

The key to rigorous project-based learning

A book, an exhibition, a performance... the outcomes of project-based learning can be so absorbing, it's easy to forget the whole point of it.

Alexis Shea brings us back to basics with a look at the importance of cultivating pupils' learning habits, and advises on keeping this the central focus of any PBL unit.



With 'vertical farmers' and 'memory augmentation surgeons' featuring among the top careers in recent predictions for the 2030 job market¹ and as technology continues to grow at an exponential rate, it is clear that the future is uncertain. In preparing learners for such a future, we need to prioritise cultivating learning habits. Indeed, the Confederation of British Industry (CBI) and the government already recognise this. In June 2015, the CBI yet again brought to light current graduates' lack of workplace skills such as resilience and communication.² Furthermore, the Department for Education introduced a grant awarding schools who deliver quality 'character education'.³

Cultivating children's learning habits so they will grow into well-rounded individuals who are prepared for their future lives is the core aim of project-based learning (PBL). In fact, the first three articles in this series have tried to establish this underlying philosophy.

It is all too easy, however, to forget the 'learning habits' bit when the more immediate and tangible project outcomes can be so engaging and distracting. This article explores why it's important that giving pupils real-life opportunities to practise and refine their learning habits remains the central focus of PBL, and how to go about keeping it so.

So what are learning habits?

It is difficult to put your finger on what exactly we mean when we talk about learning habits. Over the years, a wide range of terms have emerged: learning to learn skills, life skills, Personal Learning and Thinking Skills (PLTS), Social and Emotional Aspects of Learning (SEAL), character education, to name but a few.

I would not wish to underestimate the thinking that has gone into devising each of these specific terms; however, I believe their common factors are more important than their differences. Each of these terms shares the fact that they focus on the aspects of learning *outside* the specific content of subjects described in the National Curriculum or subject qualification specifications at GCSE and A-Level. They all highlight the importance of those 'other' things which we know are essential to success in future life.

I have chosen to adopt the phrase 'learning habits'. 'Learning' because this broad term can encompass a wide range of different things. 'Habits' because this emphasises that these things take time to develop and can be learned and refined through practice, rather than the

stifling and fixed mindset belief that 'you either have it or you don't'. Connected to this is the idea that children will just naturally pick up these learning habits without any intervention. I find this a rather absurd stance, as it would not be applied to other learning; we would not simply leave pupils to learn the alphabet themselves! This philosophy perhaps stems from the difficulty of measuring learning habits: if you can't measure it, you can't have it, and you can't develop it.

Can we measure learning habits?

There are an infinite number and range of possible situations that people will experience in their lives when they will need to draw on and practise learning habits. It would be impossible to predict all of these situations, order them by difficulty and place a grade system alongside each one. Life does not work in this quantifiable way, therefore neither will learning habits. That is not to say that we cannot qualitatively convey where learners have made progress with developing a learning habit – where they have pushed themselves out of their comfort zone in a new situation.

Arguably, one reason why developing learning habits remains a peripheral aim in education is because they are inherently complex and highly personal. Accordingly, being able to record and identify how a pupil has developed is complicated and feels 'messy', especially when we are in a system which standardises and a society which wants to compare individuals quickly, particularly for the job market. Nevertheless, this doesn't



mean we should ignore learning habits!

The debate about how we classify and categorise learning habits, as well as how we will know if children's learning habits are improving, will and should continue. However, it is important all teachers recognise that, whatever we call them and however we group and identify them, they are important, they can be learned and developed, and we should give pupils opportunities to cultivate them! The remainder of this article will offer suggestions as to how to go about developing learning habits.

Creating a shared understanding

Firstly, a learning community will need to be clear about what they mean by learning habits. Your school may already utilise a framework of learning habits. If this is not the case, you should try to encourage your school to adopt one or simply adopt or create one with your own class. There are several popular pre-existing frameworks, including Art Costa's Habits of Mind, Guy Claxton's Building Learning Power and Bristol University's Effective Lifelong Learning Inventory (ELLI).

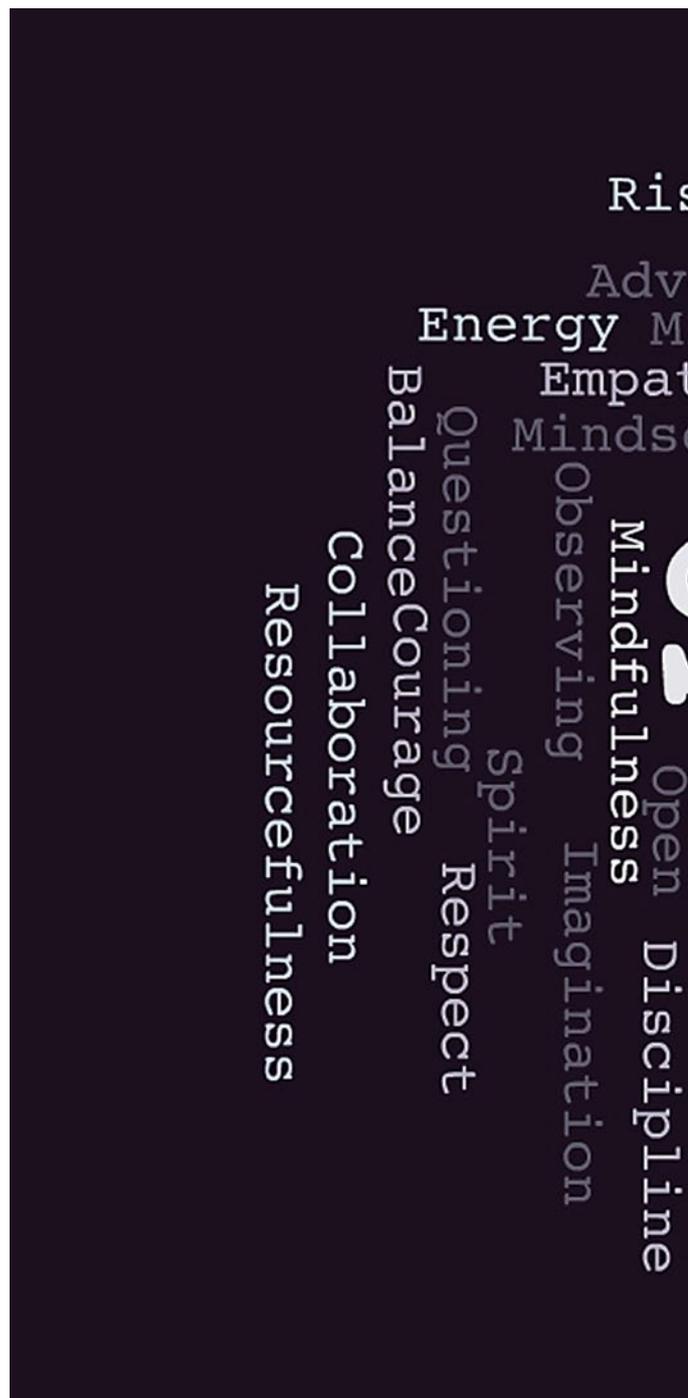
Alternatively, pupils, parents and teachers, as well as perhaps some other members of the local community, could decide upon which learning habits they feel are most important to being a successful learner within their class or school and local context, and create their own learning habits framework. Ideally, all members of a learning community will collaborate to determine the most appropriate framework for its learners.

In my opinion, it doesn't matter that different organisations may use slightly different frameworks to describe learning habits; what's more important is that there actually is a framework in place which is common to all people within that learning community. This means that there is a shared understanding and common starting point from which to be able to consider and discuss the learning taking place outside traditional subject content.

Introducing learning habits

It is essential that, once a learning habits framework has been decided upon, it is carefully introduced to staff and pupils. They need to be aware of each of the habits, how they might be categorised, and have a clear understanding of the specific language chosen to describe what the habits mean.

Time will need to be dedicated to establishing this across the school. It could be done in various



ways, and I would think of it as a bit of a marketing campaign! Try to use as many different platforms as often as possible, so that the new words and their meanings become embedded into the fabric of the learning community.

Possible ideas include:

- introducing one learning habit each week during assemblies
- plastering classroom walls with posters showing visual representations of each learning habit



- sending letters home to inform parents and inviting them to dedicated school events
- spending time during lessons or form time to discuss learning habits
- setting up a competition for a learning habits logo
- purchasing stationary branded with the learning habits logos (or mugs for the staffroom to remind teachers what they mean too!)
- creating a core group of pupils and teachers who will be pioneers tasked with spreading the new learning habits framework
- creating an app for pupils to be able to keep track of when they use (or fail to use) each of the habits.

In addition to the learning habits framework, you could also choose to give pupils further knowledge of theories and ideas about how people learn, which will enable them to understand

their own experiences more clearly. If carefully selected, ensuring that they are evidence-based and broken down into bite-size chunks, I feel this can support pupils to further understand themselves as learners.

Personally, I have drawn upon several metacognitive concepts and spent time introducing these to pupils. These have included Carol Dweck's research on mindsets, Stephen Covey's seven habits of highly effective people, Steve Peters' work on the 'inner chimp', and the ego-states referred to in aspects of Transactional Analysis theory. It is important that you have a thorough understanding of any concept you plan to introduce to learners, so you know when and how it can be applicable, and also are aware of any limitations.

As adults, we stumble across new ideas about how to live more fulfilling lives which, if carefully and impartially shared, could be of great support to learners as well as ourselves. Once a learner has been introduced to a new concept, it opens up opportunities for teachers to discuss the pupils' own experiences using this shared knowledge as a support for reflecting and driving the learning conversation forward.

Incorporating learning habits into PBL

The most important factor in developing learning habits is an obvious one but also one which is easily overlooked – pupils actually need opportunities to practise working on learning habits!

PBL projects ought to represent such opportunities. They should be a chance for pupils to experience different situations in which they will inevitably need to utilise different learning habits in order to succeed. While pupils undoubtedly need to work on the outcomes of each particular project, running alongside this will be the need to draw on learning habits.

We can relate this to many experiences we have in our adult lives. Take the example of going travelling; a person may choose to do this so they can experience world famous landmarks and meet new friends (the intended outcomes), yet in order to achieve this they will need to develop resilience when they encounter difficulties such as fundraising, employ courage to make the leap to do something so different away from friends and family, learn to be hard-working to have enough money to make it back home, and so on (thus unintentionally developing their learning habits). The same is true of many other life situations.

In PBL, the challenge for the teacher is to carefully design projects that give pupils a range of opportunities to practise all of the learning habits, as well as allowing individual pupils the chance to work on specific learning habits which they may be finding more difficult. Within the existing education framework, this is no easy task! However, knowing learners well is a good starting point.

A previous article in this series explored how to plan a project. Planning a sequence of projects which allows all learners to make progress with their learning habits is arguably the next step. I would shy away from tailoring projects to specific learning habits too closely, as I feel that the majority of projects (or life-like situations) tend to naturally give pupils opportunities to work on a large range of learning habits anyway, and there is the danger of focusing on some habits at the expense of others. By making projects as 'real life-like' as possible, you should be able to overcome this. Nevertheless, there will probably be certain times when learning habits might need to be targeted more during the design of a project; for example, if many pupils in a class are struggling to work together in groups, a project requiring individual research and an individual outcome will not provide an appropriate opportunity for learners to work on a collaboration habit!

Keeping track of individual pupils

One way to tackle the problem of responding to the needs of different learners is to make some aspects of a project quite open. Each pupil, with guidance from the facilitator, will then be able to design this aspect of the project to help them work more closely on the learning habits they most wish to develop. For example, where the outcome of a history-focused project might be to create a timeline, the pupil who has previously struggled with making sense of information (instead of copy and pasting) could be encouraged to use an outline template so their focus is on finding and writing up information that they understand. Another pupil who always rushes through things and creates scruffy final outcomes could be asked to draw their timeline by hand, paying attention to visual presentation. It should be expected that the level of freedom over the outcomes and how to achieve them will grow as learners become increasingly independent.

A good facilitator who knows their pupils well will most probably, without thinking too hard, have a decent idea about some of the learning habits that each of their pupils will need to work

on. Despite this, it could be possible to keep track of which learning habits pupils feel they have most used throughout a series of projects.

The example learning habits tracker at the end of this article offers one way that this could be done. The tracker uses Bristol University's ELLI dimensions, although these could be replaced with whichever learning habits the school uses. Filters and colours make it quick and easy to view, and allow the teacher to easily see which learners to devote more time to during next lesson – although caution should be taken not to focus on just one habit at the detriment of a holistic and more real learning approach. A quick comment during the lesson makes the

Ensuring time for reflection

This leads nicely to the final aspect which I believe is important to developing learning habits: reflection. Pupils need opportunities to reflect on their learning habits in detail. This process will enable them to become self-regulators who can manage their own learning and make sensible choices about how to proceed.

A recurring theme running through this series is that there is no perfect way to facilitate PBL and this also applies to reflection. However, at certain times during the PBL process, it is beneficial to have a more structured reflection session. For example, at the end of a project,



data much richer, and can be completed either by the teacher through observation or during a discussion with the learner. An interactive version of this tracker is available from the Teaching Times at: library.teachingtimes.com/articles/learning_habits_tracker.

I am always dubious about documents like this, however, as they can so easily be seen as a simple way to measure progress which can quickly be presented to inspectors. Here, I feel it is important to reiterate my earlier comments regarding quantifying learning habits: when we start to use numbers to measure a complex process, we seriously risk undermining the richness of that process.

While I understand the importance of learners being able to keep track of where they have developed learning habits and which ones they need to focus on in the future, the value lies in the details surrounding the learning habits – in the conversations pupils and teachers have to explore the nitty-gritty of what the pupil has been doing.

when pupils need space to think about what they've achieved and consider how to move forward, it is worthwhile designating a serious chunk of time for pupils to take care over producing a final reflection. This should be something that the facilitator discusses with the learner so they can both think through the best steps forward for that individual. It could take various different forms, from an annotated photo-storyboard to a detailed video log or an extended piece of writing. Similarly, at the end of each session, the facilitator may carve out a few minutes when learners can either reflect on their own or discuss with others.

In contrast, there will be other times when reflection will be more informal and unplanned. Whenever a significant event occurs, a facilitator should take the opportunity to highlight 'just-in-time' to pupils how they have applied a particular learning habit. An especially useful activity I've used on numerous occasions is capturing the learning going on at a particular point by using a school camera to

film pupils without them realising (obviously not keeping the film or using it unethically!). On playing it back to pupils, an interesting reflection discussion always ensues with pupils engaged in considering how they have been learning. It doesn't always result in lasting changes in the learning environment but can act as a bit of a wake-up call for some pupils who, until actually seeing themselves in their learning environment, had been unaware of how they approached their tasks and the impact on other pupils around them.

These examples also highlight that reflection can be carried out by the individual learner on their own or with support from others. Nonetheless, regardless of who is involved, whether it's planned, the level of structure or what format it takes, pupils will need guidance on what constitutes quality reflection. It is a skill that they will improve as they practise. Initially, a pupil may simply recite learning habits, but over time, they should be encouraged to dig deeper, adding detail as they consider their learning habits more closely.

Key questions may include:

- Which learning habits do you tend to employ most easily and why?
- What has prevented you from making progress with certain learning habits? What strategies could you try out to improve in these in future situations?
- Which new contexts would challenge you to develop your learning habits in different ways?

Furthermore, if pupils have been introduced to other metacognitive theories and ideas about how we learn, they will have a knowledge base to draw on, which they can apply to their own experiences.

No simple process

Despite your best intentions, pupil reflection can swiftly become something learners view as a chore and may not fully appreciate. It is important, therefore, to ensure that pupils understand the purpose of reflection in cultivating their learning habits, so they realise there is a valuable reason for them to engage in the reflection process. Consequently, it's worth taking time to introduce the concept of reflection to learners, sharing famous examples of people who keep diaries and even the statistics about self-regulation (such as from John Hattie⁴ and the Education Endowment Fund⁵) so that they can see it works. Each time you ask learners to reflect, remember to reinforce the importance of reflection.

It is clear that developing learning habits is not a simple, linear, or easily measurable process. However, it is the central purpose of PBL because it is these learning habits which will stand young people in good stead for their future lives.

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References

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2. CBI (2015) Inspiring growth. CBI/Pearson education and skills survey 2015. [online] Available at: news.cbi.org.uk/reports/education-and-skills-survey-2015/education-and-skills-survey-2015 [Accessed 21 September 2015].
3. Department for Education (2015) Character education: apply for 2015 grant funding. [online] Available at: www.gov.uk/government/news/character-education-apply-for-2015-grant-funding [Accessed 21 September 2015].
4. Hattie, J. (2009) Visible Learning: A synthesis of over 800 meta-analyses relating to achievement. Oxford: Routledge.
5. Education Endowment Fund (n.d.) Self-regulation strategies. [online] Available at: educationendowmentfoundation.org.uk/toolkit/early-years/self-regulation-strategies [Accessed 2 October 2015].

Knowledge trails

1. **Becoming learning minded** – Guy Claxton invites us to help students develop their learning dispositions. library.teachingtimes.com/articles/becominglearningminded
2. **How to plan for project-based learning** – Although famously learner-led, PBL does require a fair amount of teacher planning in order to successfully develop pupils' learning habits. Alexis Shea provides a step-by-step guide. library.teachingtimes.com/articles/how-to-plan-for-pbl.htm

Learning habits tracker

This tracker provides an example format to track pupil progress in developing learning habits. It uses Bristol University's ELLI dimensions, although these can be replaced with whichever learning habits your school uses.

The tracker can be downloaded as an interactive spreadsheet at: library.teachingtimes.com/articles/learning_habits_tracker.

Name	Learning habit development areas		Previous project effort level	Week 1		
	1	2		Effort	Comment	Learning habit most practised
Ayesha	Critical curiosity	Resilience	Average	Average	Aysha agrees she could have tried harder by completing her part of the project at home so that they stuck to their deadlines.	Strategic awareness
Paul	Changing and learning	Creativity	Average	Poor	Paul avoided focusing on the learning this week, hoping other people would complete the group tasks. Discussed how unfair this was and that it wasn't a strategy for the future world of work!	(Leave blank if pupil hasn't particularly practised any learning habit effectively)
Tom	Strategic awareness	Making meaning	Average	Average	Tom completed everything and found it quite easy. Knows he needs to challenge himself next week so that he continues to learn.	Making meaning
Alexander	Making meaning	Creativity	Average	Average	Needs to focus more during whole class discussions.	Critical curiosity
Chloe	Strategic awareness	Learning relationships	Good	Good	Chloe has rushed into things during past projects, resulting in poor outcomes; this week she took lots of time over creating her plan even though it was clear she found this difficult.	Strategic awareness

Week 2			Week 3		
Effort	Comment	Learning habit most practised	Effort	Comment	Learning habit most practised
Average	Aysha did some work at home this week but still not a standard that she thinks is her best.	Strategic awareness	Good	Aysha really proud of herself this week, stuck at her learning, paying attention to detail, came back during several lunches to complete her part of the research.	Resilience
Good	A much better effort this week, seemed to have a changed attitude towards the learning, completely engaged, even helping others.	Changing and learning	Average	Remained on task, needs to challenge himself more next week.	Learning relationships
Poor	Again, Tom completed the tasks quickly and easily, then sat around avoiding doing anything else. Discussed importance of challenging himself and having a growth mindset, trying something out of his comfort zone.	Making meaning	Average	Better this week, after a bit of procrastination. Tom tried a new approach to his design, it didn't work out so needs further encouragement to keep going.	Changing and learning
Poor	Again distracted at the start so spent first part of lesson wasting time. Talked about strategies to improve this, planning to move seats away from friends during class discussions next week.	Critical curiosity	Average	Better, good strategy worked well, knew what he was doing at the start. Lost focus during research aspect as keen to copy and paste, needs to read carefully to understand.	Learning relationships
Good	Continued to use her plan so able to stick to timings. Also working well with others, being much more polite and taking a step back so not always taking over.	Learning relationships	Good	Keeps working hard, impressive levels of motivation, says this is because she enjoys the project topic, showing good resilience when things are difficult.	Resilience