How Teaching Happens (by Paul A. Kirschner, Carl Hendrick and Jim Heal) –Summary

	What	What to do/know	Beware of..	Do This
Teacher effectiveness, development, growth	1 Experienced vs Expert teacher	Experience does NOT make you an expert You can (and should) always add conceptual knowledge / PCK / how people learn	Thinking 'talent' is a thing It's just you, it's complicated	
	2 Those who understand teach	Mere content knowledge is NOT enough. You need to add pedagogical and curricular knowledge.	Assessing teaching without reference to content	
	3 Teachers are made not born	Better teachers lead to better learning. Teacher certification and education (preparedness) matters, positively affecting student success and equity.	Thinking training is for wimps	
	4 The death of the teacher?	Teachers are responsible for how information is conveyed and learned via its structure and sequence. Real learner centred education is teacher led.	Entirely student centred OR entirely teacher-led	
	5 I think therefore I teach	Teachers must set goals and also be adaptive learners Use dynamic model/iterative approach – try it / evaluate it / refine it / try it again…	Fixed notions of 'best practice' One size fits all CPD/PD	
	6 When thinking and acting become one	Reflective practice is key. Move from problem solving to problem SETTING, on the hoof reflection in action… it's a dance between thinking and doing.	Seeing professional practice as rational problem solving	
Curriculum development/Instructional	7 It's all about alignment	… of teaching, assessment methods and curriculum. Align goals AND instructional methods AND assessment	Not being clear what should be learnt, not matching it to assessment	
	8 Pebble in the pond	Instruction begins with defining TASKS the student should be able to do / what PROBLEMS they should be able to solve and teach them how to do it (with real world examples + using prior knowledge)	Atomistic, fragmented objectives with separate instruction of each	
	9 How to tell the story of an idea	Teaching is 'telling a story'. We make knowledge recognisable / understandable by how we present and sequence it Ask whether the knowledge is ready to be understood	Thinking it's a straight path from concrete to abstract/they learn best building it themselves	
	10 If you don't know where you're going you might end up someplace else	Ronseal approach –success is achieving what we set out to do; objectives matter Useful objectives specify performance, conditions, criteria, speed, accuracy , and quality	Verbs that don't mean anything (understand, appreciate)	
Teaching techniques	11 There's no such thing as a child who can't be taught	Direct Instruction (DI) works with everyone because it's systematic: communicate goals, sort prior knowledge, present knowledge, check mastery, practice, performance, independence Better learning and higher self-esteem!	Thinking it's better if students choose what/how/when they learn	
	12 Burning the Strawman	From DI to di or explicit instruction = explicitly teaching concepts and skills before using them Instructional ideas from cogsci / classroom observation / research on instruction converge (work)	Thinking explicit instruction is lecturing/ boring /not active	
	13 Make something of what you've learnt	SOI: select, organise, integrate = generative learning – we continually construct new from what we learn. Eight generative techniques: summarise, map, draw, imagine, self-test, self-explain, teach others, enact	Everything works somewhere – be careful - nothing works everywhere	
	14 Learning: no pain, no gain	Make learning more difficult in the short term = better learning in the long term (remember, recall, use) Desirable difficulties (e.g., spaced/retrieval practice, interleaving) as learning and study events	Fun is better, speed is better Performance = learning	
	15 Step for step	Worked examples work = efficient, effective, enjoyable. Use multiple examples / pairs to help discriminate surface from deep.	Students understand when they focus on surface features	

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Pedagogical Content Knowledge (PCK)	16 Why you can't teach what you don't know	There are millions of nuances in teaching Effective means knowing what you are talking about SO YOU CAN BE NUANCED / teach in different ways	Thinking 'good' teachers can teach anything	
	17 Mathematical knowledge for teaching	Teaching math(s) ≠ knowing math(s); teaching combines subject matter knowledge and PCK Math(s) teachers need to anticipate / interpret errors + use multiple representations	Thinking teaching math(s) is watered down math(s)	
	18 The science of science teaching	'Craft' knowledge = subject knowledge including beliefs about T&L + nature of science and students PCK needs subject knowledge AND general theories of teaching	PCK comes quick and easy, or preservice training will fix it	
	19 Three chords and the truth	English = discipline (language) + art (literature) Teachers need explicit knowledge of own stances re. literature, teach students to be critical consumers	Knowing English is the same as teaching English	
	20 How should we teach reading?	Phonics. End the reading wars Reading is not biologically primary ≠ talking Oral language instruction essential to understanding	Whole word approaches are better	
	21Why technology should be the servant not the master	Ask 'what problem is this technology solving / how will it help students learn better' NOT 'how can we use it'. Content and goals should inform use	Using technology for technologies sake	
In the classroom	22 To thine own self be true	Authenticity = expertise (domain), passion (fire), unicity (variation), distance (not too near or too far) Nuance is key, and spotting problems before students do, talking personally as appropriate	Trying to be liked; you're not their friend	
	23 Relationships matter	Teachers can't NOT communicate to their students. Interpersonal teacher behavior- is determined by influence (teacher leads vs. student leads) and proximity (approval vs. disapproval)	Doing independent learning BEFORE establishing influence	
	24 Why relationships matter	Dominance vs cooperation is central, we're not just managing but creating productive atmosphere via: Eye contact, attending to high-needs students, not treating all students the same, maintaining order	Thinking it's about charisma and confidence	
	25 Teachers as intelligent consumers	Context is EVERYTHING. Be discerning of new stuff Look at findings, concepts, technology, theory to discern quality and IF IT WILL WORK FOR YOU	Thinking that a good thing will work everywhere	
Assessment	26 The many faces and uses of assessment	Evaluation as motor for improving learning: relation between evaluation/ instructional decisions/ analysis of learners. Goal is mastery, and tests can help with that	Thinking we're aiming for a normal distribution	
	27 When testing kills learning	Exams should examine what teachers teach (not the other way round). Be clear on function / nature / context of testing, and beware that numbers can give false impression of what's going on	Thinking numbers are sacred Teaching to the test	
	28 Don't ask questions that don't require understanding to answer	Testing comprehension requires questions that go beyond the presented info: require paraphrase / transformation of information not recall or using same language as the question	Goodhart's Law: when a measure becomes a target it is no longer a good measure	
	29 Why teaching to the test is so bad	High stakes testing = perverse incentives Tests are ALWAYS proxies for learning Stick to the domain of knowledge, not test techniques	Cobra effect – if dead cobras = money, then breed cobras	
	30 Hocus-Pocus teacher education	Teacher education must teach how we learn and how to facilitate and stimulate this via evidence-based strategies! Check the research: sample size, effect, context, conclusions… look to the original if necessary	Strategies focussing on engagement/ cooperative learning	

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