

THE RESEARCH BEHIND ORIGO PRODUCTS

Visible Learning

In his groundbreaking 2008 meta-study, education researcher John Hattie popularized the concept of **visible learning**, in which he ranked 138 influences that are related to learning outcomes from very positive effects to very negative effects. Hattie found that the average effect size of all the interventions he studied was 0.40. Therefore, he decided to judge the success of influences relative to this 'hinge point', in order to find an answer to the question "What works best in education?"

The question is which strategies and innovations work best and where to concentrate efforts in order to improve student achievement.

Hattie found that the **ten most effective** influences relating to student achievement are:

- 1. Student self-reporting grades
- 2. Formative evaluation
- 3. Teacher clarity
- 4. Reciprocal teaching
- 5. Feedback
- 6. Teacher-student relationships
- 7. Meta-cognitive strategies
- 8. Self-verbalization/questioning
- 9. Teacher professional development
- 10. Problem-solving teaching

As we develop and constantly update and improve ORIGO products, these influences and the tenets of Hattie's Visible Learning influence everything we do.



PROFESSOR JOHN HATTIE Education Researcher

One of the main aspects of Visible Learning is a new understanding of the enhanced role of teachers: teachers are most successful when they become evaluators of their own teaching.

Effect Size

The tool Hattie uses to understand the impact in more measurable terms is **Effect Size.**

The effect size is a value that gives us a measure of the impact on student learning. The greater the number – the better!

Hattie determined that *influences, strategies* or *actions* that had an effect size of at least 0.40 allowed students to learn at the appropriate rate, as illustrated in The Barometer of Influence. Influences with a larger effect size are likely to accelerate the rate of learning beyond the typical one year of growth for one year in school. Below, we use The barometer of influence to illustrate four influences and their impact on learning. The biggest effect on student learning occurs when teachers become learners of their own teaching, and when students become their own teachers.

PROFESSOR JOHN HATTIE



The Barometer of Influence*

* John Hattie, et al. (2017). Visible Learning for Mathematics: What works best to optimize student learning. Thousand Oaks, CA: Corwin Mathematics.

* See also: Hattie Ranking: 252 Influences and Effect Sizes Related to Student Achievement

Spaced Practice

Historically, publishers have tended to "clump" content into blocks of learning. This "massed" learning approach required **more** time dedicated to practice. Which meant less time was available for teaching new ideas. There is a growing body of research that suggests that learning spaced over time helps people learn more quickly and to remember better.* Ranked 13 in Hattie's list of 150 effects, **Spaced Practice** matters because it has a positive effect on learning outcomes.

* Casebourne, I., (2015). Spaced Learning: An approach to minimize the forgetting curve. Elements: Self-paced learning library

Piagetian Programs

Piaget described four stages of learning:

- 1. Sensorimotor (birth to age 3)
- 2. Preoperational (ages 3-7)
- 3. Concrete operational (ages 7-12)
- 4. Formal operational (ages 12 to adulthood)



Vocabulary Programs

Vocabulary programs are ranked 17 in Hattie's list of 150 effects.



The Barometer of Influence for Classroom Discussion Classroom MEDIUM 0.50 0.40 0.60 Discussion 0.30 0.70 0.82 0.20 0.80 Classroom discussion is ranked 7 10,00 0.90 HIGH Teacher in Hattie's list of 150 effects. Effects Zone of **Desired Effects** 00:0 1.00 Developmental Effects NEGATIVE -0.10 1.10 Reverse Effects 0.20 1.20

Origo Stepping Stones 2.0

- Implements a 'spaced' approach to learning content over time.
- Applies a Piagetian approach to teaching concepts and skills
- 🖉 Develops mathematical language and vocabulary
- Sosters discourse in mathematics

At ORIGO Education we make learning mathematics *meaningful, enjoyable,* and *accessible* for all.



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