

INTRODUCTION

The Foundation: Visible Learning

Since *Visible Learning* was first published in 2009, there have been many across the education field who have taken advantage of its transformative potential. The analysis of learning results from hundreds of millions of students worldwide who addressed important questions about the conditions needed for learning to occur. Far more than a “what works” list, this and the subsequent works that have followed, have constructed an explanatory story about the schooling of children and the adults who have dedicated their professional lives to advancing learning. The results reported in *Visible Learning* make it clear that when students know how to learn, they are able to become their own teachers. Termed a *visible learner* these students “exhibit the self-regulatory attributes that seem most desirable for learners (self-monitoring, self-evaluation, self-assessment, self-teaching)” (Hattie, 2009, p. 22). Do you know a visible learner when you see one?

Characteristics of Visible Learners

Visible learners

- Can be their own teacher
- Can articulate what they are learning and why
- Can talk about how they are learning—the strategies they are using to learn
- Can articulate their next learning steps

- Can use self-regulation strategies
- Seek, are resilient, and aspire to challenge
- Can set mastery goals
- See errors as opportunities and are comfortable saying that they don't know and/or need help
- Positively supports peers' learning
- Know what to do when they don't know what to do
- Actively seek feedback
- Have metacognitive skills and can talk about these skills

We see the attributes of visible learners as critical for school success and consistent with our focus on assessment-capable visible learners. In other words, ensuring that students become assessment capable is one of the implementation routes for the *Visible Learning* work. A significant aspect of the *Visible Learning* initiative has been to change the narrative from a focus on teaching to a focus on learning. Of course, teachers use strategies to ensure that students learn, but we believe that too much of the conversation is focused on what the teachers are doing rather than on the learning of the students. Instead, teaching must always be considered in terms of its impact on student learning. If a student is not progressing, educators need to know why, and what it means. In a *Visible Learning* classroom, teachers see student learning as feedback about their teaching. How could we ever expect students to set goals, develop the wisdom to use strategies to help themselves, seek feedback, and understand their next steps, if we fail to do so ourselves? Our mantra is that teachers should never hold an instructional strategy in higher esteem than their students' learning. And what we mean by that is that our collective efforts should be aimed at students' learning, which allows them to make changes in real time to ensure that this happens. Of course, this begs the question, what is *Visible Learning* and what evidence do we have that this is the right focus for schools, teachers, and students?



QUESTIONS
FOR
REFLECTION

As you review the list of characteristics of visible learners, think about your current or past students. Can you identify any visible learners?

What Is Visible Learning?

In reality, *Visible Learning* describes a constellation of efforts. It is a research database, a school improvement initiative, as well as a call to action to focus on what works best to impact learning. The *Visible Learning* database is comprised of over 1400 meta-analyses, with over 70,000 studies and 300 million students. That is big data when it comes to education. In fact, some have said that it is the largest educational research database amassed to date. To make sense of so much data, John focused his work on meta-analyses.

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A meta-analysis is a statistical tool for combining findings from different studies with the goal of identifying patterns that can inform practice. In other words, they are studies of studies. The tool that is used to aggregate the information is an effect size. An effect size is the magnitude, or size, of a given effect. To draw an imperfect but functional comparison, consider what you know about how earthquakes are measured. They are reported on an order of magnitude, called a Richter scale. Some earthquakes are imperceptible except through specialized measurement tools. Other earthquakes have a minimal “shake” that results in small, momentary impact, but with no lasting effects. A few number register high on the Richter scale and have a definitive impact on the area. Effect size information, like the Richter scale, helps us understand the impact of an educational influence in more measurable terms.

For example, imagine a study that demonstrated statistically significant findings ($p < 0.01$ for example) for having students stand while learning math. People might buy stock in “standing tables” and a new teaching fad would be born. But then suppose, upon deeper reading, you learned that the standing students had a 0.02 month gain over the control group, an effect size pretty close to zero. You realize that the sample size was so large that the results were statistically significant, even if the size of the learning gain is not very meaningful. Would you still buy standing desks and demand that students stand while learning math? Probably not (and we made this example up, anyway).

Understanding the effect size lets us know how powerful a given influence is in changing achievement—in other words, the impact for the effort. Some things are hard to implement and have very little impact. Other things are easy to implement and still have limited impact. We search for things that have a greater impact, some of which will be harder to implement and some of which will be easier to put into play. When you're deciding what to implement to positively impact students' learning, wouldn't you like to know what the effect size is going forward? Then you can decide if it's worth the effort. John was able to

demonstrate that influences, strategies, actions, and so on with an effect size greater than 0.40 allow students to learn at an appropriate rate, meaning at least a year of growth for a year in school. (We need to be careful, however, as this .40 is an average across students from ages 4 to 20, across subjects, across countries.) While it provides an overall average, often specific conditions can be more critical—such as whether you are measuring a narrow construct (like vocabulary words known) compared to a wider construct, such as creative thinking). Before this level was established, teachers and researchers did not have a way to determine an acceptable threshold and thus weak practices, often supported with studies that were statistically significant, continued.

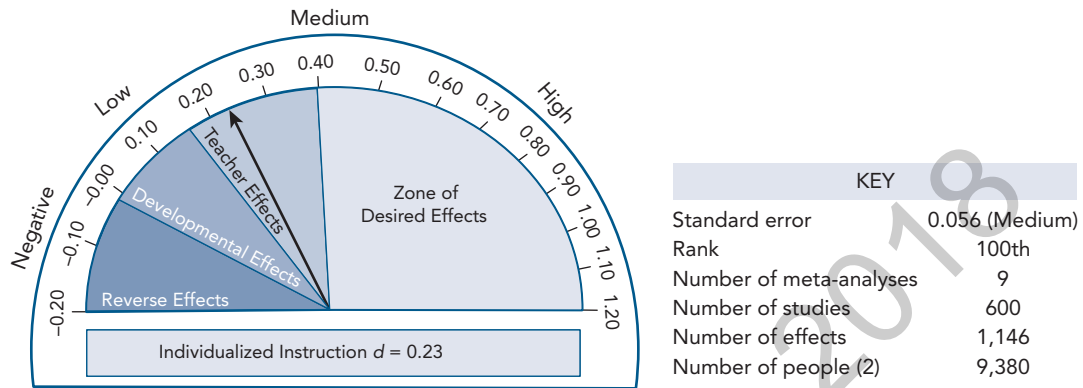
Let's take two real examples. First, let's consider individualized instruction. There have been many efforts to provide individualized learning opportunities for students. To help people understand effect sizes, John created a barometer so that information could be presented visually. The barometer for individualized learning can be found in Figure Intro.1. As you can see, the effect size is 0.23, well below the zone of desired effects of 0.40. This is based on 9 meta-analyses with 600 studies. There is some surface logic to individualized instruction, but it seems that effective teachers are able to engage larger groups of students in meaningful learning. Moreover, on many occasions students learn from other students and such interaction, as we will see, can be powerful. Great teachers know the similarities among their students and then allow for their differences.



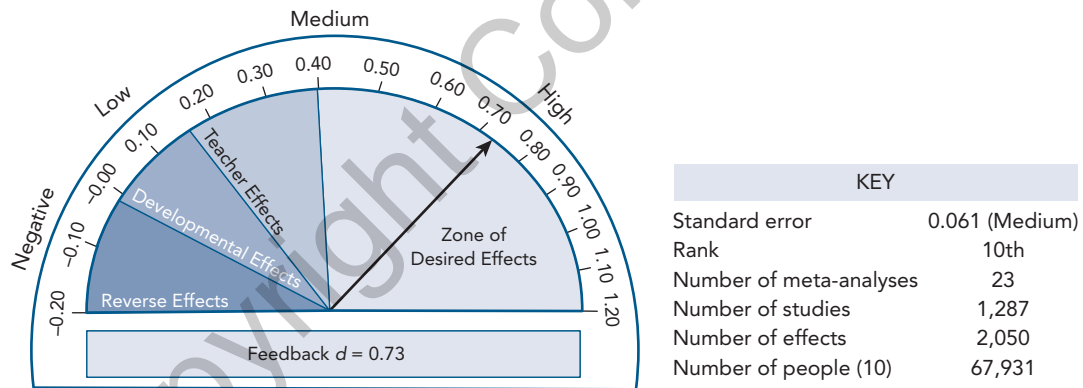
QUESTIONS
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How would you explain effect size as it relates to student learning?

Second, let's consider feedback. Effective feedback is timely, specific, and includes actions that students can take to further their learning. As can be seen in the barometer in Figure Intro.2, the effect size of feedback is 0.73, well above the threshold of 0.40. This is based on 23 meta-analyses with 1,287 studies. It seems reasonable, then, to focus on the quality of feedback over individualized instruction for students. It needs to be noted that the effect of feedback is relatively high but we also point out that the effects of feedback can be remarkably variable; and this variability needs to be understood (see Clarke & Hattie, forthcoming).

Figure Intro.1 Effect Size of Individualized Instruction

Source: Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge.

Figure Intro.2 Effect Size of Feedback

Source: Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge.

And that's the power of the *Visible Learning* database in creating school change. When a school focuses on what works best, more students learn more. Having said that, the database is huge and can be overwhelming. The second generation of *Visible Learning* work has centered on taking specific influences and translating them into classroom practice. For example, Donohoo (2017) focused her efforts on collective teacher efficacy, a powerful influence on student learning. We have previously focused on the use of Visible Learning in literacy (Fisher, Frey, & Hattie, 2016), mathematics (Hattie, Fisher, Frey, Gojak, Moore, & Mellman,

2017), and science (Almarode, Fisher, Frey, & Hattie, 2018). This current work attempts to focus on increasing students' responsibility for their own learning as yet another way to marshal the Visible Learning knowledge base and make it come alive in the classroom.

Conclusion

We have a goal for schools and that is to make learning visible to every student. That's a tall order. It requires that teachers focus more on learning and less on teaching. Yes, we all use a range of instructional approaches, but is instruction resulting in learning? That means we have to know the impact we have on learning; we measure it and monitor it.

In order to make learning visible, we must create assessment-capable learners. Too many students are adult-dependent learners. Others are compliant learners. Neither will serve our society well. What we need are learners who understand their current performance, recognize the gap between their current performance and the expected performance, and select strategies to close that gap. When schools are filled with students who have those characteristics, learning becomes not only visible, but also palpable.