Schema and Misconceptions

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What's the idea?

Learning builds in schemas; knowledge allows you to accrue more knowledge.

What does it mean?

As we learn, we arrange information into sets of ideas (schemas) that help us make sense of the world. This makes future recall easier because whole sets of ideas can be recalled together. This is why knowledge builds on knowledge.

Every student's schema for a particular knowledge domain will be unique to them. It's a blend of the learning they have gathered from their experience of the world, reading and what they've been taught. If a schema is based on flawed understanding or limited experience, then it is harder for new information to stick; the schema has to be reconstructed before it all makes sense. We also might revert to more primitive schema unless new ideas are clear and reinforced strongly enough.

What are the implications for teachers?

Your students can't have too much knowledge; it all helps. The more intricate our schema become, the more able we are to accept new information. The more knowledge your students have, the more they can get because it is more likely that references they read will make sense.

Invest heavily in building secure foundations, checking students' prior knowledge and activating it before giving them more. Weak schemas usually explain common misconceptions; it pays to anticipate them and tackle them, rather than waiting to see if they form. This means being prepared to go back to the basics if that is where your students are, trying to link abstract ideas to knowledge they are more secure with.

We need to recognise that tacit knowledge gained from experience plays a role in forming schemas. This is especially relevant in early years education when schema formation flows from numerous experiences. It is also relevant in practical subjects: a 'feel' for the way forces impact on objects, underpins the theory and it's all part of the schema.

TOP TIP / **Identify common misconceptions and plan ways to make sure students don't fall into them.**

Want to know more?

Didau, D. and Rose, N. Chapter 4 Cognitive Load What Every Teacher Needs to Know about ... Psychology (2016) John Catt Ltd.
Willingham, D. Chapter 4 - Why is it so hard for students to understand abstract idea in Why Don't Students Like School, (2009) Jossey-Bass
Nutbrown, C. Key Concepts in Early Childhood Education and Care (2011) Sage.