

Donald Clark's 10 facts about learning that are scientifically proven

I'm often challenged by teachers and trainers to provide a list of scientific theories which can be used to change current practice, so here goes. (Note that I had real trouble whittling it down to just ten.)

1. Spaced practice

This is perhaps the most significant fact we know about learning, yet it is almost completely ignored by the 'curse of the course and classroom'.

We learn through practice, little and often. Ebbinghaus proved it in 1885, and almost everyone in the learning profession has studiously ignored it for well over a century. Demster reported this sad state of affairs in "American Psychologist" (The Spacing Effect: A Case Study in the Failure to Apply the Results of Psychological Research, 1988).

We forget things quickly and the most effective way to prevent this forgetting is to practice at spaced intervals over time. Knowledge is easy to learn but hard to retain.

Forget this and you condemn yourself to, at best, unnecessary effort in learning, at worst failing to learn much at all – the true story behind most learning effort.

2. Cognitive overload

This well known phenomenon is extremely common in training.

A lack of understanding about how memory works leads to a lack of preparation of material in terms of size, order and engagement which in turn leads to weak encoding, a lack of deep processing and ultimately poor retention and recall.

Almost all courses are too long. Most courses present material in the wrong way and lead to unnecessary forgetting. Simplify to prevent cognitive overload.

3. Chunking

This is perhaps the easiest and simplest piece learning theory to put into practice.

Chunking means being sensitive to the limitation of working memory. Less is more in learning.

Distilling, rather than enhancing, elaborating and creating lots of distracting noise, is a virtue in teaching. Unfortunately, the 'song and dance' act in the classroom is often cacophonous.

4. Order

The order in which you learn things is critical to how they will be stored and recalled; yet, education and training continue to jumble and confuse content.

Correct order is critical in language learning, science, maths and indeed in every subject. Learn things in the wrong order and you'll end up having to unlearn.

5. Episodic and semantic memory

Once you understand that the things we learn are stored differently, i.e. we have different types of memory, then you'll be more sensitive to the necessary differences in training.

We still have far too much reliance on text (semantic) for subjects that need a visual (episodic) approach. You see this everywhere, from text-heavy PowerPoints to whiteboards, manuals and hand-outs.

6. Psychological attention

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Learning does not take place without psychological attention; so, setting up classrooms and scenarios that inhibit attention, or distract from learning, is massively counter-productive.

I fear that much so called 'collaborative learning' falls into this trap. Cramming people into small, airless classrooms is no way to encourage attention.

The bottom line is that most learning is best done on your own or one-to-one.

7. Context

We know that recall is enhanced by learning in the physical context in which one is expected to perform.

Yet, most teaching is done in alien environments – classrooms and training centres.

We have plenty of proof that work-placed learning needs to be massively increased and non-contextual classroom teaching decreased.

8. Learn by doing

From William James and John Dewey through to Kolb and Schank, we've had a torrent of theories showing that we learn lots by doing, yet so much teaching and training is locked into an over-theoretical, knowledge and not skills, model.

There is barely a subject in training that wouldn't benefit from a boost in experiential learning.

9. Understand 'peer' groups

The work of Judith Harris ("The Nurture Assumption") will change the whole way you look at parenting and teaching.

Her revolutionary scientific work showed that most books on parenting and teaching overestimate the influence of parents and teachers, and under-estimate the role of genetics and peer pressure.

There are some real and practical steps one can take to avoid the obvious traps. These are largely ignored in training. Read the book.

10. Murder the myths

This is perhaps the most useful piece of scientific advice for teachers and trainers – dump the snake oil techniques.

These include learning styles, playing music while you learn, Brain Gym, left-right brain theories, NLP, stating the objectives at the start of a course...the list goes on.

About Donald Clark

Donald Clark was CEO and one of the original founders of Epic Group plc, which established itself as a early leading company in the UK e-learning market, floated on the Stock Market in 1996 and sold in 2005.

Describing himself as 'free from the tyranny of employment', he is now a board member of Ufi LearnDirect (Government agency delivered e-learning to 2.5 million learners), LINE Communications, Caspian Learning, Learning Pool, Brighton Arts Festival and a school governor.

He has produced over 40 papers, dozens of book reviews and many articles on e-learning. Donald has also won many awards for the design and implementation of e-learning, notably the 'Outstanding Achievement in e-learning Award'. He is a regular speaker at national and international conferences and a regular (and controversial) blogger on e-learning.