



## Can a Change in Font Make People Better Learners?

A Summary of  
“Fortune Favors the **Bold** (*and the Italicized*):  
Effects of Disfluency on Educational Outcomes”

By

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1. Long-term learning and retention are key measures of success for an educational program.
2. In some cases, making material harder to learn can improve long-term learning and retention. The difficulty of the learning process should not be confused with the difficulty of the substantive material.
3. One reason that making material harder to learn might improve long-term learning and retention is the concept of “disfluency.” Disfluency is when something *feels* hard to do – master a new type of math problem, speak in another language, or navigate an unknown city for example. Disfluency has been shown to lead people to process information more deeply.
4. In a learning context, when material presented *seems* (subjectively) hard to learn, the student might concentrate more deeply on learning it. The deeper the concentration, the better and longer the retention. In other words, if the student *thinks* he or she has to work harder to learn the concept, he or she often *does* work harder to learn the concept. The result is that once learned the concept will stay with that student for a longer period of time.
5. Making material hard to learn is contrary to the way that many educators teach; success is often defined as a student having a relatively easy time learning a new concept or lesson rather than being able to retrieve the information at a later time.
6. Disfluency is relatively easy to achieve. Simply *adopting fonts that are slightly more difficult to read* can make the information seem harder to learn.
7. To study this, researchers at Princeton University and Indiana University conducted two experiments. In the first, 28 volunteers between the ages of 18 and 40 were brought to a lab at Princeton and asked to learn about extra-terrestrials (to limit the amount of already known information could influence the test). They were given 90 seconds to memorize information about

the aliens, distracted for 15 minutes, and then tested. Those who read about the aliens in an easy to read font answered correctly 72.8% of the time, compared to 86.5% of those who read about ETs in hard to read fonts.

8. The second experiment took the lab findings to the field to test. Two hundred and twenty-two high school students in Chesterland, Ohio were assigned material in easy and difficult fonts across subjects and grades on a randomized basis. The classes included history, English, physics, and chemistry, and ran the gamut of difficulty from normal to honors to AP courses. The measure was normal classroom tests. The findings were similar to the Princeton study: kids reading material in hard to read fonts did better on regular classroom assessment tests than did their randomly selected counterparts reading the same material in easy to read fonts.
9. The authors caution that these findings need to be further investigated. First, there will be some point at which the font is so difficult to read as to be illegible – clearly that would hinder learning. Second, students who are easily discouraged or less able might actually give up with the harder to read fonts rather than digging in and really learning the material.
10. That said, fluency interventions are extremely cost-effective – with no costs to teachers, school systems or distributors of new printed or electronic educational materials. The take home lesson: Small interventions can have a big impact.