

## The Collective Teacher Efficacy Formula

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John Hattie wants educators to ask “what works best?” instead of “what works?” The reason is that 95% of the influences researched by Hattie and published in *Visible Learning* work. When these influences are put into place children do improve – but the key here is that half of the influences do not provide a year’s learning and 5% even make learning worse. Three key insights from Hattie provide significant assistance as we travel along the “what works best” pathway.

1. The average influence upon learning has an effect size of  $d=0.40$ . Since the average classroom provides a year’s learning in a year’s time, Hattie concludes that an effect size of  $d=0.40$  represents a year’s learning.
2. In order to make the kinds of improvements desired in education we must pay very close attention to the influences that research shows an effect size of more than  $d=0.40$  and remove those that have a negative effect size and those providing less than a year’s learning in a year’s time.
3. I cannot imagine anyone taking the time to read this article who is content with average learning for their students – a year’s learning in a year’s time. Thus we can say that our definition of “what works best” has to come from the items that have an effect size of  $d=0.60$  or higher. In other words “what works best” will give us at least 1 ½ years learning in a year’s time.

Looking at the influences with an effect size of  $d=0.60$  or higher provides an overwhelming list of possibilities. What are educators to do with all of this research? Clearly providing the

list to the teachers and admonishing them to be researched based is not going to help. Where next?

Educators need processes that incorporate many of the most positive *Visible Learning* influences into one process. Note I did not write *program*; I wrote *process*. Elementary teachers and secondary teachers are not going to have the same programs; however, they can implement the same process. The process described in this article will look slightly different in various classrooms, but this is mostly because of the personality of the teacher and not because of the age of the students.

The remainder of this article describes one process that does implement many of the top influences from John Hattie's *Visible Learning* research. As the step-by-step process is described the *Visible Learning* research effect size will be provided. It seems reasonable that one process combining nine influences from the list of researched highest effect sizes would have a higher effect size than any of the individual effect sizes by themselves. This is the case. The effect size from 101 classrooms, grades 1 to 12 is  $d=2.68$ , which is 6.5 times higher than the average effect size of  $d=0.40$ . The range from these 101 classrooms is  $d=0.60$  to  $d=4.90$ . The mode is  $d=2.25$  to  $d=2.50$ .

The process to be described is called From LtoJ®. The name comes from the shape of the histograms: at the beginning of the year is an "L" shape, the middle of the year is a bell-curve and the goal is to end the year with a "J" curve.

The steps are:

1. Teacher clarity, by itself, has an effect size of  $d=0.75$ , meaning that it almost doubles the learning of the average classroom. The LtoJ® process starts by informing students what

they are to learn for the year. Teacher clarity continues throughout the year as teachers note for every lesson which of the key concepts, provided the first week of school, is being studied at the moment.

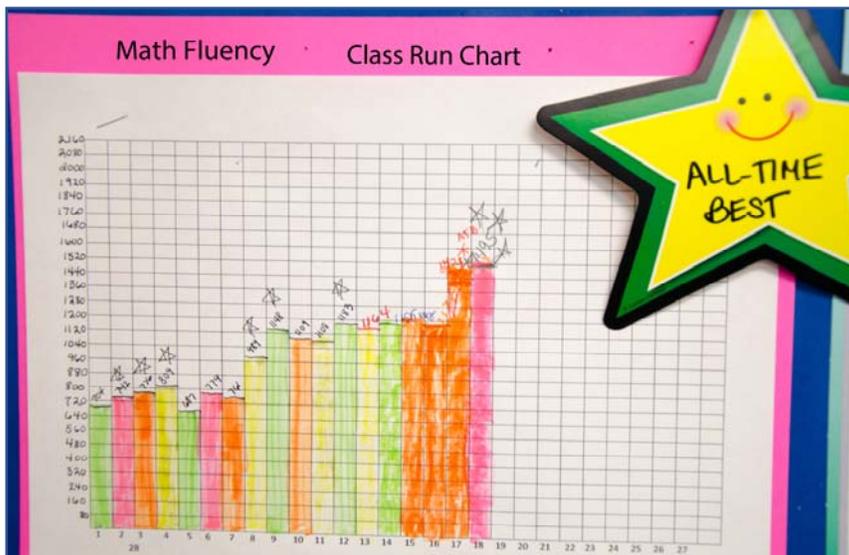
2. Providing formative evaluation, by itself, has an effect size of  $d=0.90$ , meaning that it provides slightly more than two years of learning in one year's time. With LtoJ® students are given a non-graded assessment of end of year expectations 28 times a year. It is counter-intuitive that students would beg for these quizzes, but it is true. The quiz is a random sample of questions from end-of-year expectations. Then comes the question of how many concepts to randomly select. The answer is the square root of the list provided in #1 above. For example, if the class has 50 key concepts to learn this year, each of the 28 quizzes would be questions from 7 of the key concepts. When possible, students like seeing the randomization right in front of them. (28 quizzes per year is selected because teachers report that 7 times a quarter is very manageable, whereas every week is not.)
3. Spaced out versus massed assessment, by itself, has an effect size of  $d=0.60$ . Almost all education in North America is massed. Students are taught a chapter or unit and the quiz is on that chapter. Spaced out means that students could have questions from any portion of the year at any time. With LtoJ® random selection guarantees spaced out assessment. As educators become even more proficient with the process, the spacing out is over multiple years, taking away Permission to Forget® content from both current and prior grade levels.
4. Feedback, by itself, has an effect size of  $d=0.73$ . Feedback with the LtoJ® process is for both students and the class as a whole. The questions everyone is asking with the feedback is, "Did we have more correct (an all-time-best) than ever before?" The

numerical goal is simple – do better. In addition item analysis, generally starting second quarter is done by students and given to the teacher. The focus for the teacher with this item analysis is review of prior taught content missed by multiple students.



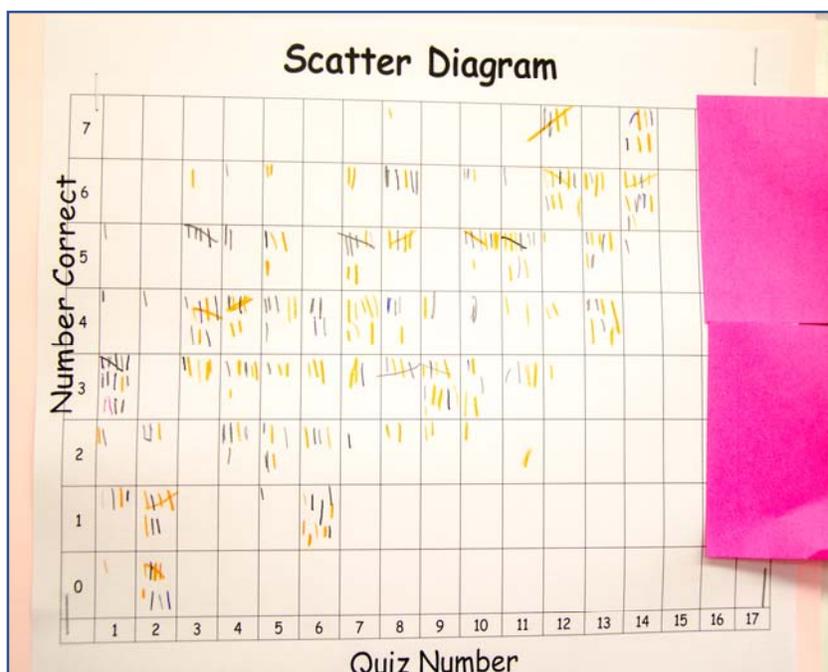
The items marked with a “P” are preview – not yet taught. The items marked with an “R” are review of items already taught. The focus after this quiz will probably be concept #27, a review, missed by 10 students. Also, concept #77 might take less time to teach because half of students understand already.

- Positive teacher-student relationships has an effect size of  $d=0.72$ . When students are provided LtoJ® formative quizzes on end of the year expectations, the total correct for the classroom is added up and graphed. The numerical goal is, “Have more correct, as a class, than ever before.” Think of an athletic scoreboard, except there is no opponent. Do better is the aim. Something magic happens in classrooms when students and teachers are on the same team working together to have yet another ATB. That something magic is the much better teacher-student relationship. It is a feeling most coaches have with their athletes, but is not a normal experience in the classroom.



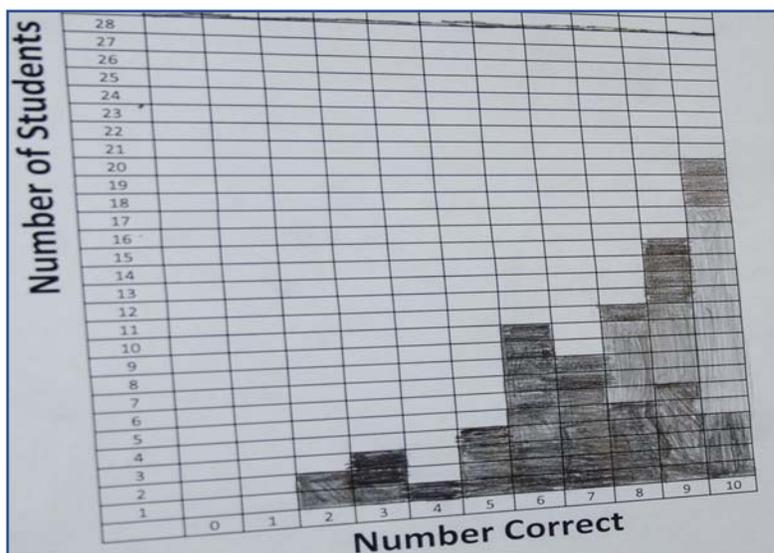
The class run chart at the left is for math fluency questions correct for the whole class. The stars indicate each time the class had an all-time-best which is a time of celebration for students.

- Assessment capable students, by itself, has an effect size of  $d=1.33$ , which is three times the average classroom. Think of formative assessment on steroids because students do all of the data work, making them assessment capable students. Teachers are not spending hours after school entering the data into a computer because students create all of the graphs – their personal run chart, class run chart, histograms, item analysis and the scatter diagram (the chart from which effect size is calculated.)



Each student places dot or tally mark for number correct on LtoJ® quiz.

From this chart effect size is calculated, total correct is added up for the class run chart and a designated student creates the histogram that gradually moves from the “L” shape through the bell onto the “J” shape.



A sample “J” shape histogram. Of course everyone wishes the process was called LtoI, meaning that everything would be perfect.

Students buy into the goal of creating a “J” shaped histogram, even in kindergarten.

7. Acceleration, by itself, has an effect size of  $d=0.88$ . With the LtoJ® process acceleration is earned by having 7 perfect quizzes in a row. This is a tough standard, but is achieved by a few in almost every classroom. These students are then moved onto the next level in the curriculum without taking the grade level quizzes anymore. The class receives credit for the students’ perfect scores even though the student “tested out” and did not actually take the quiz.
8. Classroom behavioral, by itself, has an effect size of  $d=0.63$ . It certainly doesn’t seem like a quiz could have that power, but it does. Teachers report that even the most reluctant students try their best on the LtoJ® quizzes. The reasons are (1) the quizzes are not graded, (2) they want to get more right than before, and (3) these students want to contribute to the total for the whole class. Between quizzes these students are much more prone to listen because they believe this will help them do better and have an ATB on the next quiz.
9. Collective teacher efficacy, by itself, has an effect size of  $d=1.57$ , which is almost four times the average classroom. Yes, there are groups of teachers everywhere who believe that together they can make a significant difference in the lives of students. They have a

record of past success and know this year will be just as good. Education needs more teacher groups like this. When teachers implement the LtoJ® process their efficacy builds and then when they receive amazing effect size calculations the efficacy becomes solid. The effect size of  $d=4.90$  above is the average from 18 classes of grade 8 students taught by Jeff Burgard in Issaquah, WA. With almost identical results for four years, Jeff knows precisely what will occur every year. When departments, grade levels and whole schools have their effect sizes, these teachers believe they own the future. The prior eight *Visible Learning* researched influences when combined provide what can be called a formula for teacher efficacy because when implemented teachers come to know their classroom leadership works all the time.

Almost all implementation of the LtoJ® process has been with surface learning. Some will discount the contents of this article because of the surface learning focus. Remembering surface learning is the first requirement for deep learning success. Surface learning is composed of both background knowledge and automaticity; both have been successfully implemented with LtoJ®. When these two components of surface learning are firmly placed in long-term memory and easily accessible by students, the table is prepared for deep learning success and future transfer learning. What joy for teachers when students transfer their surface and deep learning to other aspects of life, inside and outside school.

Very important for deep learning are the reports from teachers utilizing LtoJ® stating how much classroom time is saved. They state that  $\frac{1}{4}$  to  $\frac{1}{3}$  of the school year is saved because students need so much less time for review of current and prior years' content. How could this be? It is because all 9 of the *Visible Learning* influences packaged together into the LtoJ® process

deposit learning into long-term memory as opposed to spelling tests and chapter tests that give good grades for mere short-term memory.

When students remember more in less time, deep and transfer learning have a great future.

“What works best” is our best friend because collective teacher efficacy is inherent. A formula is built.