Teaching for how students learn:
A model of learning and teaching

Australian Education Research Organisation

Teaching practices that are aligned with how students learn are the most effective in improving education outcomes for all. There is strong evidence about the processes that occur during learning. These processes explain why some teaching practices are more effective than others. AERO has developed a model that identifies the most effective and efficient teaching practices aligned with how students learn.

How students learn

Attention and focus

Students are actively engaged when learning

- Sensing, thinking and memory
- Readiness for learning
- Self-regulation
- Safety and belonging

Knowledge and memory

Learning is a change in long-term memory

- Novice learners
- The developing brain
- Working and long-term memory
- Consolidation

Retention and recall

Students process limited amounts of new information

- Cognitive load
- Recall and retention
- Additional learning needs

Mastery and application

Students develop and demonstrate mastery of their learning

- Application of knowledge
- Mental models
- Problem solving, critical and creative thinking
- Generative learning

Teaching that aligns with how students learn

Enabling

Foster the conditions of a learning-focused environment

- Rules and routines
- Respectful interactions
- Self-regulated learning
- Cultural safety
- Family engagement

Planning

Develop a teaching and learning plan for the knowledge students will acquire

- Define knowledge
- Chunk content
- Sequence instruction
- Plan to assess

Instruction

Manage the cognitive load of learning tasks

- Explain learning objectives
- Teach explicitly
- Scaffold practice
- Monitor progress
- Support tiered interventions

Gradual release

Maximise retention, consolidation and application of learning

- Revisit and review
- Vary practice
- Organise knowledge
- Extend and challenge

This model is underpinned by evidence on how students learn, to support teachers' practice of Australian Professional Standards for Teachers: 1.2 Understand how students learn. For more information, including the evidence underpinning this model, read How students learn best. For background explanation on this model, visit https://www.edresearch.edu.au/model-learning-teaching

Teaching for how students learn: A model of learning and teaching

Australian Education Research Organisation

How students learn

Teaching that aligns with how students learn

Attention and focus

Students are actively engaged when learning

- Learning requires sustained focus and attention.
- Success in learning fosters ongoing student engagement.
- Small amounts of stress can enhance memory retention, but high or extended stress can impede learning.
- Beliefs about ability can influence learning.
- Students can learn to regulate their own learning.
- Cultural safety and a positive sense of belonging contribute to conditions for learning success.
- Families may be partners in young people's learning.

Enabling

Foster the conditions of a learning-focused environment

- Establish rules and routines that support students to focus on learning.
- Demonstrate respectful interactions to foster positive relationships and belonging.
- Teach techniques that develop students' capacity to improve their own learning.
- Develop cultural responsiveness to meet the learning needs and aspirations of First Nations students.
- Engage with families to invite communication and collaboration.

Knowledge and memory

Learning is a change in long-term memory

- Students use working memory to acquire and transfer knowledge to long-term memory.
- Students build mental models by connecting knowledge in long-term memory.
- Applying learning requires knowledge to be consolidated in long-term memory.

Planning

Develop a teaching and learning plan for the knowledge students will acquire

- Identify the learning students will acquire and the relevant prerequisite knowledge and skills.
- Break up intended learning and sequence it to build in complexity.
- Develop and plan tasks appropriate for acquiring, retaining and consolidating learning.
- Plan tasks and processes to assess and monitor learning needs, progress and attainment.

Retention and recall

Students process limited amounts of new information

- Working memory is limited in how much new information it can process at one time.
- Cognitive load can be reduced to aid transfer to long-term memory.
- Practice helps students retain knowledge and skills in long-term memory.
- Students may have additional limitations and learning needs that require more instruction, scaffolding and guidance.

Instruction

Manage the cognitive load of learning tasks

- Communicate learning objectives and activate prior knowledge.
- Teach chunks of new information explicitly with explanation, demonstration and modelling.
- Guide student learning and gradually remove scaffolds.
- Check for understanding and give additional instruction, guidance or feedback as needed.
- Monitor for additional learning needs and support student access to tiered interventions.

Mastery and application

Students develop and demonstrate mastery of their learning

- Spaced, varied and repeated practise consolidates learning in long-term memory, so it becomes easier to retain, retrieve and apply in different ways.
- Students develop more complex mental models as they recall and connect knowledge from across the area of learning.
- Solving unfamiliar problems and thinking critically and creatively draws on knowledge consolidated in long-term memory.
- Students can generate new learning by applying their mental models.

Gradual release

Maximise retention, consolidation and application of learning

- Regularly revisit and review learning.
- Space and vary tasks for guided and independent student practise.
- Teach the connections between ideas using models and tasks that build in complexity, detail and abstraction.
- Provide appropriately challenging opportunities for students to apply, extend and demonstrate mastery of their learning.

For background explanation on this model, visit
https://www.edresearch.edu.au/model-learning-teaching

September 2023