Embedded Formative Assessment 2nd Edition (2017) by *Dylan Wiliam*

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Content	Do This/Remember This
Introduction: Two purposes for book: the changes (including over 50 practical techniques and the framework within which they sit) that teachers can make, the evidence that those changes improve learners' outcomes in secondary & Higher Ed.	• There are evidence-informed strategies that can make a big difference to learning, more than most other methods
Ch 1. Why Educational Achievement Matters: Education has never been more important: linked to better pay/health/longevity, benefits society, more highly skilled population. Nature of work changing (automation), need ability to develop *new* skills = education. There will be jobs; education = good job. How to raise attainment: ineffective = change structure (e.g. school size), *governance* (e.g. charters, for profit), difficult = change curriculum (*intended* → *implemented* + *achieved* (maybe not as intended)), use tech (works in narrow range). *Research:* School effectiveness: originally → 92% variability not to do with school, now → biggest factor = teacher quality = strong links to attainment/ rate of learning/ equality of outcomes/ impact on low achievers *but* hard to predict who will be good, bonuses ineffective. Could find/remove least effective = time consuming, better to invest in existing teachers.	• Education increases economic growth • Majority of ed. reform → zero effect • School size/charter schools/academies/ for-profit/specialist = little/mixed effect • Bad curriculum taught well better than good curriculum taught badly • A good teacher makes a difference • Closing the achievement 'gap' – equity NOT enemy of excellence • Education CAN compensate for society *if* it's high quality.
Ch 2. The Case for Formative Assessment: Teacher PD: necessary because teaching complex/difficult, all teachers can improve *but* PD can focus on hours *not* learning. Focus has been (to little effect): learning styles (debunked), neuromyths (e.g. left/right brain), content knowledge + often 'one-shot deals'. *Research:* formative assessment (FA) history: originally 'formative evaluation' (1967, Scriven) = on-going improvement of curriculum, ditto Bloom (1969) = improving teaching-learning process, many studies showed benefit of integrating assessment and teaching. Definition of FA: Wiliam/ Black: activities (during instruction) → info → feedback → modify instruction = **process** not thing (category error). Definition issues: 'formative' open to interpretation/ over-simplification, needs to cover a wide range of practices involving teachers, student, peers, **collecting evidence→ decisions re. next steps in instruction → action.** Working back from decision→ better evidence. Teaching = 3 processes: where are they/where they are going/how to get them there for 3 types of individual: S/T/peer. Not meaningful/helpful = dividing teaching and learning or 'facilitating'. Teaching is contingent; students do not necessarily learn what we teach → need short/medium/long term FA.	• Even the best teachers fail • "No amount of success is enough", Lemov • 'one-shot PD deals' usually ineffective • Wiliam, Lee, Black study (2004) showed using FA produced 80% improvement in rate of learning • Any assessment can be formative OR summative- it's how you *use* it • The name is less important than process • FA = using evidence to make better decisions than you would have done without it • Use a 'decision-pull' approach → decision- driven data collection • Use the table on page 52 = GOLD. • Ss should be working harder than the T
Ch 3. Clarifying, Sharing, and Understanding Learning Intentions and Success Criteria: Sharing learning intentions relatively recent phenomenon, need to distinguish learning intentions (LI), context of the learning, success criteria (SC). When/what to use: care - 'wallpaper objectives'≠ clarifying, sharing, understanding LI/SC, however not always helpful/useful to share, co-construction with S *not* democratic, LI/SC should help students *apply* knowledge. SC via rubrics have strengths/ weaknesses: task-oriented vs. generic, product vs. process goals, official vs. student language. Issues w/rubrics: novices interpret them differently from experts, words don't convey quality, can focus more on grading/only small subset of aspects of quality. **Practical Techniques**: Strengths and weaknesses discussion (critique other students' work), model papers (can be discouraging – use a variety), What Not To Write (provide correct/incorrect, they make list), immediate and delayed post-tests, test-item design (S designed questions very revealing for T), daily sign-in (good for young S), choose-swap-choose (do work, peers select best, discuss), WALT, WILF, TIB (useful for younger Ss, We Are Learning To, What I'm Looking For, This Is Because…).	• Students need a concept of 'quality' that is similar to the teacher's + can use it • Consider specificity vs applicability with LI • Process goals – think physical education • SC can be used formatively/summatively • S language good at beginning, move to official language • Rubrics convenient, can be constraining + hard to calibrate. • Strength/weakness + model answer examples must be chosen with care to make quality concrete + aspirational • Seeing correct/incorrect helps Ss to identify misconceptions • We should be clear where we are headed
Ch 4. Eliciting Evidence of Learners' Achievement: Ausubel (1968) 'Most important factor influencing learning is what the learner already knows'. Finding out what they know: is tricky; we assume correct answers = heading in the right direction – may not be true, a misconception could be good conception in the wrong place, good qs to find out where they are may not look like regular test qs. Better to find out in class if there are gaps/misconceptions than later when grading. Most T time spent: in US - grading alone, in other countries - devising learning activities. Teacher-led discussion typically Initiation-Response-Evaluation (IRE). **Only** 2 good reasons for qs: 1. To cause thinking 2. To provide info for T as to what to do next. **Practical Techniques:** Individuals: Student engagement (random selection not hands up (cold calling), changes classroom contract, needs sensitivity, establish low stakes), wait time (should be longer! Evaluation time between ans./T response also important, or use think-pair-share),eval/interpret listening (saying 'almost'/'correct' is evaluative, better to be interpretive – what does it tell me about their thinking), question shells (change 'what' to 'why'), hot-seat questioning (then ask them to summarize). Whole class: all-	• Need range of questions to elicit where they are – hard to write • Ss are making sense of what we teach = active in construction of their knowledge • Collaboratively producing questions to elicit what they know better than alone • Then use/adapt teaching accordingly = FA • How much Ss learn depends more on *what* teacher are saying, not *how long* for • Avoid management qs (do you have…) • Allowing students to choose to engage (or not) widens the achievement gap • Important 'no hands up' is low/no stakes • If 'I don't know' say 'I'll come back to you' /fifty-fifty/phone a friend

student response systems (thumbs, fist, clickers), ABCD cards (use for one ans/more than one/opinions), mini-whiteboards (MWB) (=slates! Easy for whole class feedback, could use clickers in higher ed.), exit passes (best when there's a natural break = time to read), discussion vs diagnostic qs (discussion should elicit info about reasons for choice, diagnostic e.g. hinge-qs tells T if they know, should be short, multiple -choice, distractor driven), alternatives to qs (statements to discuss/agree/disagree/justify).	• Can use laminated sheets as MWB • Better to assume they *don't know* something when they do than the reverse • Hinge qs – should not be able to get correct answer for the wrong reason

Ch 5. Providing Feedback That Moves Learning Forward Providing effective feedback (FB) is really hard. Definition of FB (forgotten) - info on current state of system informs future state. *Research*: giving comments and grades = giving grades only, giving comments only improves learning. Ss response to FB can be ego-related (relating to others) or task-related (effort means improvement), timing critical →sooner or later can work depending, oral vs. written less important than having in time in class to respond. FB should improve the learner. Hard to predict S attribution of success/failure: internal/external, stable/transient, specific/global. How memory works: retrieval vs storage strength, Bjork's 'theory of disuse' (delay-retention effect – often counter-intuitive), **always** distinguish 'performance' from 'learning'.
Practical Techniques: Minus, equals, plus (add -/=/+ to compare this work with previous), FB for future action (give time in class to act on FB = fairer), three qs (written at end of work they have to respond to), techniques for utilizing FB, grading practices that support learning (give as infrequently as possible: K-5 never, 6-8 annually, HS once per marking period, grading for learning system – see p.147-150).
	• Give grade AND comment = waste of time
	• Praise – quality *not* quantity important
	• You get smarter by working hard
	• FB needs scaffolding too
	• Use desirable difficulties as appropriate
	• Retrieving→learning→better storage strength when retrieval strength low
	FB should
	  ○ be more work for the Ss than the T
	  ○ focused (less is more)
	  ○ relate to learning goals (be clear)
	• Give Ss time in lessons to respond to FB
	• Never grade while they are still learning
	• Allow for grades to go down as well as up
	• FB should always cause thinking

Ch 6. Activating Students as Instructional Resources for One Another: Cooperative vs. collaborative – little consensus on definition of CL (either C), who sets the goals is irrelevant to FA. *Research*: great success story, 4 main factors: motivation, social cohesion, personalization, cognitive elaboration. Interplay – focusing on only one has little effect. Explaining *why* answers right /wrong = elaboration = more beneficial than giving answers. Peer tutoring can be as (or more) effective as T tutoring. CL particularly effective (for all ability Ss) when: a clear group goal + individual accountability (one Ss failure to work affects group - hard), accountability even harder with more complex criteria e.g. open-ended tasks, multiple tasks, multiple roles. **Practical Techniques**: C3B4ME (talk to 3 peers before asking T), peer improvement of homework, homework help board, two stars and a wish (peer feeds back by highlighting 2 good things + 1 improvement), end-of-topic qs (groups come up with questions, sort to elicit patterns), error classification (T circles errors, Ss classify them), student reporter (appoint a S, they summarize lesson, ask/answer qs), preflight checklist (buddy up to ensure work to be submitted meets requirements), I-you-we checklist (each S reflects on own/peer/group performance), reporter at random, group-based test preparation (assign parts of learning to each member of a group, next day they present, feedback), If you've learned it help someone who hasn't (framed positively as practicing communication).	• Get 4x learning if group rewards depend on aggregate of individual learning • Peer tutoring works partly due to language and equitable power dynamic • Care: are they working *as* a group (single goal) OR working *in* a group (individual goals) • Ensure individual accountability that is fair • Can use C3B4ME in cold calling • Mixing up grading (T, peers, self) has big benefits, incl. not done → no collaboration in class • Ss indicate on a homework help board the qs they need help with, peers seek them out to help • Use document camera to show good peer FB • Ask 'in your group do you have any questions' • Switch up use of 'student reporter' • Make checklists for submitting work for Ss to use • Don't assign who is reporting back till the end • Can use those who get it quickly to help others
Ch 7. Activating Students as Owners of Their Own Learning: *Learners* create learning, not teachers. Student self-assessment (SSA): not summative assessment, about insights into their learning to improve it. *Research*: one study shows SSA nearly doubles rate of learning, 3 techniques moderately good = elaboration interrogation/self-explanation/ interleaving, 2 techniques very good = practice testing (good because of hyper correction effect) /distributed practice. Self-regulated learning: metacognitive (knowledge/skills/ experience), motivation (emerges when match between capability+ challenge). Student decision (whether to try) depends on 6 things: perception of task/previous experience/ beliefs about ability in subject/ beliefs about role of effort/interest in subject/ costs + benefits→ 2 outcomes: preserve well-being or growth but decision-making is dynamic. **Practical Techniques**: traffic lights (R/O/G confidence level – reframe G to 'ready to teach someone else'/they use when reviewing), red or green disks (double sided discs on the desk, students flip to red if T is going too fast), colored cups (R/O/G cups, O = T too fast, R = have a q, but T selects other O/G S to answer at front of class), learning portfolios (not performance portfolio of best work, better work shows effort produces improvement), learning logs (provide selection of prompts, they choose 3 + respond at end of lesson).	• Teach students effective methods (5 techniques) • High confidence errors easier to correct than low confidence errors • Do NOT put practice test scores in gradebook • We need more testing and less grading • Motivation = consequence of achievement • Keep goals in reach but challenging • Be mindful of their concept of self-efficacy • 6 aspects to S decision about whether to try BUT decision can change – you can help them • Self-assessment like pancakes – 1st one no good 5 strategies to tip the scales • Share learning goals → they monitor themselves • Promote belief that ability is incremental • Make it hard for them to compare to others • Provide feedback for future action • Transfer exec. control of learning from T→S often
Epilogue: Very different this time, education 1910-1940 v. successful because it did NOT try to predict the future; more, better general education incl. improving teacher quality = thriving students and a prosperous future for the US.	• To raise student achievement, we need to raise teacher quality; not because we're bad but because we can all improve.