to children who in some cases had been selected on the grounds of low self-esteem or deprivation issues. Some schools chose to allow more children to experience the project and changed the participating children on the second day, others kept the same 10 children for both days. Both approaches are valuable and have shown real impact as evidenced by the evaluations.



Southfield Junior School, project structure: Storytelling Throne

Project aim and outcomes

The ongoing aim of the project is to support participating children to thrive and achieve through practical experiential learning and contribution to a shared construction project, and to support teachers to develop the confidence and skills to lead similar work in the future.

Agreed project outcomes:

- 80 + children have gained new skills in the use of hand tools and construction methods and are able to describe what these skills are,
- 80 + children report feeling more confident in working on joint projects and initiatives with their peers,
- 80 + children are observed by their teachers as participating in activities more than they would normally and are more engaged in their learning,
- 80 + children are more aware of the important role that the construction industry plays in the UK economy and have some real experience to back this up,
- 80+ children are aware that building sites can be hazardous places, and are not places to play in,
- 16 teachers/Learning support assistants report feeling more confident in the delivery of outdoor construction projects with primary aged pupils,
- 16 teachers/Learning support assistants report feeling more confident in teaching curriculum subjects through practical outdoor construction projects.

Analysis of the post-project questionnaires together with qualitative feedback from staff and pupils clearly demonstrate that the above agreed outcomes were all achieved. Responses have indicated that:

- Children have noticeably grown in confidence and resilience over the duration of the project.
- Children are more engaged in their learning and are identifying new learning.
- The same has also been true for the staff that embraced the project. It is interesting to observe the journey that a member of staff typically goes on during the practical workshops, from initial reticence and caution to enthusiasm and empowerment by the conclusion of the workshop. This year, a positive impact on the whole school has been seen with teachers excited about expanding the project.
- Children have developed practical skills (e.g. assembly, fixing, measuring, following plans, cutting, drilling) together with better understanding the relevance of these across the whole curriculum. Perhaps of even greater significance are the learning skills developed through communication, team-working, perseverance and problem solving.
- As intended, schools are encouraged to choose those children that they feel would benefit most from the workshop experience. Typically, this is those children who find the classroom environment challenging and/or those which lack confidence. As in previous years, there were no significant behaviour issues. This was despite many participating children regularly displaying challenging behaviour within the classroom environment.

Key findings from the 2018-19 project

Evaluation of the project included asking all participating children and teachers to complete a questionnaire. The findings are summarised below together with quotes from children and teaching staff.

Staff questionnaire

The staff questionnaire was divided into sections on delivery, the Network Delivery Officer and impact. Each section featured several statements, which participants were asked to rank on a five-point scale with 1 being 'strongly disagree' and 5 being 'strongly agree'. The percentage scores are based on the total number of completed questionnaires (n=14). This is the second year that we have delivered this project to Swindon schools and the feedback has again been unanimously positive with an overwhelming number of schools giving the highest grade (5) in all sections (see table below).

Delivery:	
The goals of the scheme were clearly defined	100% scored 5
The construction projects on offer were relevant and well thought through	100% scored 5
The support the school received before and during the project was good	100% scored 5
The progress of the project was well planned, and it worked well in practice	100% scored 5
During the workshop children were engaged	100% scored 5
Advisor:	
The advisor was knowledgeable about the topics and enthusiastic	100% scored 5
The advisor was well prepared for the sessions	100% scored 5
The advisor maintained interest throughout the sessions	100% scored 5
Project Outcomes:	
Teaching/non-teaching staff feel more confident teaching through small scale outdoor construction projects	86% scored 5 14% scored 4
Children have gained new skills in construction and the use of tools and can describe those skills	100% scored 5
Children feel more confident in working together on projects	100% scored 5
Children are more keen to participate in practical activities than before and are more involved in their learning	100% scored 5
Children understand more about the construction industry and its role in the UK economy, and gained real experience to back this up	78% scored 5 22% scored 4
Children have become aware that building sites can be hazardous places and not suitable for play	100% scored 5

It is interesting to note that the two areas which scored just less than the maximum were arguably the most ambitious: 'staff feel more confident teaching through small scale outdoor construction projects' and 'children understand more about the

construction industry and its role in the UK economy, and gained real experience to back this up’.

Staff were additionally asked to comment on the success and impact of the project. The comments were unanimously positive, below is a selection:

How have you/will you share(d) what you have learnt with others – both in your own school and in any other school(s) – and/or what other plans do you have to continue to do this?

- *“We are intending to make a book with the photos we have taken with explanations as to what was happening”*
- *“We will plant willow saplings to frame the chair”*
- *“The children will present what they have learnt in an assembly”*
- *“Photos on school website”*
- *“Feedback during staff meeting”*
- *“Put together a PowerPoint to share in assembly or elsewhere”*
- *“I will tell other schools about the project and how good it was”*

We will continue to champion the value the importance of and value to participating schools of sharing their learning from the project. This will be made clearer still in the pre-application information for next year’s delivery. Please see the proposals at the end of the Report for further details on how we propose enhancing our support for teachers to lead independent construction projects.

Which aspects (if any) of this project did you find particularly useful?

- *“It was great seeing the children involved in something that will be used and last for years”*
- *“It was useful to see how, with the right knowledge and support, children can be guided to engage in a project like this one”*
- *“It was great to see the kids making measurements that really matter”*
- *“All the relevant equipment was provided, including waterproofs”*
- *“Providing the opportunity for the children to work as part of a team”*
- *“It was great to see the children so engaged. It gave me more confidence to get children using real tools”*
- *“Richard’s knowledge!”*

Might you change your practice as a result of this project?

- *“More activities like this will be encouraged in school”*
- *“It would give me more confidence to teach using tools”*
- *“We will be more open minded regarding the types of activities and outcomes we feel are viable for small groups of learners”*

How could we improve the project?

- *“Do it for longer”*
- *“I can’t think of any improvements regarding the delivery of the project!”*



Haydon Wick Primary School, project structure: Storytelling Throne

What additional training/advice/support would you like to receive in the future?

- *"How to adapt our garden"*
- *"If it were a possibility in the future, we would love to collaborate on another project such as this one – please consider us again if possible!"*

Anything else you'd like to add?

- *"Even when the heavens opened and we were all getting very soggy, very few of the children opted to go inside, instead insisting that they wanted to stay and carry on learning about constructing the chair."*
- *"Thank you for a wonderful experience which we will never forget"*
- *"All the children learned new skills that they can be proud of"*

Children's Questionnaire (n=95)

	Yes very much!	I'm not sure	Not really
Did you enjoy the project?	100%	-	-
Did you learn new skills including how to use tools?	100%	-	-
Would you like to do something like this again?	100%	-	-

The children were also asked to respond to the project in writing. The following are a representative selection of the responses given:

Q Why did you enjoy the project?

- *"Because it is fun!"*
- *"Getting muddy"*
- *"Because I learnt new things"*
- *"Because I like building"*
- *"It was exciting to do something different"*
- *"I enjoyed sawing, sanding, digging and more to create a chair that will be there for years"*
- *"It's fun to be outside and not be bored in class"*
- *"Because I've learnt new skills"*
- *"You get to use tools, work in groups and just have fun!"*
- *"There was hot chocolate and biscuits!"*
- *"I liked working together and getting it done!"*

Q Tell me something else you learned?

- *"How to drill"*
- *"I learned how to peel bark and I learned how to saw"*
- *"How to cut wood properly"*
- *"How to work as a team and that there is 250 types of bees in England and if you take bark off a tree..."*
- *"I learned how to follow instructions with measurements"*
- *"I learned that larch is the best wood for outside"*
- *"I learned how to use the drill properly and how to safely scrape bark off the log and use a hammer"*
- *"I learned how to use sandpaper to smooth wood"*
- *"That maths is involved in construction"*
- *"I learnt about safety"*
- *"if you put enough work into something it is worth it in the end"*
- *"I learned more maths and measurements"*
- *"I learned how to build using tools"*

Q What was the best bit?

- *"Sawing"*
- *"Cutting wood and helping one another"*
- *"It was all really fun but the bit I enjoyed the most was sawing"*
- *"Constructing the chair"*
- *"The best bit was sitting in the wet mud sanding with others"*

Helping to build positive relationships

Anecdotal evidence from staff attending the workshops highlighted how well the children worked together in teams and supported each other compared to their typical behaviour indoors. One teacher singled out the effect the project had on a girl who had recently arrived from another country and had little spoken English. By the end of the project this girl had "come out of her shell" and was seen playing with some of her fellow builders during the break.



Red Oaks Primary School, project structure: Solitary Bee Hotel



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