

THE ROUND

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WHY TEACHING CONTENT IS TEACHING READING

The cognitive psychologist Daniel Willingham tells us that “Teaching content *is* teaching reading.” But what does he mean by this?

Willingham explains that, when we people write, they leave out information. A reader fills in the blanks when they read the text. Take this sentence, for example: “Dan was so embarrassed. He went to the concert and forgot to turn off his phone.” We understand the text by filling in the missing information: the phone rang during the music and it could be heard by others at the concert. The text cannot be understood without this unwritten knowledge that the reader brings to the text.

Therefore, Willingham suggests, the more knowledge a reader has, the more they are able to fill in the gaps of a text. We might then consider this person “a good reader”, but really they have good background knowledge.

A famous study by Recht and Leslie (1988) showed that “weak readers” did better on reading tests than “strong readers” when they knew more about the subject than those strong readers.

In [the study](#), high school students were tested on their comprehension of a passage about baseball. They used 50% strong readers and 50% weak readers. Each of these groups was subdivided so that they had 50% who knew a lot about baseball and 50% who had little knowledge.

The results showed that weak readers that knew about baseball were 69% correct in their comprehension, whereas the strong readers who had very little knowledge about the topic only scored 47% correct. To conclude: **good subject knowledge makes for a better reader.**

TRANSLATING SCIENCE

DANIEL WILLINGHAM

In an article for *Education Next*, Daniel Willingham proposes a way to reform teacher education. In the article, Willingham writes about the need for teachers to be explicitly taught the psychological principles of how children learn and to know how to implement them into lesson plans.

Titled '[Unlocking the Science of How Kids Think](#)', the article begins with the idea that Willingham has often been surprised when meeting teachers that they are usually unaware of the latest findings in cognitive psychology about how children think and learn. This is in part down to the way that teacher training may have handled the theoretical elements of teaching in the past, but he also admits that, as a cognitive scientist himself, he didn't think that his research was relevant to teachers as he presumed they already knew about human memory, attention and motivation from a psychological perspective, so didn't find himself actively sharing his findings with classroom teachers.

Willingham found he was wrong to assume that teachers already knew about cognitive psychology and the principles of memory, attention and motivation from a psychological perspective. He set

about changing this and offers that "accurate beliefs about how children learn will lead to better classroom decisions".

Willingham suggests that the best way to learn about these basic principles is to turn these scientific observations into classroom applications. That is, rather than keep them in the abstract, ensure that teachers know exactly how each principle should manifest itself in their teaching.

The table opposite contains some of the most consistently agreed scientific observations from cognitive psychology. It also shows us what this should mean in the classroom.

Willingham summarises what he thinks all teachers should be doing: firstly, we must be taught the psychological principles and retain them; secondly, not only must we know these principles, but we should know how to use them in our lesson plans; and thirdly, we must actually use them.

If we follow this, Willingham suggests that the benefits "could be substantial and the investment would pay dividends long into the future."

TO THE CLASSROOM

SCIENTIFIC OBSERVATION	CLASSROOM APPLICATION
Practice is crucial to long-term retention.	There must be sufficient classroom time (or homework) devoted to practice for skills or knowledge that must be remembered.
Memory is more enduring if practice is distributed in time, not massed.	The same amount of time devoted to a lesson will be more efficient if distributed across days.
Only attended aspect of an experience will be learned.	Teachers must consider what students will <i>actually</i> pay attention to: for example, vivid demonstrations may distract students from the point they were meant to illustrate.
Learning curves are negatively accelerating.	When learning a new skill, students will initially make rapid progress, but subsequent improvement will be slower.
Probing memory improves retention.	Low-stakes or no-stakes quizzes are among the best ways to boost student memory.
Students who believe that they can get smarter through hard work choose more difficult tasks and persist longer when they have difficulty.	Teachers can affect student beliefs about intelligence through the way they discuss it and how they talk about student success.
Deep understanding of abstract concepts is always preceded by shallow understanding that is tied to the specific examples students have worked with.	Teachers should not be put off if students' initial understandings seem shallow; deeper understanding requires more practice, and so teachers must be selective about which concepts merit that time commitment.

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BLOGROLL

ARTICLES AND BLOGS YOU MIGHT FIND INTERESTING

[‘What is Worth Reading for Teachers Interested in Research?’](#) is a list of sources of educational research for teachers compiled by Robert Coe, Professor of Education and Director of CEM at Durham University: “things that are worth reading”.

[‘Tips and Tricks for Spaced Learning’](#) is a blog post from Paul A. Kirschner and Mirjam Neelen, giving advice for classroom teachers on how to effectively spread learning over time to strengthen memory.

[‘Memories are made of this’](#). Dylan Wiliam’s recent article of the TES explains “three simple but hugely important aspects of memory [which] are largely being overlooked in schools, but the right classroom approach could see students retaining the maximum amount of learning for their efforts”.

If you want to know a little bit more about any of the ideas in this edition, please don’t hesitate to email me – j.theobald@wildern.hants.sch.uk - or come and find me in Block 9! James