**Educational Research Digests**

*From* Gearey to Garrett to Loeb

**Teaching and Learning**

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2. ***Improving Students’ Learning with Effective Learning Techniques***, by John Dunlosky et al.
3. ***Wait Time: Slowing Down May Be A Way of Speeding Up***, by Mary Rowe
4. ***Does Providing Prompts During Retrieval Practice Improve Learning?***, by Megan Smith et al.
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1. ***What Do Teacher Observation Scores Really Measure?***, by Matthew Steinberg and Rachel Garrett
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5. ***Merely Watching Others Perform Can Foster an Illusion of Skill Acquisition***, by Michael Kardas and Ed O’Brien

**Recruitment and Retention**

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1. ***Why Public Schools Lose Teachers***, by Eric A. Hanushek et al.
2. ***Effective Schools: Teacher Hiring, Assignment, Development, and Retention***, by Susanna Loeb et al.

**Teaching and Learning: Part 1**

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[Folk Knowledge and Academic Learning](http://web.missouri.edu/~gearyd/FolkKnowledgePDF.pdf), by David C. Geary (2012)

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| * Children are **innately curious** about and motivated to engage actively in and explore social relationships and the biological and physical world.
* Children’s inherent motivational dispositions and activity preferences are **likely to be at odds** with the need to engage in […] procedures that promote academic learning.
* Surveys of the attitudes and preferences of schoolchildren indicate that most children value achievement in **sports** more than achievement in any academic area.
* Teachers must organise and guide academic learning because it cannot be **assumed** that children’s ‘natural curiosity’ will result in an interest in all academic domains.
* Much of the learning associated with primary domains occurs **automatically** and **effortlessly**.
* Academic learning and is **effortful** because it requires sustained attentional control and working memory resources.
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[Improving Students’ Learning with Effective Learning Techniques](http://www.indiana.edu/~pcl/rgoldsto/courses/dunloskyimprovinglearning.pdf?utm_source=TTMS+Company+Newsletter&utm_campaign=6b23d38d8d-Newsletter_043_2015-03-26&utm_medium=email&utm_term=0_06a8af076e-6b23d38d8d-27177589), by John Dunlosky et al. (2013)

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| * Some evidence suggests that the benefits of **elaborative interrogation** may be limited for learners with low levels of domain knowledge.
* **Self-explanation effects** have been shown across an impressive age range, although more work is needed to explore the extent to which this is dependent on learners’ knowledge or ability level.
* **Summarisation** can be an effective strategy for learners who are already skilled at summarising; however, many will require extensive training.
* In most situations that have been examined and with most participants, **highlighting** does little to boost performance.
* **Keyword mnemonic** is not highly efficient (in terms of time needed for training and keyword generation), and may not produce durable learning.
* **Imagery** can improve students’ learning of text materials, but the benefits of imagery are largely constrained to imagery-friendly materials and to tests of memory.
* **Rereading** is relatively economical with respect to time demands and training requirements, but it is also typically much less effective when compared with some other learning techniques.
* **Practice testing** is highly beneficial and effects have been demonstrated across an impressive range of variables, which means that it also has broad applicability.
* **Distributed practice** is highly effective across students of different ages, with a wide variety of materials, on the majority of standard laboratory measures, and over long delays.
* **Interleaved practice** has been shown to have relatively dramatic effects on students’ learning and retention of mathematical skills; teachers should consider adopting it in appropriate contexts.
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**Teaching and Learning Part 2**

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[Wait Time: Slowing Down May Be A Way of Speeding Up](https://www.scoe.org/blog_files/Budd%20Rowe.pdf), by Mary Rowe (2008)

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| * When teachers ask questions of students, **they typically wait 1 second or less** for the students to start a reply […] it is difficult for many people to get average wait times of up to three seconds.
* Independent judges rated the quality of student responses higher under the **3-second** treatment than under the control format of 1 second.
* ‘I don’t know’ or no responses **are often as high as 30% in classrooms** with mean wait times of 1 second, which is the most common pace.
* It appears that fast-paced teacher questioning is a device for **maintaining control of behaviour**. In fact, it not only inhibits the kind of thinking teachers seek to encourage.
* As teachers succeed in increasing their average wait times to 3 seconds or more, they become more **adept** at using student responses.
* Under the longer wait time schedule, some previously ‘invisible’ people become visible […] This effect was particularly pronounced where **minority students** were concerned.
* In their **eagerness to elicit responses** from students, teachers often develop verbal patterns that make the achievement of [relatively high wait time] unnecessarily difficult.
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[Does Providing Prompts During Retrieval Practice Improve Learning?](http://learninglab.psych.purdue.edu/downloads/2016_Smith_Blunt_Whiffen_Karpicke_ACP.pdf), by Megan Smith et al. (2016)

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| * Practising retrieval, or actively reconstructing knowledge, is a powerful way to **promote** student learning.
* If too much **support** is provided, students may be very successful but may not actively reinstate the prior context, and this scenario could harm the effectiveness of retrieval practice.
* The present experiments provide evidence that practising retrieval **improves** higher-order learning.
* Retrieval-based learning activities improved **both** verbatim learning and higher-order meaningful learning as measured after a one-week retention interval.
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[Do Unsuccessful Retrieval Attempts Enhance Learning?](http://learninglab.uchicago.edu/Pre-Testing_files/RichlandKornellKao.pdf), by Lindsey Richland and Nate Cornell (2009)

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| * The function of a failed retrieval attempt may be to **weaken** or **suppress** errors, rather than to strengthen them.
* Unsuccessful tests can **encourage deep processing** of the question in a way that reading does not.
* The nature of the processing learners perform during a pre-learning activity may be **more crucial** than the amount of processing performed.
* Tests can be **valuable**, even if learners cannot answer test questions correctly, as long as the tested material is followed by instruction that provides answers to the tested questions.
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**Teaching and Learning Part 3**

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[Advantages of Longhand Over Laptop Note Taking](https://cpb-us-w2.wpmucdn.com/sites.udel.edu/dist/6/132/files/2010/11/Psychological-Science-2014-Mueller-0956797614524581-1u0h0yu.pdf), by Pam Mueller and Daniel Oppenheimer (2014)

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| * Taking notes on **laptops** rather than in longhand is increasingly common. Many researchers have suggested that laptop note taking is **less effective** than longhand note taking for learning.
* Participants [in tests on multiple college campuses] using laptops were more inclined to take verbatim notes than participants who wrote longhand, thus **hurting learning**.
* Participants who had taken notes with laptops performed **worse** on tests of both factual content and conceptual understanding, relative to participants who had taken notes longhand.
* Laptop use can **negatively affect** performance on educational assessments, even – or perhaps especially – when the computer is used for its intended function of easier note taking.
* Laptop use in classrooms should be viewed with a healthy dose of **caution**; despite their growing popularity, laptops may be doing more harm in classrooms than good.
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[The Cultural Myths and Realities of Classroom Teaching and Learning](http://talkinglearningtechnologies.edublogs.org/files/2011/03/2005-Nuthall-Myths-Realities-Teaching-2d6f8lq.pdf), by Graham Nuthall (2005)

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| * Students live in a **personal and social world of their own** in the classroom […] They care more about their peers’ judgments than they care about the teacher’s opinion.
* Typically, **students already know at least 40% of what the teachers intend them to learn**. Consequently, students spend a lot of time on activities involving what they already know.
* [Test scores] do not necessarily represent what students know or can do, but are determined initially by the students’ **interests**, **motivations**, and **understanding** of the purposes of the test.
* Our data did show that the **more able** students started with more background knowledge and ended up learning **more** than the less able students.
* Knowing that a student is **busily engaged** in an activity does not tell you what (or how) the student is learning.
* The data from our studies show that **learning takes time** and is not encapsulated in the visible here and-now of classroom activities.
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**Lesson Observation: Part 1**

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[What Do Teacher Observation Scores Really Measure?](http://static.politico.com/58/5f/f14b2b144846a9b3365b8f2b0897/study-of-classroom-observations-of-teachers.pdf), by Matthew Steinberg and Rachel Garrett (2016)

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| * There is a tendency in American schools to assign **novice**, **less-effective** teachers to disadvantaged students.
* Observation-based measures of a teacher’s performance tend to be **weakly correlated** over time.
* A teacher’s classroom practice may be **influenced** by classroom composition (i.e. the assigned students).
* Teacher performance, based on classroom observation, is significantly influenced by the **context** in which teachers work.
* Observation scores as measures of teacher effectiveness present **validity concerns**.
* **Caution** should be taken when making high-stakes decisions based largely on observation scores.
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[Student evaluation of teaching ratings and student learning are not related](https://www.chrisstucchio.com/blog_media/2016/assorted_links_nov_3_2016/Meta_analysis_of_faculty%27s_teaching_effectiveness_Student_evaluation_of_teaching_ratings_and_student_learning_are_not_related__student_evaluations_meta_analysis.pdf), by Bob Uttl et al. (2016)

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| * Student Evaluation of Teaching (SET) ratings are used to evaluate faculty’s teaching effectiveness based on an **assumption** that students learn more from highly rated professors.
* Any substantive **correlations** between SET and learning are likely to be a **fluke** or an **artefact** rather than due to students’ ability to accurately assess instructor teaching effectiveness.
* The individual **differences** in **knowledge** and **intelligence** are likely to influence how much students learn in the same course taught by the same professor.
* Individual differences in students’ **prior interest** in a course are likely to influence how engaged they are, how hard they work and how much they learn.
* There **no evidence** supporting the belief that students learn more from professors with higher ratings.
* The latest large sample studies show that students who were taught by highly rated professors in prerequisites **perform more poorly** in follow up courses.
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[Building a More Complete Understanding of Teacher Evaluations](https://journals.sagepub.com/doi/pdf/10.3102/0013189X16659442), by Julie Cohen and Dan Goldhaber (2016)

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| * Responsive teaching would likely vary depending on a teacher’s students, and **this variance is at odds** with the standardisation of quality practice underlying observational instruments.
* Student characteristics may be associated with observational ratings, and teachers with students with higher prior achievement receive **higher observation ratings**.
* A single observation is **unlikely to reflect** a teacher’s broader repertoire of practices, and multiple observations sampled across time and content would likely better assess instructional quality.
* Raters **struggle** to keep multiple dimensions of quality in mind during observations and that content-specific aspects of instruction are cognitively demanding and subject to rater biases.
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**Lesson Observation: Part 2**

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[Self-Perceived Expertise Predicts Claims of Impossible Knowledge](https://pdfs.semanticscholar.org/56bd/c9eaff91c137d4ec83e493a3a04fe531f1c7.pdf), by Stav Atir et al. (2015)

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| * Research on overconfidence finds that people commonly judge the accuracy of their judgments **too favorably**.
* A feeling of knowing is often only **weakly predictive** of actual knowledge and appears to be informed, at least in part, by top-down inferences about what should be or probably is known.
* The seemingly straightforward task of judging one’s knowledge may **not be so simple**, particularly for individuals who believe they have a relatively **high** level of knowledge to begin with.
* The more individuals believe they know about a domain, the more likely they are to **claim** knowledge in that domain that they cannot possibly possess (known as **overclaiming**).
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[Merely Watching Others Perform Can Foster an Illusion of Skill Acquisition](https://faculty.chicagobooth.edu/eob/edobrien_easierseenPSCI.pdf), by Michael Kardas and Ed O’Brien (2018)

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| * Watching others is enjoyable and convenient, but people typically **cannot** master new skills from sight alone.
* When people **repeatedly** watch others perform before ever attempting the skill themselves, they may overestimate the degree to which they can perform the skill.
* The **more** people watch others perform (without corresponding practice), the more they think they can perform the skill, too.
* While observation is commonly **praised** as beneficial for learning, our findings suggest that these benefits must be weighed against the possible costs of overestimating one’s abilities.
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**Recruitment and Retention**

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[Why Public Schools Lose Teachers](https://www.nber.org/papers/w8599.pdf), by Eric A. Hanushek et al. (2001)

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| * American schools serving academically disadvantaged students tend to have **difficulty** in retaining teachers, particularly those early in their career.
* Higher salaries appear to **reduce** the probability that teachers will leave a district that serves very disadvantaged students.
* Those who choose to switch schools within urban districts appear to seek out schools with **fewer** academically and economically disadvantaged students.
* The **lowest achieving students** are more likely to have teachers new to the school and to the profession.
* Student achievement appears to be an **important determinant** of the probability of exiting schools.
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[Effective Schools: Teacher Hiring, Assignment, Development, and Retention](https://cepa.stanford.edu/sites/default/files/EDFP_a_00068.pdf), by Susanna Loeb et al. (2012)

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| * **Quality teachers** are one of the most important school-related factors found to facilitate student learning and likely explain at least some of the **difference** in effectiveness across schools.
* The processes by which teachers are **allocated** to students within schools may **vary considerably** across schools and in particular may happen more equitably in more effective schools.
* Novice teachers systematically teach students with **lower entering** test scores than their more senior colleagues.
* The odds that a teacher who is in the top quartile of effectiveness will leave in a given year is 30 - 40 percent **lower** in top quartile schools.
* More effective schools are able to **attract** and **hire** more effective teachers from other schools when vacancies arise.
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