

THE
LEARNING
CHALLENGE

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The Learning Challenge: How to Guide Your Students Through the Learning Pit to Achieve Deeper Understanding

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LEARNING
CHALLENGE

*How to Guide Your Students Through the
Learning Pit to Achieve Deeper Understanding*

JAMES NOTTINGHAM

Foreword by John Hattie



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Note on this book's title: The 'Pit' metaphor used to describe the cognitive conflict that is common to the learning process was first used in the Transformational Learning Model of Dr Jim Butler and Dr John Edwards, as further described in the Acknowledgements of this book.

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'All which the school can or need do for pupils, so far as their minds are concerned . . . is to develop their ability to think.'

(Dewey, 1916)

INTRODUCTION TO THE LEARNING CHALLENGE



1.0 • PREVIEW

The most important points in this chapter include:

1. The Learning Challenge encourages learners to investigate contradictions and uncertainties so that they might more deeply understand what it is they are thinking about.
2. The Learning Challenge is a frame of reference for students to talk and think more accurately and extensively about their own learning.
3. At the heart of the Learning Challenge is the pit. Someone is said to be in the pit when they have a set of unresolved, contradictory ideas about something they are trying to understand.
4. Learners are *not* in the pit when they have *no* idea. To be in the pit is to have *many* ideas that are as yet unsorted.
5. The Learning Challenge is designed to help learners step out of their comfort zone so that they might discover insights that are more meaningful and long-lasting.

1.1 • INTRODUCTION

The Learning Challenge (LC) is designed to help students think and talk about their learning. In some ways, it is a child-friendly representation of Vygotsky's (1978) zone of proximal development in that it describes the move from actual to potential understanding. It can help develop a growth mindset (Dweck, 2006), prompt people to explore alternatives and contradictions, and encourage learners to willingly step outside their comfort zone.

The Learning Challenge can work with all school-age students as well as with adults. Originally, I developed the model to help nine- to thirteen-year-olds understand the role of uncertainty in learning but then broadened its application to be useful for anyone from the age of three onwards. Although it wasn't published until I wrote my first book, *Challenging Learning*, in 2010, it has been shared far and wide at education conferences and workshops since the late 1990s. Since then, it has captured the imagination of educators, students *and* their parents. It has featured in many periodicals, articles and books. It appears on many classroom walls around the world. It has even made it into the UK's *Financial Times* newspaper (Green, 2016).

The LC sits comfortably alongside John Hattie's *Visible Learning*, Carol Dweck's *Growth Mindset*, Matthew Lipman's P4C and Biggs and Collis's SOLO taxonomy.

I'd like to think its popularity is due to its contribution in making learning more engaging and long-lasting. And from what many people tell me, that is indeed a key reason. But of course it doesn't explain the whole story. Other reasons include how well it sits alongside John Hattie's *Visible Learning for Teachers* (Hattie, 2011) and Carol Dweck's (2006) *Mindset*. The model also helps to explain and build on the SOLO taxonomy (Biggs & Collis, 1982) and is an effective way to structure Philosophy for Children (P4C) and other approaches to dialogue. It can guide metacognitive questions such as these: How does my final answer compare to my earlier thoughts? Which strategies worked best for me this time? What could I do better next time? It also offers a rich language and framework for talking about – and thinking about – learning in general.

Perhaps the main reason for the popularity of the Learning Challenge is its simplicity. It is easy enough to be understood by the youngest learners in schools and yet complex enough to keep the most advanced learners interested. Although that can also be a bit of a double-edged sword leading to some 'interesting' misinterpretations, the simplicity *and* complexity are also part of what makes the Learning Challenge relevant to so many people.

As with so many models, the Learning Challenge did not start life as the one you see described and illustrated in this book. In fact, it began life as the Teaching Target Model (Figure 1).

The LC began life as the Teaching Target Model that in itself is a description of Vygotsky's zone of proximal development.

I created the Teaching Target Model early in my teaching career as a way to explain to my students what progress looks like. This is how I explained it to them:

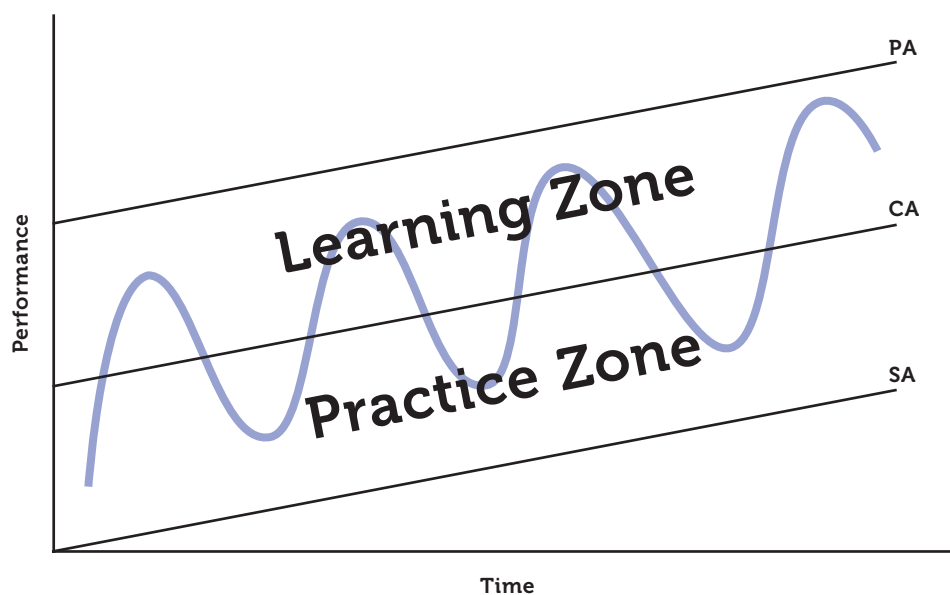
The CA line represents current ability. This is the upper limit of what you are able to do independently.

The SA line represents subconscious ability. This is what you are able to do automatically. It is something you can do without having to think at all about it, like hold a pen, walk normally, say your name and so on.

The PA line represents potential ability. This is how far you can reach *beyond* what you can do comfortably right now. Typically, you will need to be challenged and/or supported to get to this next stage of development.

A good example to think about is learning to ride a bicycle. Presumably the first bike you rode had stabilisers (or trainer wheels) on the back. Though you might have found it

► Figure 1: The Teaching Target Model



Note: PA: potential ability; CA: current ability; SA: subconscious ability

strange to begin with, no doubt you will have got the hang of pedalling and before long will have been riding a bike with stabilisers with ease. This is what we could call an action within your Practice Zone. You didn't need to deliberately think about it; you just got on, and away you went.

Later, one of your parents will have suggested taking your stabilisers off the bike. Then what happened? You wobbled. You fell off and got back on again. You probably complained that it was easier before and asked why you had to do it. Nonetheless you persevered with encouragement and kept going until eventually you got the hang of it. Throughout that time of wobbling, feeling unsure, wondering if you would ever succeed, you were in the learning zone. One of the best-known educational psychologists, Lev Vygotsky, called this the zone of proximal development, but we will call it the learning zone (or the Wobble Zone if you prefer).

That is what learning is all about: wobbling. If you are doing something that you can already do, then you are practising, whereas learning requires you to step out of your comfort zone, to go beyond your current ability (CA) and try things that will make you wobble. Playing it safe by staying in your comfort zone and doing what you can already do will probably result in correct answers and completed work. I used to remind my students that we are here to *learn* together, not just *do* together. So I encourage you to take every opportunity you can to go beyond your CA and be prepared to wobble. If you are wobbling, then you are learning. And if you are learning, then you will flourish.

When a learner steps outside their comfort zone, then they begin to wobble.

My students generally responded very well to this model. They felt as if they were being given permission to take risks, try new things and get things wrong. This contrasted with a common belief they had developed earlier in their school life that the most important thing was to get things right, even if that meant playing safe and going for the easier option. Of course I wanted them to get things right, but I also wanted them to learn. So

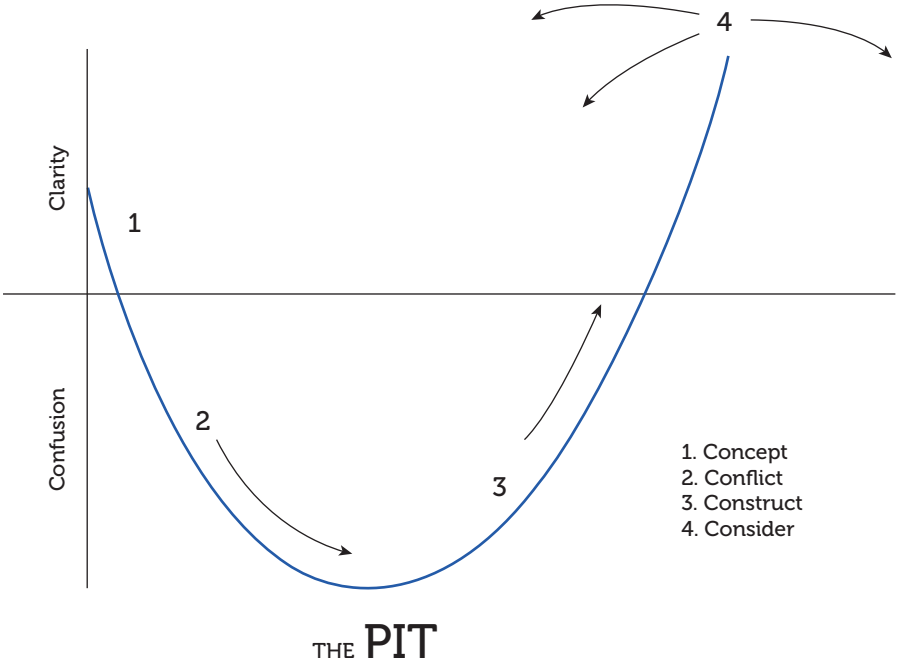
A pit evokes feelings of uncertainty and discomfort, whereas being at the top of a mountain evokes a sense of achievement and elation. That is one of the reasons that a pit of learning works better than a mountain of learning.

if it was a choice between getting things right or learning through mistakes, then I was very much in favour of the latter.

A drawback to the Teaching Target Model, however, was that I would represent the movement between practice and learning as a series of peaks and troughs, as you can see in Figure 1. My students would often interpret this as a series of mountains and valleys, with the top of the mountain representing the most wobbly part of learning. Though in many ways this was nice, it just didn't quite feel right to me. On the one hand, I was trying to use the model to reassure my students that learning often makes people feel uncertain and vague, but on the other hand, they were recalling the feelings of achievement and satisfaction people often feel when they reach the top of an actual mountain.

So I knew it had to change, but I wasn't sure how. Then when I heard John Edwards talking about a pit (see Acknowledgements), I had my *aha* moment. I just needed to invert the Teaching Target Model and make the wobbly bit a pit rather than a mountain! That way, the uncertainty and risk of learning could be represented by a pit rather than a mountaintop. And so the Learning Challenge evolved into the model you see today, one that has a pit at the core (see Figure 2).

► Figure 2: The Learning Challenge



1.2 • THE LEARNING CHALLENGE: A QUICK GUIDE

The Learning Challenge promotes challenge, dialogue and a growth mindset. It offers participants the opportunity to think and talk about their own learning. It encourages a depth of enquiry that moves learners from surface-level knowledge to deep understanding. It encourages an exploration of causation and impact, an interpretation and comparison of meaning, a classification and sequencing of detail and a recognition and analysis of

The Learning Challenge is designed to encourage (literally: give courage to) your students so that they might better understand themselves and each other, so that they develop a sense of clarity and discernment in their thinking; and ultimately so that they become more aware of who they are and what they stand for. As one of my students once said, ‘How do you know what you think until you’ve thought it?’

pattern. It builds learners’ resilience, determination and curiosity. And it nurtures a love of learning.

At the heart of the Learning Challenge is the pit. A person could be said to be in the pit when they are in a state of cognitive conflict. That is to say, when a person has two or more ideas that make sense to them but that, when compared side by side, appear to be in conflict with each other.

Deliberately and strategically creating a state of cognitive conflict in the minds of learners is at the heart of the Learning Challenge.

Here are some examples of cognitive conflicts that commonly arise during Learning Challenge episodes:

- I believe that stealing is wrong, but I also believe that Robin Hood did the right thing.
- Children are taught that an odd number cannot be divided into two, but three cakes can be shared equally between two friends.
- I think it is wrong to kill animals, but I also eat meat.
- Young children should not talk to strangers but are advised to approach a police officer or shop worker if they are lost.
- A liquid is thought of as a substance that flows freely, but so does sand, and that is not a liquid.
- Students know that studying will help them improve but often can’t see the point in studying more.
- Telling a lie is viewed as a negative, but writing fictional stories is viewed as positive. So what is the difference?
- Food is a substance that gives energy, yet many things give energy (e.g., sunshine, encouragement) but are not normally regarded as food.
- A hero is someone who takes risks on behalf of others, but then so do terrorists.
- Justice is seen as a good thing, whereas revenge is thought of as a negative, and yet they both seem to be about settling a score. So what is the difference?
- When we hold discussions with our students, we expect them to show respect for other people’s ideas, yet there are many extreme views that perhaps we would not want them to respect.

When people think through these or other examples of cognitive conflicts, then they are said to be in the pit. There are more examples of cognitive conflict throughout Chapters 5 and 10.

Being in the pit represents being in a state of cognitive conflict.

Cognitive conflict occurs when a person has two or more contradictory ideas in their mind at the same time.

Here are some common examples of cognitive conflict.

It is important to note that learners are *not* in the pit when they have *no* idea. The pit represents moving beyond a single, basic idea into the situation of having multiple ideas that are as yet unsorted. This happens when a learner purposefully explores inconsistencies, exceptions and contradictions in their own or others' thinking so as to discover a richer, more complex understanding.

The SOLO taxonomy can help you understand the LC (and vice versa).

Stages 1 to 4 of the LC correspond directly with Stages 1 to 4 of the SOLO taxonomy.

In SOLO taxonomy terms, being in the pit represents the multistructural stage of learning and, as learners come out of the pit, the relational stage of learning (see Sections 1.3.7 and 9.1).

And that is the point of the Learning Challenge: to make learning more challenging and thought-provoking. In other words, to get people into the pit! Though this might seem perverse – particularly given the ever-increasing pressures of the curriculum – the justification is that through challenge, your learners will develop more resilience, gain greater self-efficacy and build many of the strategies they will need for learning in – and beyond – school. Being in the pit is also where your students will think more deeply, more critically and more strategically.

The Learning Challenge typically has four stages:

Stage 1: Concept

The Learning Challenge begins with a concept. The concept can come from the media, conversation, observations or the curriculum. As long as *some* of your students have at least *some* understanding of the concept(s) you wish them to explore, then the Learning Challenge can work. This first stage equates to the unistructural stage of learning in the SOLO taxonomy (Biggs & Collis, 1982).

Stage 2: Conflict

The key to the Learning Challenge is to get your students into the pit by creating cognitive conflict in their minds. This deliberate creation of a dilemma is what makes the Learning Challenge such a good model for challenge and enquiry, reasoning and reasonableness. Stage 2 of the Learning Challenge is equivalent to the multistructural and relational stages of the SOLO taxonomy (Biggs & Collis, 1982).

Stage 3: Construct

After a while of being in the pit (and I'm being purposefully ambiguous by saying 'after a while' because it depends on context), your students will begin to make links and construct meaning. They will do this by examining options, connecting ideas together and explaining cause and effect. Often (though not always) this leads them to a sense of eureka in which they find new clarity. This sense of revelation is one of the reasons that the effort of going through the pit is so worthwhile.

Stage 4: Consider

After achieving a sense of eureka, your students should reflect on their learning journey. They can do this by considering *how* they progressed from simplistic ideas (Stage 1), to

the identification of more complex and conflicting ideas (Stage 2), through to a deeper understanding of how all these ideas interrelate to each other (Stage 3). Now at Stage 4, they can think about the best ways to relate and apply their new understanding to different contexts. This final stage of the Learning Challenge is equivalent to the extended abstract stage of the SOLO taxonomy (Biggs & Collis, 1982).

1.3 • UNDERPINNING VALUES

There are many values and beliefs upon which the Learning Challenge is based. Here are the most important ones.

1.3.1 • Challenge Makes Learning More Interesting

At the heart of the Learning Challenge is the belief that challenge makes learning more stimulating and worthwhile. This is in contrast to making learning simpler and more elementary, which has its place but is not ideal much of the time.

To illustrate the point, please compare the two paths shown in Figure 3. As you see, the path on the left is straightforward and is likely to get you to your destination quickly, whereas the path to the right is filled with obstacles and will require greater effort to reach your goal. Of course, if you were in a rush, then the obvious path to take is the one on the left.

► Figure 3: The Path to Challenge



But if I were to ask you to choose the path most *interesting*, then which one would you go for? Which one looks to be the more engaging and thought-provoking? Which one is most likely to lead you into discussion with other people about the best strategies going forward? Which one are you most likely to look back on and review with enthusiasm?

Linking challenge to making things more difficult can be off-putting, whereas describing challenge as making things more interesting can make it much more attractive to students.

The LC encourages participants to take the challenging route.

Taking the more challenging route prompts people to think more critically, creatively and collaboratively.

Which is going to give you the most satisfaction when you eventually reach your goal? And which route are you most likely to remember months, maybe even years from now because of the effort you had to put in to get through it?

Hopefully you've answered 'the right path' to each of those questions. If not, then I've got a persuasion job on my hands as well as an instructional one!

This imagery is one way to describe the Learning Challenge journey. Taking on the Learning Challenge and going through the pit is the equivalent of taking the path to the right.

The Learning Challenge promotes a more rigorous and exploratory path to learning as a way to reach a deeper understanding of concepts.

That is not something that I would advocate in every situation or in every lesson. Of course, there are many situations in which an easy answer is needed. But I do think every student should frequently engage in the Learning Challenge so they will, as Guy Claxton (2002) would put it, 'build their learning muscles'.

1.3.2 • Dialogue Enhances Learning

The Learning Challenge relies on high-quality dialogue. At its best, dialogue is one of the most effective vehicles for learning how to think, how to be reasonable, how to make moral decisions and how to understand another person's point of view. It is supremely flexible, instructional, collaborative and rigorous. Done well, dialogue is one of the best ways for participants to learn good habits of thinking.

As my co-authors and I explored in more depth in our book *Challenging Learning Through Dialogue* (2017), Professor Robin Alexander (2010) found the following to be true:

At its best, the LC leads to high-quality dialogue between and within participants.

1. Dialogue is undervalued in many schools when compared with writing, reading and maths.
2. Dialogue does not get in the way of real teaching. In fact, by comparing PISA and other international tests, he shows it is possible to teach more through dialogue and yet still be at or near the top of the tables.
3. Dialogue is the foundation of learning because it allows interaction and engagement with knowledge and with the ideas of others. Through dialogue, teachers can most effectively intervene in the learning process by giving instant feedback, guidance and stimulation to learners.
4. Dialogue in education is a special kind of talk in that it uses structured questioning to guide and prompt students' conceptual understanding.

The Learning Challenge involves the type of reflective, respectful dialogue described. The focus for participants is in challenging each other, asking appropriate questions, articulating problems and issues, imagining life's possibilities, seeing where things lead, evaluating alternatives, engaging with others and thinking collaboratively.

A different way to describe this is to talk of the co-construction of understanding. Written about by many theorists, most notably Lev Vygotsky (1978) and Jerome Bruner (1957), the idea of co-construction can be described using these main features:

- Learning and development is a social, collaborative activity. We don't learn inside a vacuum; we learn by mimicking and engaging with others.
- Social construction is connected to real life in that it focuses on matters that are important and relevant to participants.
- Learning has a social context; participants learn from each other and influence each other's learning.

And so it is with the Learning Challenge. Lessons that are based upon or involve the Learning Challenge can be distinguished by these characteristics of co-construction.

1.3.3 • We Are All Fallible

The Learning Challenge encourages *all* participants, including the teacher or facilitator, to be open about their own fallibility and to willingly explore flaws in their own thinking so that everyone may learn more together. This means that phrases such as 'I'm not sure', 'perhaps', 'maybe' and 'I was wondering' are to be encouraged throughout the dialogue. To some people, these sorts of phrases reveal ignorance or weak-mindedness. Yet in the context of the Learning Challenge, they are intended to reveal the ideals of open-mindedness and hypothesis-testing.

It is as Bertrand Russell wrote in an essay lamenting the rise of Nazism in 1933, 'The fundamental cause of the trouble is that in the modern world the stupid are cock-sure whilst the intelligent are full of doubt'. Or as the celebrated Irish poet W.B. Yeats (1919) wrote in *The Second Coming*, 'The best lack all conviction, while the worst are full of passionate intensity'.

So when you engage your students in the Learning Challenge, please encourage – and model – the values of open-mindedness and exploration since these are vital for the success of this approach.

Linked to these ideals is the notion that there might not be one, agreed 'right' answer at the end of it all. Although most of the time some form of agreement is reachable, there are occasions, particularly with the more open-ended, philosophical questions, when no satisfactory conclusion is achievable in the time frame you have. But that is not to say the experience will be any less worthwhile, as is explored in the next section. However, it would be worth mentioning that:

Sometimes participants in the Learning Challenge will enter the pit and stay there! They should not feel disheartened by this. Nor should they feel abandoned as they are likely to be in the pit with others. Instead, they should feel invigorated by finding one of life's great, unanswered questions.

1.3.4 • Process Is as Important as Outcome

The process of learning is often more important than getting the right answer, particularly with Learning Challenge sessions. A learning focus includes an emphasis on questioning, challenging, striving to get better and beating personal bests. This contrasts

The dialogue generated by the LC leads to social construction of ideas.

The LC relies on the values of open-mindedness and a willingness to learn from others.

The process of going into the pit by asking questions and challenging each other's ideas is the primary focus of the LC. Reaching an answer is of secondary concern.

with a performance focus that hinges on grades, attainment, showing what you can do and beating each other.

As numerous teachers and their students will testify, far too many schools focus primarily on performance ('it's the grades that count'). And yet, improved performance comes from a learning focus, whereas learning does *not* always come from a performance focus.

If you and your students focus on *learning*, then their performance grades will also increase. However, if you and your students focus on grades alone, then rich learning opportunities might be missed along the way.

That is why *process* is more important than getting the answer right in the Learning Challenge. Of course, if you can get your students to deeply engage in learning *and* help them reach a satisfactory answer, then that is ideal. But if your students go into the pit and don't come out (yet), then don't worry; it doesn't mean they haven't benefited from the experience. So long as you keep encouraging them to go beyond their first answers to seek alternative explanations; ask questions such as why, if, and what about; see problems as part of the learning process rather than things to be avoided; make connections, find the significance of parts in relation to the whole and look for ways to transfer ideas to other contexts, then they will *improve* their competence rather than simply *prove* they have got the right answer.

1.3.5 • Hattie's Mindframes for Learning

Of the ten Mindframes for learning proposed by John Hattie, the LC contributes significantly towards five of them.

John Hattie is currently Laureate Professor and director of the Melbourne Education Research Institute. He is known throughout the world for his groundbreaking comparison of thousands of studies relating to learning. In his seminal book, *Visible Learning* (Hattie, 2009), he ranked 138 effects taken from 800 meta-analyses that included more than 50,000 studies in education. He updated this list to 150 effects in his follow-up book, *Visible Learning for Teachers* (Hattie, 2011) and more recently to a list of 195 effects in *The Applicability of Visible Learning to Higher Education* (Hattie, 2015), in which he compared more than 1,200 meta-analyses relating to influences on learning and achievement.

From all of this work, one of the many powerful messages is related to beliefs about learning: what Hattie calls Mindframes. Hattie has proposed ten Mindframes so far. Of these, the ones that the Learning Challenge contributes towards include the following:

***I enjoy challenge.* Hattie asserts that we should teach students to recognise the benefit of challenge. He has found that too many of us rush to the aid of our students, whereas it would be better to encourage our students to persevere and to learn from their errors. This idea is at the very heart of the Learning Challenge.**

I engage in positive relationships. Hattie has shown that teacher-student relationships influence learning almost twice as much as the average effect. These relationships, whether student-teacher relationships or the relationships students have with peers, tend to be improved by going through the pit together. Indeed, it is the social effect of uniting

to get through the pit that is very often the first benefit noticed by teachers and leaders after their students have engaged with the Learning Challenge.

I use the language of learning. Hattie has found a strong link between a focus on learning (rather than a focus on teaching) and improved educational outcomes. The Learning Challenge offers an opportunity for students to talk about very abstract notions of learning in a more user-friendly and practical way. For example, being in the pit is shorthand for cognitive conflict or cognitive dissonance, coming out of the pit is a way to talk about social construction and reviewing the learning journey is one way to make metacognitive strategies a part of daily conversation in the classroom.

I engage in dialogue, not monologue. The Learning Challenge is founded on challenge through dialogue. Sometimes this dialogue is internal. More often it is interpersonal, exploratory talk among students, and between students and their teachers. And what they talk about are concepts, strategies and attitudes for learning – all of which are building blocks for educational success.

I see learning as hard work. The Learning Challenge makes learning more engaging and long-lasting by making it harder work. The Learning Challenge takes a seemingly simple concept and reveals its complexities in such a way as to intrigue and beguile students. By working through these nuances, students ultimately reach a eureka moment that convinces them that effort is worthwhile and that actually the harder learning is, the more satisfying it can be.

I talk about learning rather than about teaching. The Learning Challenge brings the focus back to learning – learning about, learning with and learning because. It provides a rich and accessible language for all participants (teachers and their students) to be better able to talk about learning.

1.3.6 • Dweck's Growth Mindset

Carol S. Dweck is the Lewis and Virginia Eaton Professor of Psychology at Stanford University. Her best-selling book *Mindset* (Dweck, 2006) has sold more than a million copies. In 2009, she received the E.L. Thorndike Award for Career Achievement in Educational Psychology. Previous winners include B.F. Skinner, Benjamin Bloom and Jean Piaget, so she is in good company!

Her research focuses on the beliefs people have about intelligence and talents and how these mindsets affect behaviour. She examines the reasons that people get into different mindsets and the impact these differing beliefs have on motivation, resilience and success.

From her decades of research, Professor Dweck has described two contrasting mindsets: fixed and growth. People in a fixed mindset think of talents and intelligence as relatively stable and innate. They say things such as 'I've always been good at this but I couldn't possibly do that' or 'I'm naturally good with languages but I don't have a musical bone in my body'. In other words, people in a fixed mindset believe that either you can or you can't and that's that.

On the other hand, people in a growth mindset think of talents and intelligence as highly responsive to nurture. They don't deny the role that genetics plays, but they see nature as the starting point rather than as the defining quality. So someone in a growth mindset would be likely to say, 'I have developed a talent for writing, but I have never really

The more students go through the LC, the more likely they are to get into a growth mindset.

People in a growth mindset are more likely to enjoy challenge, engage with learning and step out of their comfort zone.

► **Figure 4: A Comparison of Fixed and Growth Mindsets**

	Fixed Mindset	Growth Mindset
Beliefs	Intelligence and ability are fixed. Nature determines intelligence and ability.	Intelligence and ability can grow. Nurture significantly affects intelligence and ability.
Priorities	Prove myself Avoid failure	Improve myself Learn from failure
Response to challenge	Feel inferior or incapable Seek ego-boosting distractions	Feel inspired to have a go Seek advice, support or new strategies
Mottos	If you're really good at something, you shouldn't need to try. Don't try too hard; that way you've got an excuse if things go wrong.	No matter how good you are at something, you can always improve. Always try hard; that way you've more chance of success and making progress.

committed to learning a musical instrument (yet)'. Notice the word *yet*, a very powerful word in the context of learning. Indeed, the title for Dweck's (2014) TED talk that has been viewed five million times already and that I was honoured to introduce to the live audience, was originally titled 'The Power of Yet'.

Compare some of the differences between fixed and growth mindsets, as shown in Figure 4. As you read through them, note that the Learning Challenge encourages and teaches the attitudes and behaviours of the growth mindset.

The Learning Challenge particularly focuses on effort, having a go, taking risks, trying new strategies, seeking advice, looking for challenges, questioning yourself and others, persevering and making progress. All of which are essential attitudes and behaviours of a growth mindset.

1.3.7 • The SOLO Taxonomy

The SOLO taxonomy stands for the Structure of Observed Learning Outcomes. It is a model first proposed by John Biggs and Kevin Collis (1982) in *Evaluating the Quality of Learning: The SOLO Taxonomy*.

SOLO is a means of classifying learning in terms of complexity, which in turn helps to identify the quality and depth of students' understanding.

Many people use the SOLO taxonomy to describe a learner's progress from surface-level knowledge through to a deep, contextual understanding. This is also an aim of the Learning Challenge and so, together, the two models sit perfectly alongside each other.

The SOLO taxonomy and the LC fit together very well.

No Idea

SOLO Term: Prestructural
Learning Challenge Stage 0



This is when your students have no idea about the concept or topic you have chosen. At this stage, the Learning Challenge will *not* work. Before you can get your students into the pit, they will need at least *some* idea about the concept in question. For example, you are unlikely to get six-year-olds into the pit about a concept as complex as global development, but you could probably get them into the pit about friendship or fairness.

One Idea

SOLO Term: Unistructural
Learning Challenge Stage 1



This is when your students have one idea or at least a basic set of notions about the concept or topic you have chosen. At this stage, the Learning Challenge is ready to begin. Generally you can start by asking what the concept means. For example, 'What is a friend?' or 'What is global development?' And as long as *some* of your students (and not just the outliers) are able to give a reasonably accurate answer involving one or two facts about the concept, then the Learning Challenge can begin.

Many Ideas

SOLO Term: Multistructural
Learning Challenge Stage 2



This is when your students have many ideas about the concept or topic in question. At this stage, your students will be heading down into the pit, if they are not there already. Generally, you will have encouraged your students into this stage by helping them spot contradictions or problems with what they have said. For example, 'You say that friends are people you know, but you know lots of people who aren't your friends, don't you?' or 'If global development is the equivalent of wealth, then what about the wealthy countries with high levels of child poverty: are they developed?'

Connecting Ideas

SOLO Term: Relational
Learning Challenge Stage 3



This is when your students begin to connect their ideas together and understand the relationships between them. In Learning Challenge terms, this is where your students construct understanding to the point of reaching a eureka moment. With this newfound sense of clarity and meaning, your students will feel a sense of accomplishment, and their answers will be noticeably more exact and developed.

Reviewing and Linking Ideas

SOLO Term: Extended Abstract
Learning Challenge Stage 4



This is when your students extend and apply their understanding to new contexts. In Learning Challenge terms, this is the point at which students look to blend their new discoveries with past knowledge so that they might better understand the bigger picture. They also innovate and create new applications for their understanding.

Further links between the Learning Challenge and the SOLO taxonomy will be explored in depth in Chapter 9. For now, though, see the brief overview on the previous page.

1.3.8 • A Language for Learning

A key strength of the Learning Challenge is its role in providing student-friendly language to describe abstract notions such as metacognition, quantitative versus qualitative aspects of learning and cognitive conflict.

The LC provides child-friendly language to help students talk about their learning spontaneously and sincerely.

For example, most teachers will have studied Vygotsky's (1978) zone of proximal development, but how many students regularly use Vygotskian terminology? However, with the Learning Challenge even the youngest school-age child is able to indicate when they are in their zone of proximal development by saying, 'I'm in the pit!'

Here are examples of other language regularly used by participants in the Learning Challenge to help them describe abstract notions of learning:

Wobbling, wobblers and *being in the pit*: user-friendly terms to describe a state of cognitive conflict (see Section 5.4.1)

Concept stretching: a way to describe the actions involved in challenging the meanings and applications of concepts (see Section 5.6)

Scaffolders: a collective term for a variety of strategies and tools used by participants to make sense of their learning (see Section 6.3)

Eureka: the revelatory state a person achieves after working hard to achieve a moment of clarity (see Section 6.5)

Stage 1: a nonprejudicial way to describe having only basic, surface-level knowledge about a concept (see Section 9.1)

Stage 2: an alternative to saying 'I'm in the pit' (see Section 9.1)

Stage 3: a way to indicate progress from quantitative to qualitative stages of learning (see Section 9.1)

Stage 4: indicating a participant is engaging in a metacognitive review of their learning journey (see Section 9.1)

Unpacking: a nice term to describe investigation into the underlying or hidden aspects of a concept or idea

The LC gives a structure to dialogue so that teachers can plan their lessons carefully if they wish to.

1.3.9 • A Structure for Learning

One of the most common reasons given for the popularity of the Learning Challenge is its usefulness as a tool for planning and delivering a challenging, dialogue-based lesson.

As a novice teacher, I was told again and again that classroom dialogue would help my students learn. Looking at Hattie's research more than two decades later, it turns out that advice was spot-on: classroom discussion is ranked tenth in the *Visible Learning* list

of factors influencing achievement with an effect size of 0.82, equivalent to double the average effect of 0.4 (Hattie, 2015).

However, back then I was apprehensive about starting anything remotely open-ended because of the fear of not being able to predict the topics that might come up or anticipate the questions my students might ask. I worried that I might not know the answers to the questions that came up. I also felt pressure from the school leaders to have written plans for each stage of every lesson. Funnily enough, it seemed the leaders weren't happy to accept the plan 'have a chat with the kids and see what happens'.

That was one of the drivers behind the Learning Challenge – to create a framework that would allow me to know where the lesson would go whilst also allowing enough flexibility for my students to follow lines of enquiry that were interesting and relevant to them.

Thus the Learning Challenge allowed me to predict the following stages of an open-ended, dialogue-driven lesson:

1. Identify a key concept.
2. Ask students for their initial ideas about the concept (these will usually be simple, undeveloped notions).
3. Create cognitive conflict by identifying contradictions and exceptions to students' early answers.
4. Ask students to compare their differing ideas by searching for similarities and differences.
5. Help pairs or groups select a thinking tool that will help them explain, sort and relate the ideas together.
6. Challenge students to develop a robust definition of the concept that will stand up against 'what if' and 'how about' questions.
7. Consider how students' final definitions apply to new contexts and reflect back over the learning journey.

This sort of plan seemed to satisfy my leaders much better. More importantly, it gave me the confidence to introduce dialogue into lessons safe in the knowledge that I had a good idea of where the lesson might go!

This step-by-step plan is explored in much more depth in Chapter 2.

1.3.10 • Learning for All

As you might have noticed in a couple of places in this chapter, I mentioned that the Learning Challenge works as long as *some* of your students have *some* understanding of the key concepts. This is because the Learning Challenge is collaborative in nature, bringing with it an expectation that participants will explain to and question each other. Those students who are initially unsure about the meanings of concepts tend to pick up interpretations from their more informed peers. That is assuming of course that those peers are not so far ahead that they use terminology or language that is incomprehensible. Thankfully this tends to be unlikely other than in the cases of the outliers. If those instances do occur, then you can get students in the middle to help those outliers make links and to explain or question in more accessible ways. This is covered in more depth in Sections 9.3 and 9.4.

In fact, it is very often those students who are *not* normally confident in lessons who excel more in earlier Learning Challenge lessons. That is not to say the higher-achieving

Here are the seven main steps of the LC.

The LC can work for all students who have a basic understanding of the chosen concept.

The LC sometimes needs adapting for students with special educational needs. This is explored further in Section 9.3.

students do not benefit; it is just that they tend to sit back in earlier episodes to weigh it all up. Perhaps they are so used to 'getting things right' in class that they are perplexed by the lack of an obvious answer or solution. Or maybe they are worried about appearing to be less 'perfect' in front of their peers? Either way, those who are used to getting top grades tend to hang back at the beginning whilst those who normally struggle in lessons generally take to the Learning Challenge like ducks to water.

That is not say that the Learning Challenge is suitable for everybody right out of the box, as it were. Adaptation is sometimes needed. For example, participants with some forms of autism can find the standard Learning Challenge approaches a bit too open and free-flowing. But, of course, as with any other pedagogical strategy, we should use our professional judgement and experience to adapt these approaches so that they provide positive and beneficial experiences for all of our students. Having worked in special education settings as well as in mainstream education, I know this is sometimes not easy, but it *is* possible, and it *is* very rewarding for teacher and student alike when we get it right. This is explored in Section 9.3.

1.4 • A PIT IS CENTRAL TO THE LEARNING CHALLENGE

The idea of a pit fits perfectly with the notion that challenge is often unsettling and irregular.

A small portion of the people I meet say they like the Learning Challenge but would prefer it not to include a pit. They argue that the connotations are too negative. There are also issues with translation because some languages have no word for *pit*. This has led to interesting variants such as gold mine, a black hole or even the iron pot that hangs over old cooking stoves. And these are all in addition to the problem of *pit* being a rude word in Swedish!

In this brief section, I would like to justify the use of the term and idea of a pit and in so doing, explain a bit more about why I think a pit works best.

The aim of the Learning Challenge is to get participants out of their comfort zone. This is a deliberate and strategic objective. It is neither incidental nor casual. It is not something that happens parenthetically. The very purpose of the Learning Challenge is to step outside the familiar to explore ideas and experiences that are neither effortless nor soothing. And that is why the idea of a pit works so well.

When your students get into the pit, you should expect them to feel uncomfortable. I don't mean anxious. I don't mean overwrought or afraid. I mean the opposite of contented. I mean needed: spurred on to think more, try more and question more. That is why the idea of a 'learning mountain' or a 'cooking pot' does not work as well: neither of these evoke the feelings nor the situation that the Learning Challenge is trying to create. A pit works because it is uncomfortable without being frightening. It is provocative without being aggressive. It is consuming, but you can always see out of it – unlike a mine that takes you right underground.

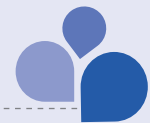
Of course, a pit doesn't suit every purpose. There are times when it is better to allow your students to get through a task without being challenged. It can mean fewer behaviour problems, more time to support particular individuals, and it can give some students a sense of satisfaction at reaching their goals without having to ask for help or think too hard. Yet there are problems with this approach too. If your students stay in their comfort

zone too much, then they will not get as much opportunity to develop life skills such as resilience, persistence and determination. There will not be as much need to think collaboratively or to search for alternative solutions. And they will rarely feel compelled to look beyond the obvious or take intellectual risks.

So it is all about balance: balance between practice tasks and challenging tasks, between feeling the satisfaction of arriving at the answer easily and taking time to engage in lots of trial and error before reaching the eureka point, balance between watching the world go by and getting into the pit to see what you can learn!

The pit represents being out of your comfort zone. This should not happen all of the time but should certainly be a common feature of learning.

1.5 • REVIEW



In addition to the main points identified in the preview, this chapter has covered the following:

1. Although many people refer to the Learning Challenge as the Learning Pit, it is more accurate to say that the Learning Challenge *includes* a learning pit.
2. Being in the pit represents a state of cognitive conflict in which a person has two or more ideas that they agree with but, when compared side by side, appear to be in conflict with each other.
3. There are four stages of the Learning Challenge: concept, conflict, construct, consider.
4. The Learning Challenge contributes significantly towards the *Visible Learning* Mindframes (Hattie, 2015).
5. There are also strong parallels between the SOLO taxonomy (Biggs & Collis, 1982) and the Learning Challenge.

Figure 5: The Main Steps in the Learning Challenge

