Just Tell Them (2024) by *Zach Groshell*

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Chapter	Do this/Learn this
Intro/ Why Explain: Explaining is enabling others to 'borrow' information from us and reorganize it, Students don't just absorb – they have a cognitive architecture (working memory (WM), long-term memory (LTM)), WM can be overloaded (cognitive load (CL) theory) but is helped by LTM, direct instruction (DI) reduces CL, increases learning	• Frame teaching as lending/reorganizing • Work out how to provide the information AND get them to think hard about it • Learning is a change to long-term memory • Ask 'is this buzz productive or masking overload?' • Use worked examples and explain fully as you go
Explain with undivided attention: Set the conditions for focus None of what follows will work if students aren't listening, visual and auditory distractions take up space in WM, how they enter the room sets the scene – control it, if you do the seating it removes pressure on them to choose, anything more than silence introduces distraction to WM	• Put eye-catching displays in corridors • Reduce 'fluff' on presentations • Establish rules/predictability/praise good behaviour • Use brisk pace/appropriate level/lots of chances to respond/eye contact/proximity/require silence when explaining/ban phones • Seat students so they attend to you not their friends
Explain clearly: Say *only* the words that need to be said **Avoid**: 1. Vagueness by trimming unnecessary words which clog up WM, avoid 2. Mazes (false starts/ hesitations/unnecessary repetitions), 3. Discontinuities (information that is irrelevant, or relevant but not now) 4. Seductive details (interesting or entertaining content that distracts)	• Remove vagueness terms (probably/might/maybe..) • Rehearse/ record explanations to eliminate vagueness and mazes • Eliminate irrelevant/untimely information/seductive details • Choose wisely and deliberately when to use humor
Explain interactively: Alternate between inputs and outputs 'Extended lecture' can be as frustrating as 'discovery learning', effective explaining = managing attention + behaviour + CL by chunking and alternating/ doing example/problem pairs, it's a dialogue – take turns, needs a brisk pace to increase number of responses, which informs pace, we want our students to do hard thinking which you can get from cold-calling, increasing think time and explaining to themselves (self-elaboration) and to others.	• Use small steps, each one followed by a response • Alternate YOUR explaining/modelling/example/ thinking aloud/demonstration/definition with THEIR mini whiteboards/choral response/turn and talk/cold calling/guided notes/practice problems • Choral response is effective/cheap – try it! • Always feedback/praise • Try cold calling (ask question first *then* identify student), think time (about *3 seconds*, ask them to mentally rehearse), turn and talk (for self-explanation/elaboration)

Explain with visuals: Speaking with images and drawings Spoken word is transient – we need to increase processing time using images/diagrams/graphics, there are 2 simultaneous channels into working memory = dual coding via spoken word + visuals, many guiding principles, press B during PowerPoint to get a black screen then switch to whiteboard for dynamic drawing.	Use these *principles*: • *Multimedia* - use words AND images in presentation • *Coherence* - avoid unnecessary words/visuals • *Redundancy* – don't read from slides • *Signaling* – direct student attention e.g. pointing • *Dynamic drawing* – draw as you speak much more effective than pre-drawn diagram
Explain with examples: Show what it is and what it isn't 1. Examples are specific instances of material; explanations situate examples in wider context/ concepts, and need non-examples, and erroneous examples, choice of examples used is VERY important to exemplify boundaries of concept. 2. Deep understanding = memory from a long time ago or ability to apply in a wide range of contexts or learning from errors. 3. Analogies should capitalize on prior knowledge, highlight shared structure, not overload WM, beware getting them to generate them	Use these *principles* • *Wording* – this is an arch, this is not an arch • *Set up* – minimize no. of examples needed by choosing greatest no. of features of property • *Difference* – choose non-examples that are minimally different • *Sameness* – choose examples that *differ* as much as possible but still exhibit property • *Testing* – test with examples in unpredictable order • Get them to identify what is wrong in a worked example • Choose analogies with care (see left)
Explain with stories: Narrative, emotion, gestures Engagement is NOT entertainment, but teaching is performance, 1. Storytelling is psychologically privileged, 2. Emotional design – emotionally resonant speech includes personalization and other features to engage on emotional level 3. Gestures are co-speech, more than just fun, good for communicating visuo-spatial information related to embodiment and social agency	• When using storytelling consider: causality, conflict, complications, characters OR beginning/ middle/ end – emphasize conflict • Revealing our feelings taps into their emotions • Use eye contact, facial expressions, tone of voice to make emotional connection • Teach from the front with gestures for guiding processing • Get them to mimic you
Explain and release): Gradually fade guidance What you give them will depend on their level of expertise, there is a novice ↔ expert continuum which is domain-specific so instructional methods need to change gradually while managing cognitive load, 1. Going from 'I do' to 'you do' 2. Going from 'out loud' to 'in their heads', 3. Going from simple to complex (managing element interactivity – the juggling in WM) 4. Going from massed practice to spaced practice.	• Novices (in a domain) need explicit instruction • Methods for novices don't work for experts = expertise reversal effect • Gradually replace worked examples/scaffolds/ completion problems with indep. practice • Remember the WE in I do/we do/you do • Consider not just element interactivity when considering cognitive load • Gradually introduce spaced practice to secure info in LTM
Conclusion: We may have embraced minimal guidance/ guide on the side ideas but explicit instruction works, particularly for "low" or "at-risk" students.	• Break it down • Build it up • Help them to productively struggle • Just tell them

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