In Action Series, ed. Tom Sherrington, summary by Helen Reynolds @itsalearningcurve.education

Book/theory	Main points	Do this
Rosenshine's Principles – Rosenshine (1982) Author: **Tom Sherrington**, July, 2020 Contribution: **Direct instruction (di)**	• 10 Principles: Daily review, small steps, ask questions, provide models, provide practice, check for understanding, high success rate, scaffold difficult tasks, indep. Practices, weekly/monthly review • 4 strands: 1. Sequencing concepts and modelling – present material in small steps, give clear/detailed instructions/explanations, think aloud/model steps, many examples, re-teach when necessary 2. Questioning – ask a LOT of questions, get them to explain what they've learned, check response of ALL, provide systematic feedback and corrections, 3. Reviewing material - begin with a review of previous learning, re-teach if necessary, 4. Stages of practice – high level of practice, guided at first, prep and monitor independence practice	•
Generative Learning – Fiorella & Mayer (2015) Authors: **Zoe & Mark Enser**, Oct 2020 Contribution: **Generative learning concept**	• Generative learning involves 'making sense' of our experience by testing it against what we already know (constructing schema). • SOI = Select, Organise, Integrate (Mayer's model of memory) = generating learning, but taking into account cognitive load • Mighty 'Ms' = metacognition and motivation, to promote self-efficacy and independence/motivation • Use SOI to structure all the strategies w/effect size/e.g.: 1. Teaching/0.77, get them to teach others 2. Imagining/0.65, actively try to make a mental model 3. Mapping/ 0.62, use half-filled in maps, 3. Self-testing/0.62, make flash cards, SLOP 5. Self-explaining/0.61, self-Socratic questioning 6. Enacting/ 0.51, concrete models to help concrete-abstract 7. Summarising/0.5, Cornell notes 8. Drawing/ 0.4, turn text into drawings • Make sure they have the requisite background knowledge to implement the strategies to avoid misconceptions • (from my reading of original F &M) notice the Boundary Conditions of any study that is cited •	
Cognitive Load Theory - John Sweller (1988) Author: **Oliver Lovell,** Oct 2020 Contribution**: Cognitive load theory**	• *CLT is the single most important thing for teachers to know* – Daniel Willingham (• Maximize learning: reduce extraneous load, optimize intrinsic load • Purpose of instruction is to increase knowledge in long-term memory • Think about cognitive load (CL) in terms of: ○ **A**rchitecture – environment = unlimited external store of info, LTM = unlimited internal store, WM is limited, new info takes lots of WM ○ **B**iology – bio primary = speaking, faces etc. is automatic (can't be taught), bio secondary = reading, math etc is not (has to be taught), ○ **C**ategorization – of load into intrinsic CL, ICL (due to nature of task) – reduce by keeping as simple as possible , extraneous CL, ECL (not to do with the task), monitor WM overload due to both ○ **D**omains – domain-general skills = bio primary, domain-specific skills = bio secondary, experts have domain-specific knowledge that novices don't have, so can't use same strategies for novices as for experts, expertise-reversal effect – novices need worked examples not problem solving (or they're slowed down), experts need the opposite, can learn with/from more ECL/more variation ○ **E**lements – element interactivity = source of CL associated with elements + level of complexity of interactions • In reducing ECL, redundancy will mean ECL (more for experts than novices), use modality effect - brain uses parallel visual/auditory channels in parallel which helps WM = dual-coding when in LTM	

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Cognitive Apprenticeship Collins et all (1991) Author: **John Tomsett**, Feb 2021 Contribution: **Assimilation theory**	• Expert physicists: identify essential features, and what to ignore, then codify the essential features into physics model, then work logically to solve it. A cognitive apprenticeship (Making Thinking Visible) environment has • Subject content: 1. Domain knowledge 2. Strategic knowledge = heuristics (tricks of the trade)/control (using metacognition) +how to learn heuristics or metacognitive strategies • Teaching methods: 1. Changing their brains with modelling (externalizing the internal)/coaching (helping them)/ scaffolding (providing support) 2. Developing their skills with articulation (answering questions, talking about strategies) / reflection (comparing to experts or other students) 3. Encourage autonomy with exploration (trying it on their own) • Sequencing: 1. Global (map of the terrain) before local (tasks or bits of task) 2. Increasing complexity (skills need are harder) 3. Increasing diversity (lots of different skills are needed) • Sociology: 1. Situated learning (contexts should reflect the uses of knowledge in the domain) 2. Community of practice (sharing experience) 3. Motivation (becomes intrinsic in a community, they set personal goals) 4. Cooperation (working together to achieve goals)	•
MARGE Model of Learning Shimamura (2018) Author: **Nimish Lad**, July 2021 Contribution: **MARGE model**	• Learning = our ability to acquire knowledge from sensory experiences • Treat you subject as a tour and you are the guide • Can be perceptual - senses, conceptual – new info linked to prior K, skill – sport, music • Can be bottom-up using senses, inefficient, or top-down so prior K guides assimilation, efficient • **M**otivate – help them expand the spectrum of 'pleasure-seeking' experiences/get them to push themselves to explore new stuff • **A**ttend – attention requires effort, they need to know what to attend to, have ways to attend, reasons to attend • **R**elate – things stick when we can relate them to prion K so as to securing in LTM, or have places to put them in cognitive architecture • **G**enerate – memories are long-lasting if they are reactivated, or elaborated on after initial learning, use it or lose it • **E**valuate – 'how do I know I've learned it?' metacognition important to develop, help them with self-regulatory strategies, distinguish between 'recollection' and 'familiarity' ≠ knowledge	
Five Formative Assessment Strategies Wiliam and Leahy (2015) Author: **Kate Jones**, Sept 2021 Contribution **Formative assessment**	• FA = range of evidence-informed strategies we use to support learners to make progress, informs both, teacher/learner/peer: TLP • Where are we going? – TLP – clarifying, sharing, understanding learning intentions and success criteria, LIs may cover many lessons, should be clear, specific, desirably difficult, SC should be transparent, checked regularly with retrieval practice, beware toxic mutation = doing it every lesson, telling them exactly so it's no fun • What do they know? – T – engineering effective discussions, tasks, activities, RP, TLAC strategies, discussion SHAPE Sentences, Hand away from mouth, Articulate, Project, Eye contact + elaboration works, use MWBs often, care with MCQs, • How should we feed back? – T – they don't necessarily learn what we teach them, good feedback is acted on by the learner, should be understandable, helpful, actionable, Inside the Black Box/comment *only* marking, only grade when absolutely necessary, online works too • How can they collaborate/assess each other? – S – collaboration/ peer tutoring/peer assessment can save time, enhance learning, be motivating, focus on Kind, Specific, Helpful feedback • How can they own their own learning? – S – we work towards our own redundancy, they leave with passion, teach metacognition and self-regulation skills, online tools can help	•

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An Ethic of Excellence Ron Berger (2003) Author: **Sonia Thompson**, Feb 2022 Contribution: **Austin's Butterfly**	• Austin's butterfly = don't accept mediocrity, especially from the disadvantaged, great model of critique and revision, how to give specific feedback, power of perseverance, power of pushing on, • Culture of excellence –ethics/values that compel students to achieve more, engender culture so it's cool to care about academic excellence, evidence informed practice = best research evidence + context + teacher experience • Work of excellence – make modelling exemplify success criteria, make multiple drafts with time/guiding/collaboration produce evidence of progress, make goal of critique sharing knowledge and skills to get fluency, make work public to value/appreciate/raise the bar/witness • Teaching of excellence – teaching is hard, doing it well needs reading/ researching/observing others/finding best practice	•
The Extended Mind – Annie Murphy Paul (2022) Authors: **D. Goodwin, E. Turner, O. Caviglioli,** May 2022 Contribution: **Embodied cognition**	• cognition extends beyond the brain to the body tools, environments • 4 cognitions: 1. Embodied - gestures enhance thinking and learning as movement (congruent, novel, self-referential, metaphorical) helps memory, the body stores information (interoception), capacity to regulate attention/behaviour/ movement is limited – cognitive load 2.Situated – external representations reduce transience/integrate cognitive loops, including drawing/note-taking/mapping, you do more, more tools, extend working memory we record memories like spaces, larger spaces reduce cognitive load 3. Distributed – running our thoughts through others' minds, cognitive apprenticeship, Lemov STAR, paired teaching/retrieval, 4. Integrated – intelligence=interactions brain/body/space/others, fluid (rises then declines) vs. crystallized intelligence (grows with effort)	•
Strengthening the Student Toolbox – Dunlosky (2013) Author: **Amarbeer Singh Gill**, June 2022 Contribution: **Strategies that work**	• Research identified 'spectrum of effectiveness' • There are few 'bad' strategies – less effective strategies done well >> more effective strategies done badly. • Willingham's model of learning means we should expect forgetting • Learning is invisible and is a permanent change in LTM Most effective strategies (reviewed by Dunlosky) are: • 1/2. Practice testing/Distributed practice = very effective in lots of formats/ages/prior knowledge/subjects/levels. 2. Interleaved practice = effective in maths/concept learning (needs more research (NMR)) 3.. Elaborative interrogation- NMR 4. Self-explanation – NMR 5. Rereading – distributed rereading ok, but time could be better spent 6. Highlighting and underlining – not very effective, can be a stepping stone 7. Summarisation – they must be taught how to do it, may not be worth time 8. Keyword mnemonic – short lived use in languages 9. Imagery for text – benefits limited to image laden text, NMR.	
Meaningful Learning – Ausubel (1963) Author: **Sarah Cottinghatt**, July 2023 Contribution: **Assimilation theory**	• Goal – students develop a body of knowledge (BoK) (vast, connected, organised, stable…) • Meaningful learning (ML) = connecting new information to existing knowledge to make new meaning in the minds of students (which we can't see) – happens through assimilation → meaningful forgetting, leaving accessible and dissociable residue • BoKs have hierarchy: subsumers (generalised/inclusive ideas) assimilate details = subsumptive learning. • Initial meaning not enough – must integrate under correct subsumer • Existing knowledge = cognitive structure determines speed/ quality of ML, to do so requires effort. • Organizers can help: advance/ expository/ comparative ONLY if info is not already well organized. It is links that make meaning – be explicit • Checking for meaning (reprhased) ≠ checking for understanding (verbatim or as expected on rubrics), Keeping meaning alive = meaningful forgetting, needs review to stabilize memories •	•

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Desirable difficulties Bjork & Bjork (2011) Authors: **Jade Pearce, Isaac Moore,** March 2024 Contribution: **Desirable difficulties concept**	• Performance (during/soon after instruction) ≠ learning (change in LTM) • Storage strength in LTM ↑ when retrieval strength ↓ (by forgetting) • (undesirable difficulties: immediate performance ↓, learning ↓) • Desirable difficulties: immediate performance ↓, learning ↑ by 1. Spacing (spreading out teaching/testing - upset forgetting curve) 2. Varying conditions of practice (deeper understanding/ increased flexibility due to richer variety – NB they won't like this) 3. Interleaving (mixing different types of qs, egs challenges STM, but improves discrimination - short term performance ↓ LTM↑) 4. Practice testing (testing effect is strong + desirable if retrieving not recognizing so use MCQs with caution or add confidence weighting • Ss will NOT use desirable difficulties when working independently because 1. Those strategies impede performance 2. they judge their learning inaccurately 3. they think people are just smart 4. they do the easy thing because they don't know any different	•
Self-Efficacy Theory Albert Bandura (1977) Authors: **Dr Neil Gilbride,** Jan 2025 Contribution: **Self-Efficacy Theory**	• Definition: "People's judgements of their abilities to organise and execute course of action required to attain designated types of performance": judgements may not be accurate. • Key research: how we interact with the environment/other people affects our behaviour (Social Learning Theory), what we believe about our ability affects our motivation, effort and success (Self-Efficacy SE), our learning and behaviour depends on personal/environmental factors/behaviour (Social Cognitive Theory) • You are more likely to act if you believe you will be successful • You can understand others' behaviour through the lens of self-efficacy • Interplay of SE specific to the domain or behaviour/we learn from watching others/self and environment interacting/agency can be developed (ours and others)/break the self-fulfilling prophecy cycle • SE is NOT: confidence (too general/ill-defined) or self-esteem (global evaluation/self-worth) • SE + Instruction design - insight: we learn by watching others (focus on attention, retention, reproduction, motivation, credibility) • SE + Understanding practice – insight: mastery and managing failure (focus on timing, chunking, scaffolding) • SE + Understanding behaviour – insight: SE affects behaviour and we can intervene (focus on using SE lens to interpret/intervene	•
Hidden Lives of Learners Graham Nuthall (2007) Author: **Bennie Kara**, Dec 2025 Contribution: **'Three worlds of instruction/ Rule of Three'**	• Hard to judge teaching quality, there's many poor proxies for learning • Teacher gauging 'with-it-ness' in class cannot be replicated with AI • Students have 'unique learning fingerprint' from prior knowledge (PK) + experience (exp) + how they navigate their cognitive framework (CF) • Three worlds: Public (what the teacher sees), Social (roles students establish), Private (where they grow, learn, change beliefs - invisible) • ***'Rule of Three'*** – need to encounter learning material in at least 3 significant ways in order to learn it (3 or 4), 80-85% accurate • Determine PK= v. important, determine how S make meaning= v. hard • Engagement with cultures (social/academic) affects learning more than ability, need to be positive, in a safe space • Feedback: written comments, grade, verbal comments, tech based all have pros and cons, + group/peer/individual, metacognition vital • Individualisation = observing Ss, providing multiple entry points • 3 x via teacher-managed or self-generated impactful activities • Model culture of enquiry – make mistakes, be openly curious • Care with data (learning not linear), + with tech (lacks social factors) • No single method works, mix up direct instruction with interactions • Ethnicity ≠ ability, but diverse perspectives help to bridge gaps	•