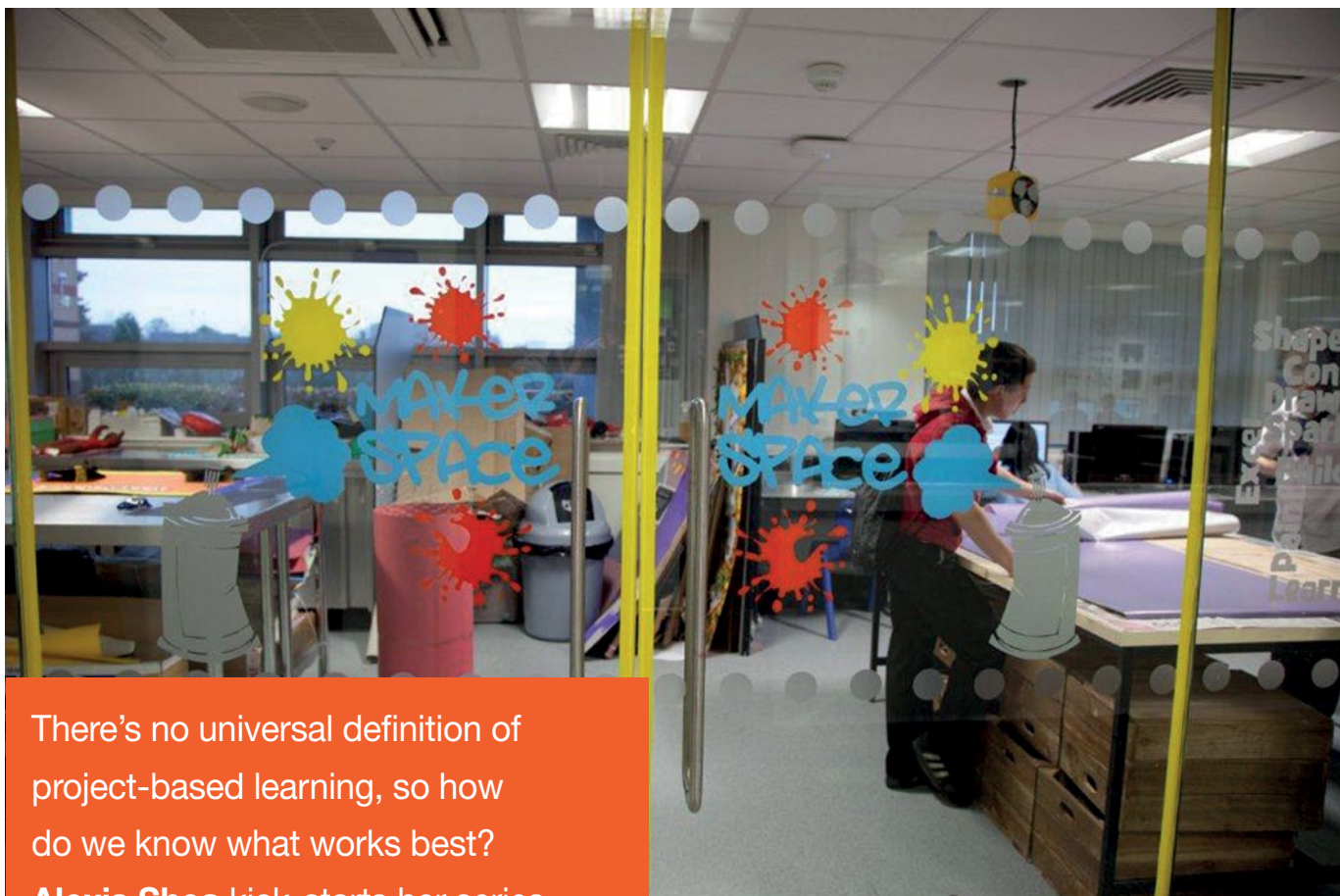


# The essential elements of project-based learning



There's no universal definition of project-based learning, so how do we know what works best? **Alexis Shea** kick-starts her series on effective PBL with a look at the building blocks of a successful project and what these mean in practical terms for different types of learners.

**P**roject-based learning (PBL) is not easy for the pupils or for the teachers. Some pupils engage with it from the beginning. They find it refreshingly different from traditional subjects. It is the pupils with growth mindsets who tend to enjoy the challenges that each new project presents. Other learners take a little longer to really embrace PBL. These pupils often do well at traditional subjects and so, initially, find the transition to independent learning frustrating.

Then there are those more lethargic learners who are dragged through a project kicking and screaming! In all contexts, PBL is pretty exhausting for the pupils and the teachers. For this reason, it's so important to be clear as to why you are undertaking the process.

It's not simply about pupils producing quality project outcomes. Paradoxically, the outcomes of PBL are a by-product. The real aims are for pupils to develop the learning habits that will enable them to thrive independently in the real world. This doesn't happen through traditional subjects because their design was with a different purpose in mind – to help learners interpret, remember and be able to recall bodies of knowledge. The design of PBL however, specifically creates situations for pupils to practise learning habits and over time, to become increasingly independent and life-long learners.

### What is project-based learning?

I think it's fair to say that there is no ultimate definition of PBL upon which all proponents of the approach agree. Different institutions adopt it and transform it in their own way to suit their specific contexts. Even within the same classroom, PBL learning environments can look very different – ranging from the more traditional use of textbooks for research to the more unusual, with all learners working on their own project at their own pace. I don't believe there is a 'right' way to undertake PBL; however, I would argue that there are several principles which make PBL more effective.

Much of the drive to develop PBL in schools has come from the United States where there are some well-established institutions such as High Tech High, Edutopia and the Buck Institute which have been influential in spreading the approach. There are a number of common PBL principles across all of these institutions, in particular the elements of 'real-world' learning and learners driving the process.

#### Real-world learning

To a greater or lesser extent, projects aim to relate to the real world. This means they involve pupils working in situations that people may experience in their real lives, outside of learning subject knowledge for tests. Projects could involve learners working on community projects to contribute to their local area or they might culminate in individual learners creating their own family tree (one of my own school's well-established projects – see the article, 'Power of family tree', in volume 4.1 of this journal).

The outcomes of a project have a real purpose and therefore participants feel a sense of responsibility to produce quality outcomes which add value to the wider world. In addition, in many cases, the final outcome is presented more formally at an exhibition attended by people who have been involved in supporting the project, such as friends, family and local organisations.

#### Learner-driven

This principle of PBL being learner-driven includes both learner choice and learner accountability. Learner choice could relate to the design and implementation of a project in terms of the outcomes and how they are achieved. Pupils who have ownership over their learning will be far more interested and involved.

The level of autonomy will vary depending on numerous factors. At one extreme, the teacher could give learners complete choice to design the project outcomes, decide how to achieve them and do so at their own pace. At the other extreme, projects could be relatively fixed – for example, the production of an article for a magazine with a choice of three topics about which to write. The more choice there is, the more the participants will engage. However, this choice needs to be balanced against other issues, such as whether there are sufficient staff and resources to help learners if an entire class decide to carry out completely different projects.

The other aspect of PBL being learner driven is that pupils must be the ones in the driving seat, working at their own pace to produce the outcomes using their chosen methods without teachers directing them at every step of the way. Again, the level of independence will depend on the project and the learners. They must be given the space and time to make their own decisions – especially, on occasion, the wrong ones. This is essential to understanding how to cope when struggling and to cultivating resilience.

Nevertheless, student choice does not mean a free-for-all, with every individual doing what they want, when they want and how they want. The hardest thing about PBL from the facilitator's perspective is holding learners accountable in the most appropriate manner. Skilled facilitators know what each learner should be working towards and they know when and how best to intervene if extra support is needed. If pupils are allowed the freedom and responsibility to manage their own learning, independent adults will be created for the 21<sup>st</sup> century who 'know what to do when they don't know what to do'.



### Reflection and meta-cognition

Experienced facilitators recognise that to embark on PBL is for the long-run – creating life-long learners is a life-long process. It's not about learners carrying out one or two random projects; it's about a whole continuum of projects which are linked together to nurture learning habits over time. I think this type of PBL is quite unusual and I was fortunate to experience this at Matthew Moss High School in Rochdale.





Each new project should ensure that the learning habits which most need to be developed next are fostered. For example, if a pupil has taken on a lead role during a group project which involves assertive communication skills, an individual project, designed to encourage focusing without distractions, might be worthwhile in the future.

Therefore, I would argue that reflection and metacognition should form a central part of PBL. Metacognition provides a language for understanding how learning takes place, while reflection complements this by enabling consideration of learning habits. This can be through relaxed learning conversations between facilitators and pupils during a project or more formal methods, such as a reflection diary to evaluate progress. This aspect of PBL seems distinct from many of the approaches I have come across at other organisations, yet I feel it is what makes PBL worthwhile.

### **PBL in practice – a learner's view**

Having introduced a number of the essential elements of PBL, it will be useful to see what these look like in practice. The whole PBL experience will now be viewed from the standpoint of two very stereotypical learners. Although they are fictional, I suspect they are characters to whom most teachers can relate!

Pupil A is a typically good girl who works hard and has learnt to do well at traditional academic subjects, while Pupil B represents a somewhat lazy boy who has always done enough to 'get by', occasionally gets into a bit of mild mischief and often struggles to focus. Several of the pivotal points in a typical PBL journey will be explored throughout the rest of this article, and details of how the facilitator has responded at each step will be explained.

### **The first group project**

The first significant point for most pupils is when they arrive in Year 7 with little previous experience of this style of independent learning. They are presented with their first project, which at Matthew Moss is 'The Island Project' (see the article, 'Project Inspire' in volume 3.4 of this journal). This is a group project which starts with the teacher leaving the pupils to decide how to cope with

being stranded on a desert island. It's always interesting to observe how pupils respond and interact.

Pupil A is very quiet and tries to stay in the background at first. Her strategy is that if she says nothing, she won't be responsible when it goes wrong. She sits back and watches a couple of the other pupils make suggestions and then a few arguments begin to occur. She can't stay quiet for long as she realises that the group, including herself, might fail to complete the task because no one is getting anything done. So her slightly bossy, superior side comes out and she speaks up, stating that she'll '...do the writing, Ben can research on the iPads, Anita can do the design and Jimmy can go to the library'. This goes down badly as the others, quite rightly, believe she's taken over and so don't engage in her plans. Her response is to seek out the teacher to explain with exasperation that no one is doing any work even though she has told them what they should be doing!

As you can imagine, Pupil A does not enjoy her first experiences of PBL. She complains that she's not learning anything. Her teacher knows it will take many conversations over the coming year to help Pupil A realise that learning doesn't just happen when you're 'writing stuff down'!

On the other hand, Pupil B starts well. This is a dream task involving no writing, which like Pupil A, he doesn't really deem to be learning. He eases the slightly awkward situation in his group of four strangers by joking around and then makes some suggestions about team roles.

Initially, Pupil B finds PBL lessons fun but doesn't really 'get' why he's doing them. His teacher is aware that she'll need to make explicit the reasons for the PBL approach. She anticipates that a worthwhile future project for Pupil B should require an individual outcome which can only be achieved through detailed planning.

### Completing a formal self-reflection

Another key experience in the PBL journey is when pupils carry out a more formal reflection of their learning.

This quiet writing task is much more in Pupil A's comfort zone. True to form, she manages to produce a full page of clearly articulated sentences about what's



been going well and what the class might improve next time. She's a little bit taken aback when her teacher asks for more detail on what exactly she will do differently in future.

As Pupil A becomes accustomed to PBL learning, her reflections will become more meaningful. She will develop her language for thinking about herself as a learner and even become overly self-critical. She will begin to generate specific strategies for approaching situations that she finds difficult so they become easier over time.

In contrast, Pupil B's first reflection is brief and gives a somewhat skewed account of his learning. He highlights things he thinks he's good at without explaining why and when asked to provide an area for improvement his focus turns to the whole class.

It will take Pupil B several years to realise that honest reflection will help him to become aware of his strengths and weakness and enable him to consider the best strategies to approach new situations in the future. His teacher quickly detects his fixed mindset towards learning. He seems to believe that he is just a bit cleverer than everyone else because he's always managed quite well. Pupil B doesn't recognise that this is thanks to the encouragement he's received from home and because he actually tried a bit at primary school. Pupil B will slowly lose confidence as he realises that other people are overtaking him and he will do anything to hide the fact that he's not just naturally clever. It will take a big, long-term investment from his teacher to help change Pupil B's mind so that he gradually appreciates that he can be good at things, if he works hard!

### **The first individual project**

A pupil's first individual project is another significant time. Pupils have greater freedom over final outcomes and will have to work out how to achieve them on their own. A project which many learners first experience at Matthew Moss involves producing a creative and informative display to encourage people to protect the environment.

Pupil A is immediately interested in this project because she has already done something about recycling at primary school. She doesn't think she needs to carry out any research and gets straight to designing a draft of her display. At first, she seeks constant approval – 'Does this look good, Miss? Do you like this, Miss?'. She gets frustrated that her teacher won't praise her outcomes and always makes her question her ideas.

Over time, Pupil A will increase her ability to work independently. She will learn when she needs to ask her teacher or an expert for help and when she can try things herself. She started off fearing that she might make mistakes but now, thanks to regular reinforcement from her teacher over numerous projects, she realises that mistakes are part of the process of improving her outcomes.

Pupil B has an altogether different start to his first individual project. He hopes to get away with doing as little as possible. He spends the first lessons pretending to research on an iPad. Unfortunately, his teacher is well-accustomed to this lazy approach and ensures that he is held accountable for producing a final outcome. She spends countless hours with Pupil B as he makes up time on his project at lunch and after school.

The task-avoidance habits which Pupil B has acquired are deeply entrenched. In the forthcoming years, he will have many reflective conversations with his teacher, who will introduce him to the Transactional Analysis theory relating to parent, adult and child ego-states. After several years' worth of reinforcement, Pupil B will appreciate that if he hopes to have a successful career in the future, he will need to learn how to work independently as is expected of adults.

### **The first exhibition**

For PBL learners, one of the most anticipated events is the first exhibition of project outcomes. This is a big event where friends and family, as well as experts linked to the project, can observe what learners have produced.





Pupil A is slightly nervous but also looks forward to the event because she expects to receive praise from her parents. Just as any encouraging parent would, Pupil A's parents do indeed congratulate her on her wonderful outcome. Yet, her parents are unhappy when another teacher points out areas for improvement. Pupil A's teacher has the first of several difficult conversations with these parents as she explains that PBL involves continually challenging pupils to develop their learning habits.

If Pupil A is to become a truly life-long learner, she will need support from her parents. At exhibitions over the coming years, her teacher will attempt to introduce Pupil A's parents to the importance of honest and specific feedback. Pupil A will gradually learn how to be resilient, to accept and act on critique.

In contrast, Pupil B does not look forward to his first final exhibition. He is embarrassed by his lack of a quality outcome. He worked on easy tasks throughout his project and rushed at the last minute to make it look like he'd done more. What he's produced is worse than some of the work he did at primary school, despite many hours in detention. He avoided telling his mum about the exhibition but his teacher rang home to make sure she was aware of the event. In his eyes, this was because the teacher doesn't like him and wants to make his life difficult.

This is clearly not the case. In fact, the teacher knows the importance of learners being accountable for their project outcomes. His teacher foresees that Pupil B's shame at this first exhibition will spur him on to work harder in the future. Pupil B's teacher must discuss with him that his effort, not his intelligence, is the reason for his disappointing outcome. She will need to keep a close eye on him throughout his next projects to give him as much encouragement as possible. She is aware that he needs to experience the feeling of success and so may need to offer him more ideas and advice than she might offer an already more independent pupil. However, over time, she will decrease her input as Pupil B becomes more confident at managing on his own.

### **A worthwhile challenge**

While learners are in the midst of their PBL journeys, it is hard for a teacher to see how they are progressing. Measuring someone's learning habits is difficult – any useful feedback must be descriptive, specific and formative. It does not work by trying to use a grade to say how good someone is at being resilient or at communicating. Developing learning habits is far more complex and will depend on the context of each project.

Therefore, it is often only at the end of Year 11 when a teacher can look back and know that the effort of pushing learners along their PBL journeys has been worthwhile. A successful journey is when the teacher realises they are no longer needed. So while PBL is hard I believe it is our duty to help children to learn the real habits that they will need in our ever-changing times.

#### In my next article...

I hope you are now convinced of the benefits of project-based learning for all types of learners. It's true that PBL takes a lot of time and effort on your part, but it's not as daunting as it may seem. In my next article for *Creative Teaching and Learning*, I will consider how to plan a PBL unit from beginning to end, considering practicalities such as timings, deadlines, trips and more, and how to keep self-reflection a constant theme throughout the project.

**Alexis Shea is a teacher at Matthew Moss High School in Rochester and also part-time freelance education consultant at Think.Grow.Learn ([www.thinkgrowlearn.co.uk](http://www.thinkgrowlearn.co.uk)). Her previous roles at the school have included Head of Project-Based Learning and Gifted and Talented Coordinator.**

### Knowledge trails

#### 1) Busting the myths of project-based learning

Many people have certain preconceptions about project-based learning which means this innovative teaching strategy is often misapplied or avoided altogether. Here, Bob Lenz provides counterarguments to the most pervasive.

[library.teachingtimes.com/articles/busting-the-myths-of-pbl](http://library.teachingtimes.com/articles/busting-the-myths-of-pbl)

#### 2. The 8 essential elements of project-based learning

The first in Creative Teaching and Learning Blog's expansive series on the practicalities of project-based learning, we consider the eight ingredients for perfect PBL.

[imcreativeteaching.blogspot.co.uk/2014/05/the-8-essential-elements-of-project.html](http://imcreativeteaching.blogspot.co.uk/2014/05/the-8-essential-elements-of-project.html)

## 10 days that will change your life

Kumi, Uganda, 7th – 17th April 2015



**Join Build Africa for a trip of a lifetime that will remind you why you love teaching and help us ensure a better future for some of Africa's poorest children.**

The Teacher Trip is a chance to immerse yourself in life at a primary school in rural Uganda. You'll visit our projects, teach in our schools, talk with our teachers, share ideas and witness the everyday challenges faced by the schools Build Africa supports.

It's a great chance to experience education in an atmosphere a world away from your own classroom – but where the pupils are just as eager to learn and teachers are just as dedicated.

**Get out of the common room and do something extraordinary with Build Africa. All you need is a love of education and a little sense of adventure!**

**Places on our 2015 teacher trip are limited. Register today.\***

For more information or to register visit [www.build-africa.org/teaching](http://www.build-africa.org/teaching) or call Deirdre on 01892 501068



\*£100 deposit required (will be deducted from trip costs). £2000 minimum Fundraising required by 31/12/2015. Registered Charity No. 298316. Build Africa is a company limited by guarantee, registered in England No. 2200793