

The Theory adopted behind Developing Expert's Learning Approach



In 1995 when I started my 18 year teaching career, I vividly recall a pupil asking me the question, 'What's the point of learning this?'. It was a eureka moment for me and has challenged my approach to teaching. Throughout my career, I have been driven by a desire which ensures children understand the application of what they are learning in the classroom in the world of work.

In 2014 I embarked on a journey to design a curriculum for schools which was fit for purpose and for society. I wanted to ensure young people and their families had access to resources which supported them to make informed choices about their future in a way that made a curriculum become relevant. I am committed to ensuring that

career choice is no longer left to chance.

Three underpinning questions have influenced the design of the Developing Expert's approach. These are 'What does a government need to grow its economy over the next 20-50 years?' 'What does the workforce need to look like to serve the economy a government seeks to grow?' and finally, 'What does the education system need to look like to realise this goal?'

I am grateful for the influence and steer Dr. E.D. Hircsh provided along the journey. In 2015 Don named our company 'Developing Experts' and has been influential in the design our curriculum approach has taken.

Developing Experts is delivered through a sequenced curriculum designed to enable the learner to experience a coherent curriculum delivered through a logical progression. Attention has been paid to the order in which knowledge has been delivered, built on and revisited. Our curriculum team has carefully sequenced the science units to provide a vehicle for teachers to embellish and unify what may otherwise seem like disconnected fragments of knowledge. Our embedded unit quizzes have been designed to optimise learning outcomes for pupils to enable concepts to have a greater chance of becoming part of the learner's long-term memory.

I have set out below some of the cognitive theories which have been embraced when designing our curriculum and the platform it is delivered through.

Sarah Mintey MBE - Founder and CEO

A Story Telling Approach

Robert Mckee argues that storytelling is the most powerful way to put ideas into the world today. I agree! Arya and Maul's research provides evidence that learning outcomes are improved when putting to-be-learned materials into a story format. Developing Experts uses storytelling to engage students through our scripted curriculum as they discover a world of learning.

'Putting to-be-learned material in a story format improves learning outcomes.' Arya Maul
2012

Quiz Testing Challenges

The Forgetting Curve is a hypothesis about how much information we can retain over time. The hypothesis states that student forget 77% percent of what we have learned within six days. That is why reviewing learned content within the first 24 hours of initially taking in the information is so important. Every time we recall and review the material, we forget less and less.

When a student completes a quiz, if they answer a question incorrectly, they are taken back to the point in the story to unlock its meaning in context. Dr E. D. Hirsch highlights that

'We learn words up to four times faster in a familiar than in an unfamiliar context.' Dr. E. D. Hirsch Jr.

When the student completes a quiz, if they answer a question incorrectly, they are taken back to the point in the story a word and its meaning is explained so that the student can unlock its meaning in context. The algorithms for our platform are programmed to respond to how well a learner has mastered the content. Developing Experts' push technology ensures that learners see words and meanings daily through our quiz challenges, then every few days, then a few weeks later, so key topics stay fresh in their minds. This approach is supported by Robert Bjork's research which states:

- '1. Spacing practise: information that is presented repeatedly over spaced intervals is learned much better than information that is repeated without intervals.
 2. Interleaving: although people think that they learn better when content is blocked, rather than interleaved, people actually learn content better when it is interleaved with other content.
 3. Testing: using our memory improves our memory: the act of retrieval helps us remember the things we recall. When information is successfully retrieved from memory, its representation in memory is changed such that it becomes more recallable in the future.'
- Robert Bjork, 1975

We can only retain a limited amount of learning in our working memories. We use spaced repetition to support learners transfer content learned from the working to long term memory. Developing Experts' solution factors in when the pupils are due to sit key external tests so during key revision periods prior to examinations, key topics are revisited to exercise the child's retention.

'What we can learn from cognitive science is simple: avoid overloading the working memory and build long-term memory with questions, knowledge, examples, stories, analogies, practice, mnemonics, and hard work.' Daniel T. Willingham

A Curriculum which places a focus on Knowledge and Skills

When discussing our curriculum and learning approach with Dr E. D. Hirsch Jr., we spent several hours attempting to find a suitable name which summarised our ethos. 'Developing Experts' is the

name Dr. E. D. Hirsch Jr. suggested because our curriculum places equal emphasis on developing knowledge and domain specific skills.

Developing Experts has invested 1000s of hours in writing materials which convey key facts which help students deepen their understanding of a topic. The following research sets out why we have written material which places an emphasis on delivering a content rich curriculum.

1) Reading comprehension depends on broad knowledge and a large vocabulary.

From newspapers to novels, all texts for literate adults omit basic information—they use terms, draw analogies, and make references without offering definitions or explanations. In short, they assume that the reader has a base level of knowledge. In order for children to grow into literate adults that read widely with ease, we have adopted a science curriculum which builds broad knowledge teaching all the knowledge that writers assume readers have.

2) Critical thinking and problem solving depend on broad knowledge and deep knowledge.

Broad knowledge is necessary for comprehension so it's also the starting place for critical thinking, problem solving, and creativity. Try designing a study to compare water filtration technologies without knowing much about waterborne diseases or filtration methods. There simply are no all-purpose thinking skills that can be deployed effectively without knowledge.

To learn more, read “21st Century Skills: The Challenges Ahead” by Andrew J. Rotherham and Daniel Willingham, and “Education in the Age of Google” by Annie Murphy Paul.

3) Knowledge increases IQ.

Although many people in Western cultures believe intelligence is genetically determined, a more accurate view is that intelligence is influenced by both genes and the environment. Learning new knowledge actually increases intelligence. Just like practice in sports leads to new skills and better performance, time spent reading and studying leads to higher achievement and greater ability.

To learn more, read “Schooling Makes You Smarter” by Richard Nisbett.

4) Knowledge is like an interest-bearing savings account: The more you know, the faster you learn.

Starting a subject from scratch is tough; adding a few more facts and concepts to something you already know a lot about is easy. Another way to think about your knowledge is like a sticky web. The bigger your web, the more stuff will stick to it. The smaller your web, the more information will pass on by without being added to your store of knowledge.

To learn more, watch Robert Pondiscio’s presentation on “The 57 Most Important Words in Education Reform.”

5) The early years are critical for building knowledge and vocabulary.

While building knowledge is always beneficial, the early years are especially important. Some children build lots of academic knowledge at home, but others rely on their schools. In the early years, the gaps are still relatively small and the odds of catching up are better.

To learn more, read “The Word Gap” by Laura Colker and “Building Knowledge” by E. D. Hirsch, Jr. Also, watch Susan Neuman explain “Why Knowledge Matters”.